OPERATION MANUAL

No: HU-28

HAINAN AIRLINES HOLDING CO. LTD.

DANGEROUS GOODS TRANSPORTATION MANUAL

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ISSUED BY:

APPROVED BY:

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0 General Introduction

0.1 Statement of the President

As the president of the company, I hereby solemnly declare that the "Dangerous Goods Transportation Manual" is the main basis for the company to carry out the transportation of dangerous goods, which stipulates the policies, standards and procedures for the company's dangerous goods transportation.

The Manual of the Transport of Dangerous Goods is based on the latest effective Regulations on the Administration of Dangerous Goods Transport by Civil Aviation, the Civil Aviation Law of China, the Safety Production Law of the People's Republic of China, and the Chinese People

The Anti-Terrorism Law of the People's Republic, the Regulations on the Safety Administration of Hazardous Chemicals, Annex 18 of the International Civil Aviation Convention and other laws and administrative regulations, and the Technical Rules for the Safe Transport of Dangerous Goods by Aviation by the International Civil Aviation Organization have been compiled in combination with the actual situation of the company.

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The formulation of this manual provides a basis for standardizing the operation procedures of the company's transportation of dangerous goods, and ensures that the company's scientific, standardized and safe transportation of dangerous goods. The relevant personnel involved in the transportation of dangerous goods shall strictly abide by it and correctly implement the provisions of this manual. If there is any conflict with the rules of the Bureau during the implementation of the manual, the contents of the rules shall prevail.

"Safety first, quality service, reputation first" is the purpose of the company's safety and service. Here, I to the reputation of the operator solemnly declare: the company will strictly abide by the bureau approved the dangerous

goods air transport permit, pay attention to social benefits and environmental protection, strictly implement the provisions of the transport of dangerous goods manual, further strengthen the company related personnel business training, improve the service level of business personnel, improve the company quality management system, constantly improve the level of company flight safety.

At the same time, we will sincerely accept the supervision and inspection given by the competent government departments and all sectors of society.

president of company:

On July 1,2024

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0.3 Manual description

0.3.1 Preparation purpose

In order to strengthen the management of dangerous goods transport to better implement the regulations of dangerous goods issued by the Civil Aviation of China (2024) and issued by the association, for the company in commercial air transport carrying substances and goods with dangerous regulations and operating procedures. The Manual provides personnel with relevant information to enable them to perform their duties related to dangerous goods air transport, while offering actionable guidelines to follow during emergencies involving dangerous goods. This ensures that air transport of dangerous goods is conducted under fully secured conditions, achieving legal compliance, procedural adherence, and documented traceability in operational activities, thereby ultimately ensuring the company's operations remain continuous, safe, and efficient.

0.3.2 basis of compilation

This manual is prepared and modified in accordance with the Regulations on the Transport of Dangerous Goods by Civil Aviation (No.4 of 2024 of the Ministry of Transport), the International Civil Aviation Transport Organization (ICAO) (the "Technical Rules") and the International Air Transport Association (IATA) and other applicable regulations, policies and orders related to the State and Civil Aviation Administration of China.

0.3.3 scope of application

0.3.3.1 This manual is the basis of policies, standards and main management procedures for the flight and ground operation management and the legal, safe and effective performance of their duties, but in IATA, the Dangerous Goods Civil Aviation Transport (2024) of the civil aviation regulations supplemented or proposed higher standards, according to the latest applicable requirements;

0.3.3.2 This manual is applicable to all personnel of the Company involved in

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dangerous goods transportation as carriers, shipper and ground service agents and to external service providers who provide products and services to the Company.

0.3.4 Manual effective

This manual takes effect from the date of approval to the date of the new manual.

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0.4 Manual management

0.4.1 Manual development, review, and approval

0.4.1.1 Approval Process

1) This manual is developed by the Operational Certification Center of the Operations Standards Department, implemented after approval by the Company President and filing with the aviation authority.

2) The company shall file its *Dangerous Goods Transport Manual* with the CAAC Central-South Regional Administration prior to completing operational certification. Any manual updates shall be promptly refiled.

3) The Company President is the designated issuer and approver of this manual.

(1) Non-collaborative approval workflow:
Manual Manager → Manager of Operational Certification Center → Department General Manager → VP Operations → Company President.

(2) Collaborative approval workflow:
Obtain consent from all involved department heads and supervising executives (peer-level approvers sign concurrently), followed by final approval by the Company President.
Content requiring authority approval shall be submitted by the Operational Certification Center and implemented upon approval.

0.4.1.2 Expedited Approval

The following revisions follow the streamlined workflow: Operational Certification Center → Quality Management Center → Operations Standards Department:

1) Non-substantive edits (e.g., typographical errors, punctuation, pagination)

2) Linguistic corrections (without altering original intent)

3) Revisions to Chapter 0 of this manual

4) Revisions to appendices

0.4.1.3 Before submitting this manual for approval, countersign the comments with the units involved by mail, and list the countersigned chapters and main (revised) contents.

0.4.1.4 Approval requests must include:

1) Revised manual (PDF version)

2) Revision log and change summary

3) Other necessary attachments

0.4.1.5 Approval Request Content.Requests shall specify:

1) Background/reason for revision

2) Key changes and modified sections

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3) Additional notes for manual holders

0.4.2 Release of the Manual

0.4.2.1 If approved, the manual shall be converted into the PDF document format by the Operation Approval Center of the Operation Standards Department and released on the new operation network.

0.4.2.2 In principle, the company will no longer print paper manuals, and all units and individuals will use the ground through the company's Intranet. All agents shall issue the electronic manual by email.

0.4.2.3 After receiving the issued manual, the agent shall timely reply the scanned copy or picture of the receipt of "Manual Release" by email, confirm that the manual has been received, and configure the manual to the relevant places of goods collection and transportation and operation in the reservoir area for easy inspection.

0.4.2.4 In order to ensure the safety of the manual, or if the manual is lost or cannot be checked due to other objective reasons, the manual user shall back up the electronic manual to ensure that the manual can be accessed at any time.

0.4.2.5 This manual is a controlled document with a red seal with the words "controlled document" on the cover of the manual.

0.4.2.6 The manual distribution list is detailed in Section 0 of this manual 7.

0.4.3 Revision of the Manual

0.4.3.1 The type of modification

Manual revisions are categorized into periodic revisions and interim revisions. Periodic revisions are implemented annually at the beginning of the year based on DGR updates and the manual's regular review.

0.4.3.2 Implementation of modification

1) The Operation Approval Center of the Operation Standards Department is responsible for the specific modification of the manual.

2) Around November each year, the Operational Certification Center shall:
Place orders for the subsequent year's Dangerous Goods Regulations (DGR) through IATA;
Upon receipt of the latest DGR edition, update the manual according to DGR amendments;
Organize training sessions to communicate revisions to relevant personnel after manual filing.

3) When the national or bureau regulations, regulations and standards concerning the transportation of goods change, or there are new provisions, the manual shall be revised and supplemented in time.Reference sources for aviation

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dangerous goods laws, regulations, and normative documents: Section 0.3.1 of the *Dangerous Goods Training Program*.

4) When the transportation policy, policy and management organization of the company for dangerous goods are adjusted, the manual shall be modified in time.

5) When modifying the content of the manual, add a vertical solid line to the left side of the change content to indicate the change part of the content. The change logo line and blue font will be removed at the next revision of the page.

6) Each revision of this manual shall be written, and the revision instructions shall include the reason for the modification and the main content and the page number involved, and each revision instructions shall be kept in order prior to the "Revision Record". The insert date / insert person column is filled in by the unit holding the paper manual. The insert date / original revision date of the Internet access manual is the release date, and the revision instructions for each revision shall be kept in the manual.

7) Each revision should coordinate the table of contents and the valid page list, and modify the revision date and revision times of the footer of the modified page.

0.4.3.3 The review and approval process for manual revisions follows the same procedures as Section 0.4.1.

0.4.3.4 Manual training

The revision and version change of this manual shall be notified by email. After the approval of the official document, the training scope shall be determined and organized according to the applicable units of the modified content, including:

1) The operation examination and approval center shall organize the business backbone representatives of all relevant units to conduct training within 5 working days.

2) Complete the external agency training within 1 month.

3) No training may be conducted as follows:

(1) Business notices and regulations that have been implemented;

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(2) Adjustment of individual words or sentences (not involving the modification of the original meaning);

(3) Revision of Chapter 0 of this manual.

(4) The training content may not be evaluated by the manual management unit.

4) The forms of manual training include, but are not limited to:

(1) Company Internal unit manual training form:

A The company's training platform push (such as the training platform, etc.);

B Email push (confirmation receipt);

C On-site training (on-site check-in or online check-in is required);

D Other forms (specify and provide equivalent records).

(2) The training mode of the external agent manual may be organized by the agency itself.

5) The training record (paper or electronic version) shall be kept for 1 year, and the training records include but not limited to:

(1) Training record ledger of the company's training platform (keep screenshots);

(2) Email push record or screenshots (including feedback receipt record or screenshots of learning completion);

(3) On-site training paper records or paper record screenshots, or online sign-in records;

(4) Other forms (specify and provide equivalent records).

6) The training of this manual shall be carried out according to the situation, and the training organization unit shall set up the assessment topics to carry out the assessment according to the actual needs.

0.4.3.5 Manual supervision and review

In order to ensure the effectiveness of the company's standard system manual and realize the self-improvement of the manual management system, the

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operation Examination Center organizes the supervision and review of the manual, and reviews the integrity, consistency and effectiveness of the manual once a year. Monitoring elements include but are not limited to the following:

Manual monitoring and review elements	The elements of the description	Supervision and evaluation of projects
Conformance monitoring and review	To ensure that the description of the same project is consistent, not contradictory and conflicting.	The actual inspection list shall prevail
Manual management and supervision and review	In order to determine the management and control of the manual, the management responsibility comply with the requirements of manual management in the Comprehensive System Management Manual	The actual inspection list shall prevail
Manual revision and supervisory review	The regulations, procedures and plans issued by the bureau and the company were incorporated into the corresponding manual in time, and the information source information was evaluated, revised and submitted for approval in time.	The actual inspection list shall prevail
The manual performs a supervisory review	Supervise the implementation of the manual to test the consistency and effectiveness of the implementation of management requirements and business standards with the standards	The actual inspection list shall prevail

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At the same time, it is carried out through IOSA internal audit, legal self-inspection, daily supervision of all ground support units, business standard verification (looking back), supplier quality audit and other special quality supervision and other ways

As an important supplement to the supervision and review work of this manual.

0.4.3.6 Change change and maintenance of manual

1) The operation approval Center is responsible for replacing the revised content and revised instructions on the company's office platform. And according to the number of paper manual already issued to change the page, sent to the relevant departments or personnel.

2) When the online manual is uploaded and updated, the manual revision notice

shall be issued simultaneously to inform the manual user of the effective date of the revised content and revised content.

3) Upon receipt of the revised page, the manual holder shall report to the operation approval center within 5 working days after receipt, by email or other written form from the manual holder within 7 days after the issuance of the manual or manual revision page, and shall contact the manual holder to confirm whether the manual or manual revision page is received.

0.4.3.7 Change of manual

1) This manual should be changed when the following conditions occur.

(1) The company's management organization and functions have changed greatly.

(2) The revision range of this manual (multiple revisions on the same page) exceeds 50%.

(3) Other circumstances, as required by the company.

2) During the version change, the revision record, the list of the valid pages and the revision status of each page are restored to the initial state.

3) Table 4-6 "Manual Revision Description Form" for manual revision

Table 4-6 Manual revision revision

Revision times	Change the reason	Revision instructions	Revision date	The revision of the people
The X version				

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0.4.4 Management responsibility unit and responsibilities of the Manual (CCAR-121FS.135(b))

0.4.4.1 Manual management responsibility unit responsibilities

1) Keep the contents of the manual always conforming to or higher than the applicable national laws, regulations, civil aviation regulations, operation certificates and operation specifications.

2) Keep the contents of the manual and always apply to the current operating condition of the company, analyze the problems existing in the implementation of the research manual, and correct them according to the regulations.

0.4.4.2 The management responsibility unit of this manual is the Operation Approval Center of the Operation Standards Department. Specific management

positions for the standard specialist.

0.4.4.3 The operation approval center is responsible for the maintenance, update of this manual and other daily management of online manual uploading.

0.4.4.4 Manual preservation: keep the electronic version and paper version of this manual, and timely maintain and keep until invalid according to the revision / change: the electronic version and paper version of the manual should be kept for at least 5 years, after 5 years.

0.4.5 Responsibilities of the manual holders

0.4.5.1 Each manual holder is responsible to be familiar with the relevant responsibilities, procedures and regulations in the manual and to strictly comply with them.

0.4.5.2 Keep the manual intact intact.

0.4.5.3 The document management personnel of each unit is responsible for supervising the use and storage of the manual.

0.4.5.4 Upon receiving the modified or supplementary pages, the manual holder is responsible to complete the following work as required:

1) Read the Revision Instructions carefully, remove the invalid page from the manual and insert the new page.

2) Record the number of revisions, the date of revision, and the insert date in the Revision Record table, and sign the name in the insert column.

3) Timely and carefully read the revision lines marked on the left side of the revision page, understand the key points of the changes, and ensure that the latest revision is followed.

4) It is the responsibility of the department head to ensure that everyone in their department is aware of the latest revision of the manual.

5) When the manual holder is transferred to other departments of the Company, he shall hand over the manual to the replacement personnel and notify the Operation Approval Center of the Operation Standards Department in time. The new manual holder should re for again. When the department cancels, the manual shall be returned to the Operation Approval Center of the Operation Standards Department.

6) The copyright of this manual belongs to the Company, and the manual holder has the responsibility to keep confidential and protect the contents of the

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manual. Without the consent of the leaders of the company, any department or individual shall not provide it to any unit or individual outside the company, and those who violate the law will be investigated for legal responsibility.

0.4.6 Recycling of manual

0.4.6.1 When the manual is modified, invalid or changed, a new manual shall be issued to recycle the old manual;

0.4.6.2 The operation review center is responsible for the recovery of the old manual. The old version of the manual shall be destroyed after the approval of the operation review center, and the recycling list record shall be retained. For the invalid manual to be retained, the operation approval center shall stamp the red seal of "invalid retained" on each page of the manual.

0.4.7 Manual translation

The manual shall be translated by the operation approval Center, and shall ensure the consistency and equal validity of the contents of the translated manual and the Chinese version. In case of any inconsistency between the Chinese and English manuals, the Chinese manual shall prevail.

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0.5 Revision instructions and records

0.5.1 revision note

revise number of times	revision note	Involves the page code
R1	1. According to the manual 0.1,0.3.1,0.3.1,0.3.2,0.3.3.1,1.2,1.2.1,1.5.2.1,1.5.2.2,1.5.2.7,1.5,1 to the Regulations newly issued by the Bureau (No.4,1.5.2.8,1.5.3,1.6.1.5.1,1.5,1.9,1.7.7,1.7,1.13.1,1.9.1.15.3.7,3.9.5.1,3.9.5.2,9.1.2.2,10.4.1,10.4.2.1,10.4.2.5,10.4.3.6,14.2.1.1,14.2.3.1,14.2.3.2,15.1.1.3 and 15.8 in Article 14 and the Appendix H. 2. According to Article 6 and Article 7 of the Administrative Regulations on the Transport of Dangerous Goods by Civil Aviation newly issued (Order of the Ministry of Transport No.4,2024) issued by the Bureau, the types 2.1.3 and 2.1.4 are added. 3. According to Article 9 of the Administrative Regulations on the Transportation of Dangerous Goods by Civil Aviation newly issued (Order of the Ministry of Transport No.4,2024) issued by the Bureau, 1.2.11 is added. 4. According to Article 18 of the Administrative Regulations on the Transport of Dangerous Goods by Civil Aviation newly issued by the Bureau (Order of the Ministry of Transport No.4,2024), the invalid content of the transport license in 1.8.1.2 is revised. 5, according to the bureau issued the new regulations on the administration of civil aviation transport of dangerous goods (Ministry of Transport to 2024) no. 24 of article 22, the revision of the shipper and its agent content, adjust 2.10 for	0.1, 0.3-1, 1.2-1, 1.5-1 To 1.5.1-2, 1.6-1 to 1.6-4, 1.7-2, 1.12-1, 1.13-1, 1.14-1, 1.15-6, 3.9-4, 3.9-5, 9.1-2, 10.4-1, 14.2-1, 14.2-2 to 14.2-5, 15.1-1, 15.8-1, Appendix B-1, B-2, D-5, H-7, 2.1-1, 2.10-1 to 2.10-4, 9.1-12,7.5-10,7. 6-2, 13.6-1, 11.3-2

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R1	major, emergency or other special dangerous goods air transport plan for the transport of dangerous goods. 6, according to the new according to the bureau issued the civil aviation transportation administration of dangerous goods (Ministry of Transport to 20244) in article 23, adjust 2.5.1.6 increase the differentiation when told the ground service agent, and increase the company as the ground service agent shall take measures to ensure that the relevant operation meet the requirements of the differentiation of the carrier, chapter 2 increase the company of dangerous goods transportation difference. 7. According to Article 29 of the Regulations on the Administration of Dangerous Goods Transport by Civil Aviation newly issued (Order No.4 of the Ministry of Transport, 2024) issued by the Bureau, the list of 1.15.8 firm institutions recognized by the company shall be added, and the Administrative Measures for Identification Agenciess and the filing requirements of Identification Agenciess shall be deleted in accordance with the regulations. 8. According to Article 30 of the Administrative Regulations on the Transport of Dangerous Goods in Civil Aviation (Ministry of Transport No.4,2024) issued by the Bureau, 1.5.2.10 is added, and the shipper shall provide emergency disposal measures for the dangerous goods consigned. 9. According to Article 31 of the Regulations on the Administration of Dangerous Goods Transportation of Civil Aviation newly issued (Order of the Ministry of Transport No.4,2024) issued by the Bureau, 1.5.2.11 is added, and the declaration content of the document is consistent with the actual checked goods.	

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R1	10. According to Article 33 of the Regulations on the Administration of Dangerous Goods Transportation of Civil Aviation newly issued (Order of the Ministry of Transport No.4,2024) issued by the Bureau, add 1.5.2.12 and the letter of power of attorney of the shipper agent. 11. According to Article 36 of the Regulations on the Administration of Dangerous Goods Transportation by Civil Aviation newly issued by the Bureau (Order of the Ministry of Transport, No.4,2024) newly issued by the Bureau, 1.6.1.21 Responsibilities of the integrity evaluation mechanism of the shipper and the shipper agent are added. 12. In accordance with Article 38 of the Regulations on the Administration of Dangerous Goods Transport by Civil Air (Order No.4,2024) newly issued by the Bureau, 9.1.1.1 is amended to supplement the inspection of dangerous goods and mail in accordance with the requirements of the Technical Rules. 13. Rewrite the contents in Appendix B according to the actual situation and the Regulations on the Administration of The Transport of Dangerous Goods by Civil Aviation newly issued by the Bureau (Order No.4,2024 of the Ministry of Transport) 14. According to the actual work needs of the purchasing Department, add 1.6.1.19 and 1.6.2.2 Requirements that the AVIC Material sales agent can be used as the shipper. 15. In accordance with Article 51 and Article 51 of the Regulations on the Administration of Dangerous Goods by Civil Aviation newly issued (Order No.4 of the Ministry of Transport 2024) issued by the Bureau, the contents of 13.4.1.2 and 1.10.3 are amended to complete the ticket	

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R1	purchase procedures only after passengers have known the restrictions on dangerous goods in their luggage. 16. According to Article 52 of the Regulations on the Administration of Transportation of Dangerous Goods by Civil Aviation (Order No.4,2024) newly issued by the Bureau, 1.10.3 is amended to supplement the requirements for Posting notices at the security inspection office. 17. According to article 30 of the Administrative Regulations on the Transportation of Dangerous Goods by Civil Aviation (Order of the Ministry of Transport, No.4,2024) newly issued by the Bureau, 1.5.2.10 is added, and the shipper shall provide emergency disposal measures for the dangerous goods consigned. 18. In accordance with Article 31 of the Regulations on the Administration of Dangerous Goods Transport by Civil Aviation (Order No.4,2024) newly issued by the Bureau, 1.5.2.11 is added, and the content of the document declaration is consistent with the actual checked goods. 19. According to the actual requirements of dangerous goods business, revise and improve 11.3.4, the Notice of Special Goods (Dangerous Goods) and supplement 7.5.2.17, and the requirements for the use of agency documents. 20. According to the content of the regulations and the opinions of the Bureau, delete the requirements of uploading the special baggage notice by the unit, and revise 7.6.3,7.6.4 and 13.6.3. 21. According to the company's A320 aircraft introduction plan and referring to the operation experience of other companies, add 11.2.6.4, dry ice loading limit. 22. Revise 1.3.3 and include the stops in the airport list according to the actual transportation situation of the company.	

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R1	23. Conduct the contents in Manual 1.7 according to the CBTA training requirements of Civil Aviation Administration. 24. In accordance with Article 43 of the Regulations on the Administration of Dangerous Goods Transport by Civil Aviation newly issued by the Bureau (Order No.4,2024) newly issued by the Bureau, the filing requirements of the ground service agency agreement in 1.6.1.18 shall be deleted. 25. Delete the label administrator in 1.9.2.1,1.9.2.2 and 1.9.2.4 according to the actual situation	
R2	1.In accordance with the 66th edition of the Dangerous Goods Regulations (DGR), revise all instances of "Lithium Battery Mark" to "Battery Mark" and "Lithium Battery Label" to "Lithium Battery or Sodium Ion Battery Label." 2.In accordance with the 66th edition of the DGR, add relevant content on sodium ion batteries in Section 3.12. 3.In accordance with the 66th edition of the DGR, for lithium battery packages that do not require UN specification packaging, add the requirement to pass the 3M Stacking Test (Appendix G). 4.In accordance with the 66th edition of the DGR, add requirements for the state of charge of lithium-ion battery cells and batteries in Appendix G. 5.In accordance with the 66th edition of the DGR, add a note in Section 13.2.2.4 clarifying that there is no watt-hour limit if lithium-ion batteries remain installed in mobility aids. 6.In accordance with the 66th edition of the DGR, revise the 2025 Acceptance Checklist and the Special Provisions in the Approval Column of the Shipper's Declaration for Dangerous Goods (adding A334). 7.In accordance with the 66th edition of the DGR, revise the exception provisions for Genetically Modified Microorganisms (GMMOs) and Genetically Modified Organisms (GMOs) in Section 3.12.2.5.	1.3-1 to 1.3-10、1.4-2 to1.4-7、1.5-1 to1.5-3、1.6-2 to 1.6-5、1.8-1、1.12-1 to 1.12-4、1.13-1 to 1.13-3、1.14-1 to 1.14-2、1.15-1 to 1.15-6、2.2-1、2.10-3、3.12-1 to 3.12-7、6.1-1、6.3-1 to 6.3-6、6.4-6 to 6.4-7、6.5-1 to 6.5-4、7.2-5、7.4-2 to 7.4-9、7.5-1 to 7.5-3、

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R2	8.In accordance with the 66th edition of the DGR, adjust the description of "alcohol or alcohol solutions" in Section 13.2.2.7 to "alcohols, alcohol solutions, or formaldehyde solutions." 9.In accordance with DGR 7.3.16.4, revise the "Fissile Material" label in Section 6.4.19 to "Critical Safety Index Label," and update the content related to radioactive materials in Sections 8.2, 8.3.6, 8.41, and 8.6.1.3 based on Chapter 10 of the DGR. 10.In accordance with the Regulations on the Transport of Dangerous Goods by Civil Aviation (Order No. 4 of 2024 by the Ministry of Transport), delete the filing requirements for identification agencies in Section 1.15. Adjust the scope of application and management responsibilities of identification agencies based on company business needs, add validity management for identification agencies, and specify inspection frequencies. 11.In accordance with the Regulations on the Transport of Dangerous Goods by Civil Aviation (Order No. 4 of 2024 by the Ministry of Transport), standardize "operator" and "ground handling agent" as "carrier" and "ground service agent," respectively. Additionally, unify the version numbers of referenced documents in the compilation basis list in Appendix B based on business management needs. 12.In accordance with the Regulations on the Transport of Dangerous Goods by Civil Aviation (Order No. 4 of 2024 by the Ministry of Transport), add content on the integrity evaluation mechanism for shippers and shipper agents in Section 14.2.3. 13.In accordance with the Administrative Measures for Reporting Data on the Transport of Dangerous Goods by Public Air Transport (AC-276R2-TR-2024-02), revise the data reporting requirements in Section 1.12 and update the relevant reporting templates. 14.In accordance with the Administrative Measures for the Filing of Ground Service Agents for the Transport of Dangerous Goods by Public Air Transport (AP-276R2-TR-2024-02), revise Section 1.14 to add requirements for initial filing and changes to filings.	7.6-1 to 7.6-2、8.2-1、8.3-1 to 8.3-5、8.4-1 to 8.4-3、8.6-4 to 8.6-5、13.2-4 to13.2-12、13.2-4 to 13.2-12、14.2-1 to 14.2-2、14.3-1 to 14.3-6、15.3-1 to 15.3-4、15.3-1 to 15.3-4、15.5-4 to 15.5-9、15.8-1、B1-B13、E1-E12、G5-G25

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R2	15.In accordance with the Administrative Procedures for the Licensing of Dangerous Goods Transport by Public Air Transport Carriers (AP-276R2-TR-2024-01), revise Section 1.8.1 regarding the validity of licenses (including validity periods and conditions for invalidation). 16.In accordance with the Administrative Procedures for the Approval and Exemption of Dangerous Goods Transport by Public Air Transport (AP-276R2-TR-2024-03), revise the conditions and prerequisites under which the Civil Aviation Administration of China (CAAC) may grant approvals or exemptions. 17.In accordance with the Administrative Measures for the Identification and Reporting of Incidents Involving Dangerous Goods Transport by Public Air Transport (AC-276R2-TR-2024-01), replace "incident precursors" with "incidents," revise Section 15.3 to clarify the criteria for identifying serious incidents, general incidents, and dangerous goods emergencies, and further specify the entities responsible for reporting such events. 18.In accordance with the Administrative Measures for the Identification and Reporting of Incidents Involving Dangerous Goods Transport by Public Air Transport (AC-276R2-TR-2024-01), supplement Section 15.3 with reporting requirements for domestic dangerous goods air transport incidents, add Section 15.4 for reporting requirements for international dangerous goods air transport incidents, and revise the information reporting template in Section 15.9 and the reporting requirements for irregular lithium battery transport in Appendix G. 19.As the Administrative Measures for Reporting Violations in Dangerous Goods Air Transport (AP-276-TR-2016-02) has been repealed, delete Section 15.8.1 regarding the reporting channels to the China Civil Aviation Dangerous Goods Transport Management Center. 20.In accordance with the Specifications for Air Cargo Handling Operations Section 11.3, adjust the retention period for air waybills and special cargo notifications to the captain to no less than 36 months.	

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R2	21.In accordance with the Administrative Procedures for the Transport of Radioactive Materials by Air, add Section 1.5.2 on the responsibilities of shippers for radioactive materials transport and Section 1.6.1 on the responsibilities of carriers for radioactive materials transport. Additionally, add Appendix E with contact information for emergency response agencies at Beijing Capital International Airport and Lanzhou Zhongchuan International Airport. 22.Revise Section 1.3.3 and related content on the list of airports engaged in dangerous goods transport based on the company's actual operations. 23.Based on the company's division of responsibilities, add the responsibility of the Operations Control Department to regularly organize and conduct emergency drills. 24. Revise Section 7.6.3 on the retention process for special baggage notifications based on the requirements of the Ground Service Department. 25.In accordance with the Ground Service Department's contract management, delete the original contract content in Appendix B. Simultaneously, move the lists of manual management responsible persons and position responsible persons, compilation basis, and manual interface from Appendix H to Appendix B. 26.Due to the splitting of the *Safety Management Manual*, revise Section 1.13 regarding related work procedures and Section 15.3 regarding internal incident reporting procedures. Establish an interface list in Appendix B. 27.Based on the division of responsibilities among company departments, refine the list of position responsible persons and management responsible persons in Appendix B by chapter/section, ensuring joint responsibility for the maintenance of the manual. 28.Update the standard compilation basis list in Appendix B based on the latest referenced documents used in the manual.	

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R3	1.Revise Section 1.3.8 based on DGR Amendment 1.3.8 regarding torch references and Special Provision clauses, and Section 13.2.2 labels for battery-powered wheelchairs and mobility aids. Supplement Section 1.11.5 Special Security Requirements for Dangerous Goods and Section 6.4.23 label specifications for lithium or sodium-ion batteries. Add preconditions to exception 2.8.2.5 for battery-powered electronic devices. 2.Revise Section 13.3.3 fuel cell carry-on standards based on the DGR, Specifications for the Air Transport of Dangerous Goods Carried by Passengers and Crew, and this manual's Section 13.2.5.8. 3.Refine Appendix G (Lithium Battery Baggage Transport Summary Table) based on DGR content and instructor workshop results. 4.Supplement and revise Section 5.1.2 Specific Responsibilities, Section 5.1.3 Use of Containers or Unit Load Devices, Section 5.1.4 Overpacks, Section 6.3 Labels, and Section 11.2.3 Segregation of Incompatible Dangerous Goods related to sodium-ion batteries, based on the 66th Edition DGR Supplement. 5.Revise Section 7.5 (Special Load Notification to Captain) based on the 66th Edition DGR Supplement, DGR 9.5.1, and IOSA GRH 3.3.4. 6.Move and integrate content from Section 2.1.4 into Section 2.2.3.3 based on CCAR-276-R2 and the Safety Oversight Department's Transport Standards Special Inspection recommendations. 7.Revise Section 1.6.2.4 (Ground Handling Agent Subcontracting) based on the *Administrative Measures for the Filing of Ground Handling Agents for Public Air Transport of Dangerous Goods (AP-276R2-TR-2024-02)*. 8.Revise Appendix G regarding the hazards of lithium batteries based on the *Lithium Battery In-Flight Emergency Response Guide (MD-TR-2025-01)*. 9.Add Section 13.2.5 (Definition of PED - Portable Electronic Device) based on the CAAC *Guidelines for Assessment of Portable Electronic Device (PED) Use Onboard Aircraft (AC-121-FS-2018-129)*.	0.4-1 to 0.4-8、0.5-1 to 0.5-13、0.7-1、1.3-7 to 1.3-11、1.4-1 to 1.4-11、1.6-1 to 1.6.8、1.10-1 to 1.10-7、1.11-1 to 1.11-4、1.12-2、1.14-1 to 1.14-2、1.15-1 to 1.15-8、2.0-1 to 2.0-3、2.1-1、2.2-1 to 2.2-2、2.8-1 to 2.8-3、3.5-2、5.1-1 to 5.1-2、6.3-1 to 6.3-6、6.4-6 to 6.4-7、7.5-1 to 7.5-3、9.2-1 to 9.2-4、11.1-1 to 11.1-3、11.2-1 to 11.2-12、11.3-1 to 11.3-2、13.2-2 to 13.2-12、

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R3	10.Revise Section 15.2.1.5 (Definition and Requirements for Compartment E) based on the "Red Book" Section 1.1 (Cargo Compartment Classification). 11.Improve Section 13.2.1.10 (Carry-on Requirements for Power Banks on Domestic Flights) based on the latest official telegram from the CAAC. 12.Revise Section 1.10.3 (Provision of Information to Passengers) based on CCAR-276-R2 and IOSA GRH 3.1.1C. 13.Revise Section 1.10.5 (Provision of Information to Aircraft Operations Control Personnel) based on IOSA GRH 3.3.8 and the Ground Service Department's operational workflow assessment results. 14.Revise Section 1.10.6.3 (Dangerous Goods Information Transmission to the Load Control Department) based on DGR 9.5.1.1.3, the 66th Edition DGR Supplement, and IOSA CGO 3.2.14. 15.Revise Section 9.2.1 (Operational Requirements for Acceptance Staff) based on the new IOSA CGO 3.2.4 clause, company business assurance processes, and the Ground Service Department's assessment. 16.Improve Section 11.3 (ULD Placarding and Special Load Notification to Captain) based on IOSA CGO 3.2.5. 17.Improve Appendix F (Booking and Distribution of DGR) based on IOSA CGO 1.6.2 and the latest version of the Aviation Company Ground Business Area Control Plan regarding responsibility allocation. 18.Update the link in Section 1.12 (Dangerous Goods Air Transport Data Reporting) with the latest URL released by the authorities. 19.Add Section 1.4.2 (Equipment Management Responsibilities of Flight Operations Standards Department, Maintenance Engineering Department, Cabin Management Department, and Procurement Department) based on the meeting minutes of the company's special meeting on onboard lithium battery protection equipment.	13.2-17 to 13.2-23、13.3-6 to 13.3-11、13.6-1 to 13.6-2、14.1-1 to 14.1-2、15.2-1 to 15.2-3、15.4-2 to 15.4-20、15.5-4 to 15.5-5、15.8-1、15.9-5、E-1 to E-19、F-1 to F-2、G-15 to G-25

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R3	20.Merge duplicate content in Sections 0.4, 11.1, and 11.2 to maintain manual conciseness per Safety Oversight Department's Transport Standards Special Inspection recommendations, and revise Sections 11.1 and 11.2 based on IOSA GRH 3.4.5. 21.Add Milan Airport information to Section 1.3.3 based on actual cargo transport needs, and revise Section 11.1.1.6 regarding radioactive material transport requirements. 22.Based on the company's actual dry ice transportation practices, the A321 aircraft type is temporarily suspended from carrying dry ice. 23.Revise Sections 11.3.4.2 and 13.6.3 concerning crew change procedures for the Special Load Notification to Captain handover, based on Flight Operations and Ground Service Departments' operational assessments. 24.Integrate and update Section 15.4.3 (Departments' Response Procedures for Dangerous Goods Emergencies) based on Sections 4.6 and 4.8 of the *Emergency Response Plan Operations Manual*. 25.Improve Section 1.14 (New Filing Requirements for the Company as a Ground Handling Agent) based on statutory self-inspection clauses SID-41365V1. 26.Clarify inspection content and frequency requirements for agents in Section 14.1.2 based on Safety Oversight Department's Transport Standards Special Inspection recommendations. 27.Add Section 15.8 (Procedures for Reporting Baggage Violations) based on Safety Oversight Department's Transport Standards Special Inspection recommendations. 28.Delete original items 14, 15, and 17 from Section 2.0 as they are not differentiated content, based on company business assessment. 29.Organize relevant departments to review and update Appendix E (Professional Emergency Response Agency Contact Numbers for Company Dangerous Goods). 30.Correct Section 2.8.3.6 regarding aeronautical materials that are not dangerous goods but are often mistaken as such.	

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R3	31.Adjust cross-references in Sections 3.5.2.4 and 15.4.2.3 where inconsistencies arose due to manual (or referenced manual) structural changes. 32.Improve Section 15.5.2.5 (Emergency Response Measures for Dangerous Goods Leakage or Fire) based on the exacerbated reaction of sodium ions when exposed to water. 33.Revise the referenced document names in Appendix 15-3 of Section 15.9. 34.Provide guidance in Section 1.15.8 (Management of Valid Identifying Entities) for templates not listed in the manual, based on Safety Oversight Department's Transport Standards Special Inspection recommendations.	
R4	1.Based on an assessment of actual operational procedures by the Operations Control Department, the information for the "Special Load Notification to Captain" is now promptly available through electronic channels, eliminating the need for a hard copy. The notification form has been revised to be issued in triplicate, with the load sheet copy removed. 2.In line with the "Load and Balance Control Manual," terminology in sections 1.10.6 and 11.6.1 related to load planning has been standardized. 3.The list of accredited identification organizations and their qualifications has been updated based on the new agreement signed between the Ground Services Management Department and the identification agency. 4.Sections 7.5.1 and 7.5.2 have been revised according to the "Special Load Notification to Captain" template to ensure consistency with the surrounding content. The translated content of the notification template has also been updated. 5.General requirements for the "Special Load Notification to Captain" in section 7.5.3 have been supplemented based on DGR 9.5.1.1.6 - 9.5.1.1.11.	1.10-1 to 1.10-2、11.6-1 to 11.6-2、1.15-1 to 1.15-6、7.5-1 to 7.5-6、13.2-4 to 13.2.12、13.2-14 to 13.2-16、13.3-6 to 13.3-11、13.4-1 to 13.4-9、14.1-1 to 14.1-2、14.3-1 to 14.3-7、A-2 to A-3、B-1 to B-3

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	6.The Operations Control Department has revised the load planning workflow and document handling procedures in sections 11.3.4.4, 13.4.3, and 14.3.7 based on actual operational processes. 7.Descriptions of dangerous goods carried by passengers and crew have been standardized in accordance with DGR 2.3.2.5, 2.3.4.4, and 2.3.A. 8.The reference table for dangerous goods carried by passengers and crew has been adjusted according to the "Air Transport Specifications for Dangerous Goods Carried by Passengers and Crew," with a brief description of differences added. 9.The dangerous goods training procedures in sections 14.1.1 and 14.1.2, as well as the transport management and agent business management and supervision procedures, have been revised based on actual operational processes. 10.The storage and segregation requirements for dangerous goods in section 14.3.8.5 have been revised in accordance with DGR 10.9.2.2. 11.Transport requirements for dangerous goods between the cargo warehouse and the apron in section 14.3.9 have been supplemented based on the IOSA standard GRH 3.4.3 rectification requirements. 12.The definition of overpacks has been revised according to DGR Appendix A, and duplicate definitions have been consolidated. 13.The list of manual management responsible persons and position responsible persons in Appendix B has been revised based on the "Three Lists" management requirements and the responsibilities of each unit.	
	1.Revised Section 1.13 on Dangerous Goods Self-Inspection to align with new statutory self-inspection clause SID-41887 effective 2026 and the company's operational needs. 2.Added differentiated content regarding prevention of damage, segregation, and securing for dangerous goods transport on the apron, based on IOSA finding GRH 3.4.3 rectification requirements.	

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R5	3.Updated Section 3.9.4.9 and Appendix D concerning the competent authorities for import/export management of high-pathogenicity pathogenic microorganism strains/samples due to institutional reforms. Incorporated the Standard for the Transport of Infectious Substances (WS/T 852-2025) implemented in November 2025. 4.Added requirements for two scenarios — empty packagings and different dangerous goods packed in the same outer packaging — based on DGR 7.1.4.5 and 7.1.4.6. 5.Added instructions and requirements for the use of the 6.2.8 battery mark based on DGR (67th Edition) 7.1.5.5. Reorganized the manual structure by moving this content from Section 6.5.7 to Section 6.2.8. 6.Added Section 6.2.9 on "Other Marks Required by Regulations" based on DGR 7.1.5.6 and the company's operational needs, to assist frontline staff in identification and judgment. 7.Revised commodity standard codes for Class 9 Miscellaneous Dangerous Goods and Lithium Battery or Sodium-ion Battery labels in Sections 6.4.22 and 6.4.23, based on updates in DGR (67th Edition) 7.3.18. 8.Supplemented the completion requirements for Shipper's Declarations not required for certain dangerous goods in Section 7.3.3, based on updates in DGR (67th Edition) 8.2.3. 9.Clarified in Section 7.4.4 that minor variations and discrepancies should not constitute grounds for refusal of transport, based on updates in DGR (67th Edition) 9.1.3.1. 10.Further clarified that spare batteries include power banks in relevant sections, and updated usage and charging control requirements for spare batteries in the passenger cabin in Section 13.2.3.2, based on updates in DGR (67th Edition) 2.3.3.2.	1.3-1 to 1.3-11, 1.4-1 to 1.4-11, 1.6-1 to 1.6-8, 1.11-1 to 1.11-4, 1.13-1 to 1.13-4 3.9-11 to 3.9-12,3.12-1 to 3.12-9,6.2-1 to 6.2-10,6.4-7,7.3-3,7.4-1 to 7.4-2,11.2-9 13.2-1 to 13.2-26,13.3-1 to 13.3-10,14.3-1 to 14.3-8,15.2-4, B-1 to B-4,G-14 to G-15

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R5	11.Revised carry-on requirements for Portable Electronic Devices (PEDs) in Section 13.2.5.7, incorporating CAAC and company regulations based on DGR (67th Edition) 2.3.5.8. Further clarified that spare batteries include power banks, along with their control requirements and stowage recommendations in the cabin. 12.Revised carry-on requirements for lithium battery-powered Portable Electronic Devices in Section 13.3.3, based on updates in DGR (67th Edition) Table 2.3.A. 13.Revised Section 15.2.3 regarding Onboard Oxygen Equipment based on the Emergency Response Guide for Aircraft Incidents/Accidents Involving Dangerous Goods, Section 1.4. 14.Revised Appendix B, the List of Manual Management Responsible Persons and Position Responsible Persons, based on the "Three Lists" management requirements and updated departmental responsibilities. Updated the list of reference documents. 15.Deleted State of Charge (SOC) requirements valid until 2026 from Appendix G, based on the deletion in DGR (67th Edition) Packing Instruction 966. 16.Updated the High-Risk Dangerous Goods List in Section 1.11.5 based on DGR 1.7.3 and Special Provision A226. 17.Updated the manual interface for the handling procedure concerning return of abnormal cargo during flight irregularities in Section 14.3.6.4. 18.The Ground Service Department shall revise the dangerous goods transport qualification information for domestic and international airports in section 1.3.3 based on the company's actual operational conditions. 19.In accordance with the company’ s dangerous goods transport management responsibilities and the requirements of statutory self- inspection clause SID- 93033, improve	

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	the management structure diagram in section 1.4.1. 20.Based on the company' s dangerous goods transport management responsibilities and the *Dangerous Goods Safety Management Manual*, refine the Ground Service Department' s management responsibilities in section 1.4.2.9. 21.In line with section 1.14 of this manual, clarify the units required for filing with the authority in section 1.6.2.4, and remove content related to the duties of non- ground service agents. 22.Based on calculations considering the A321 aircraft' s cargo compartment volume, air- change rate per hour, dry ice sublimation rate, and maximum allowable carbon dioxide concentration, the dry ice loading limit for the A321 model is determined to be similar to that of the A320 model, thereby specifying the dry ice loading limit for the A321 aircraft.	
R6	1.Revised Sections 2.8.2.2 and 2.8.2.5, and added conditions for the use of lithium batteries, in accordance with Addendum No. 1 to the *Technical Instructions*. 2.Revised Section 13.2.3.2 to separate power banks from spare lithium batteries, and added Section 13.2.3.3 for carriage standards of power banks, in accordance with Addendum No. 1 to the *Technical Instructions* and the IATA Guidance Document on Passenger Carriage of Lithium Batteries. 3.Revised Section 13.2.5.7 regarding carriage standards for PEDs, spare batteries, and power banks, in accordance with Addendum No. 1 to the *Technical Instructions*. 4.Revised the lithium battery baggage carriage provisions table in Appendix G, in accordance with Addendum No. 1 to the *Technical Instructions*.	0.2-1 to 0.2-5,1.2-1 to 1.2-3,1.3-1 to 1.3-11,1.4-1 to 1.4-12,

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R6	5.Clarified in Section 13.2.4.1 that "other devices" refer to devices without automatic inflation function, in accordance with TI Table 8-1. 6.Revised Section 1.10.6 on providing information to load and balance personnel, in accordance with DGR 1.4.2 (f) and industry operational procedures. 7.Revised Section 2.3.2.3 on GHS pictograms and their standards, in accordance with DGR Appendix B.4. 8.Revised Section 2.3.4 on typical examples of hidden dangerous goods, in accordance with DGR 2.2.4. 9.Revised Section 3.9.3.1 on the definition of patient specimens, in accordance with DGR 3.6.2.7. 10.Revised Sections 13.2.2.2 and 13.2.2.3 on label names, in accordance with DGR Figure 9.3.C. 11.Adjusted the description in Section 13.3.3, in accordance with DGR 2.3.2.5. 12.Removed the transitional requirements for state of charge (SoC) and added transport requirements for exceeding SoC limits in Appendix B, Table 1, and adjusted the packaging description, in accordance with DGR Packing Instruction PI966. 13.Adjusted the packaging description in Appendix B, Table 3, in accordance with DGR Packing Instruction PI969. 14.Added integrity management requirements for ground handling agents in Section 1.6.2.4, in accordance with regulatory self-inspection clause SID-41897. 15.Added data submission, collection, and review requirements in new Section 1.12.1, in accordance with regulatory self-inspection clause SID-41926. 16.Added requirements for provision or approval of the Dangerous Goods Transportation Manual in Section 1.6.2.5, in accordance with CCAR-276R2, Article 23.	1.5-1 to 1.5-6,1.6-1 to 1.6-9,1.10-1 to 1.10-7,1.11-1 to 1.11-4,1.12-1 to 1.12-5,1.13-1 to 1.13-4,1.15-1 to 1.15-7,2.3-1 to 2.3-9,2.8-1 to 2.8-5, 3.9-1 to 3.9-14,9.2-1 to 9.2-6,13.2-1 to 13.2-28,13.3-8 to 13.3-11,13.4-1 to 13.4-11,13.6-1 to 13.6-2,15.4-4 to 15.4-30,15.6-19 to 15.6-20,B-5 to B-18,G-6 to G-7,G-10 to G-11,G-16 to G-18

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R6	17.Supplemented Section 13.2.1.7 on lighters and Section 13.3.3 on carriage standards for aerosols, in accordance with the Regulations on the Air Transport of Dangerous Goods Carried by Passengers and Crew. 18.Supplemented Section 13.3.3, Reference Table for Dangerous Goods Carried by Passengers and Crew, in accordance with the Regulations on the Air Transport of Dangerous Goods Carried by Passengers and Crew. 19.Added Section 3.9.3.5 on reference standards for the transport of infectious substances, in accordance with the CAAC document Guidelines for the Transport of Infectious Substances by Public Air Transport. 20.Supplemented the classification of radioactive materials in Section 1.5.2.13, in accordance with the Procedures for the Air Transport Management of Radioactive Articles. 21.Revised Section 1.3.2 to no longer distinguish between aircraft spare parts classified as dangerous goods and commercial dangerous goods, in accordance with the latest permit approvals. 22.Revised the identification body name in Section 1.15.8.4, in accordance with the name change notice of the Second Research Institute of CAAC. 23.Adjusted the responsibilities of Cabin Management Department, Ground Service Management Department, Marketing Committee, and base/branch companies, and added the responsibility of Aviation Security Department for lithium battery protection equipment management, based on operational management requirements. 24.Streamlined and identified contents applicable to non-dangerous goods ground handling agents in the table of contents for quick reference, in accordance with operational management needs.	

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R6	25.Integrated information notification contents in Section 13.4.2.4, and added Haikou, Beijing, and Taiyuan as interfaces for dangerous goods emergency response procedures for non-dangerous goods ground handling agents, in accordance with operational needs. 26.Revised the template of the Captain's Notification of Special Baggage in Section 13.6.6, in accordance with the Ground Service Department operational bulletin. 27.Revised the Dangerous Goods Emergency Incident Handling Checklist in Section 15.4.3, in accordance with Sections 4.6 and 4.8 of the *Emergency Response Plan Operations Manual*. 28.Revised the information on ground support units in Section 1.3.3, in accordance with operational support conditions. 29.Adjusted the supervision and inspection requirements for identification bodies in Section 1.15.7, in accordance with corporate management requirements. 30.Revised the reporting requirements for non-emergency dangerous goods incidents in Section 9.2.6, in accordance with Section 15.3.2.4 of this Manual. 31.Deleted Section 2.8.2.6, which contained content not pertaining to carrier materials under this chapter.Adjusted descriptions in Sections 1.2.9, 1.13.4, 13.2.1.8, and 13.3.3; adjusted position titles in Section 13.4.2.2; 33.removed content not pertaining to baggage acceptance from Section 13.4.2.3; and adjusted the serial number in Section 13.4.2.3. 33.Streamlined the manual interface list in Section 1.11.5.4; corrected the referenced content interfaces in Section 15.6; refined the manual interfaces in Appendix G.1.6.3; and streamlined the Appendix B manual interface list in accordance with manual requirements.	

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0.5.2 Revised records

Revision times	Revised date	Plug in page date	Plug in the page
R1	2024.06.05		Gong Rui qi
R2	2025.01.15		LI Liusen
R3	2025.07.10		LI Liusen
R4	2025.09.29		LI Liusen
R5	2025.12.15		LI Liusen
R6	2026.07.20		LI Liusen

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Note: 1. Keep the previous "revision instructions" in front of this table in the order of modification;

2. If there is a lack of a new revision page, please contact the operation approval Center of the operation Standards Department as soon as possible.

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0.7 Distribution records

Distribution number	Departments distributed to	Distribution date	distribute medium
E	Hna Group office platform	2026/08	electronic edition
001	Transport Administration Office of CAAC Zhongnan Regional Administration Bureau	2026/08	paper capa-citor
002	CAAC Hainan Regulatory Bureau	2026/08	paper capa-citor

pour:

1. The distribution medium is paper, electronic version, etc.

2. The distribution records of the agent shall be summarized by the agreement counterpart unit and saved by the transportation training room of the shipping marking Department.

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1 Dangerous Goods Transportation Management

1.1 Definition of Dangerous Goods

Dangerous goods are articles or substances which can pose a risk to health, safety, property, or the environment and which are shown in the list of dangerous goods in the *Technical Instructions* for the Safe Transport of Dangerous Goods by Air (Hereinafter referred to as *Technical Instructions*) of ICAO, or which are classified according to these Instructions.

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1.2 The General Policy for Dangerous Goods Transportation

The policy and idea of dangerous goods transportation in HNA is *"*health, safety, environmental protection*"*. The targets are *"*no human injury, no transportation accident, no environment damage*"* and realizing continuous development. This manual is established according to the requirement of *Civil Aviation Dangerous Goods Transportation Regulations,* to be used with current dangerous goods regulations issued by IATA. All personnel related to dangerous goods transportation or safety management of dangerous goods transportation must obey such principles:

1.2.1 Obey national law, regulations, order or requirements. Bear relative responsibility and obligation. Follow the lead and management of Civil aviation administrative departments at all levels. HNA and related staffs, including agents, must always be prepared to accept the supervision and inspection of Civil aviation administrative departments at all levels and company supervision department;

1.2.2 Dangerous goods must be transported in full compliance with the *Technical Instructions* for the Safe Transport of Dangerous Goods by Air of ICAO, Dangerous Goods Transport Regulation of Civil Aviation Transport Regulation for Dangerous Goods of the CAAC, Transportation Department Instruction, and relevant regulations in Dangerous Goods Regulations of IATA.

1.2.3 HNA has set up regulations for dangerous goods transportation. Dangerous goods transportation manual and dangerous goods training syllabus are powerful support.

1.2.4 Each person taken part in the operation and management of dangerous goods transportation must accept training and gain relative certificate, then can carry out his ability. Persons who didn't accept eligible training about dangerous goods cannot work on this post.

1.2.5 HNA only accept dangerous goods contained in the list of dangerous goods in *Dangerous goods regulations* and satisfying requirements of dangerous goods transportation limitations of this manual. Implement

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acceptance, consignment, storage, package, loading, checking, information provision, emergency response, safeguard, record and training for dangerous goods in terms of requirements in *Dangerous goods regulations* and this manual.

1.2.6 Any dangerous goods transportation accident/incident, no matter happened in cargo, luggage and airmail transportation, or luggage carried by passenger shall be submitted according to designated procedures.

1.2.7 Dangerous goods like aircraft spares (belonging to COMAT) shall be transported as cargo and comply with the requirements of dangerous goods transportation.

1.2.8 The transport of dangerous goods involves foreign units, and the relevant departments of HNA need to sign cooperation contracts with these units, which specify the scope and responsibilities of the specific cooperation between the two parties, and the agent must comply with the relevant laws and regulations of the host country.

1.2.9 The sales agent delivering dangerous goods must have received training and passed examinations from an approved dangerous goods training organization, and must be recognized and recorded by our company, so as to ensure that the delivery of dangerous goods complies with regulatory requirements.

1.2.10 To ensure safe dangerous goods transportation of our company, relevant departments involved in dangerous goods transport activities shall establish a self-inspect system, and carry out self-inspection about management procedure of *Dangerous Goods Transport Manual*, training program, staff's qualification etc. which have a direct bearing on the safety of air transport, keep them all updated and valid, and make sure all relevant regulations are implemented strictly.

1.2.11 Articles or substances are conforming to the following circumstance are not restricted by the dangerous goods air transport according to the *Technical Instructions*:

1) Articles or substances that have been classified as dangerous goods due to the relevant airworthiness requirements and operational regulations or for other special reasons that specified in the *Technical*

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Instructions When it is necessary to be loaded on a civil aircraft

2) Specific articles or substances carried by passengers or flight crew members within the scope prescribed in the *Technical Instructions*.

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1.3 Regulations for Accepting Dangerous Goods of HNA

1.3.1 The IATA *Dangerous Goods Regulations* contain all of the requirements of the *Technical Instructions*. IATA has included additional requirements, which are more restrictive than the *Technical Instructions*. Due to practices or operational considerations, HNA takes current *Dangerous Goods Regulations* as one of documents for dangerous goods transportation standards.

1.3.2 According to the company's Dangerous Goods Air Transport Permit, the company may transport Dangerous Goods of Classes 1-9.

1.3.3 **Airports that take dangerous goods transportation**

The company will gradually expand the range of transporting dangerous goods to reduce the risk, as well as, to secure the air transportation, by restricting those airports qualified to transport dangerous goods according to the qualification record for transporting dangerous goods of each airport. Currently, airports that have been authorized to transport dangerous goods are as follow:

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1.3.3.1 Airport in China

NO.	Airport Name	Airport Code	Other Restrictions	Ground Handling Company
1	Haikou Meilan International Airport	HAK	1. Div.2.1,2.2,5.1,5.2 and class 3,8,9 for air material (import & export). 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export) 3. Inbound transport only for Category 9, Item ID8000 and Item 6.1.	Hainan Meilan International Airport Co., Ltd. --Acceptance, storage --Handling
2	Guangzhou Baiyun International Airport	CAN	1. Div.2.1,2.2,5.1,5.2 and class 3,8,9 for air material (import & export). 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	1.Guangdong Airport Group Logistics Co., Ltd. --Acceptance, storage 2.Guangzhou Baiyun International Airport Co., Ltd. --Handling
3	Xi'an Xianyang International Airport	XIY	1. Div.2.1,2.2,5.1,5.2 and class3,8,9 for air material (import & export). 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	1.Western Airport Group Aviation Logistics Co., Ltd. --Acceptance, storage 2.Chang'an Airlines Co., Ltd. --Handling
4	Urumchi Tianshan International Airport	URC	1. Div.2.1,2.2,5.1,5.2 and class3,8,9 for air material (import & export). 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	Xinjiang Airport (Group) Co., Ltd. --Acceptance, storage --Handling
5	Beijing Capital International Airport	PEK	1. Commercial DG all Classes import,, Class 7 export 2. Div.2.1,2.2,5.1,5.2 and class3,8,9 for air material (import & export). 3. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	Beijing Airport Aviation Ground Services Co., Ltd. --Acceptance, storage --Handling
6	Shanghai Pudong International Airport	PVG	1. Commercial DG all Classes (import only) 2. Div.2.1,2.2,5.1,5.2 and class 3,8,9 for air material (import & export). 3. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	1.Shanghai Pudong International Airport Freight Terminal Co., Ltd. --Acceptance, storage 2.Shanghai International Airport Ground Services

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				Co., Ltd. --Handling
7	Shanghai Hongqiao International Airport	SHA	1. Div.2.1,2.2,5.1,5.2 and class 3,8,9 for air material (import & export). 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	1.Shanghai Pudong International Airport Freight Terminal Co., Ltd. --Acceptance, storage 2.Shanghai International Airport Ground Services Co., Ltd. --Handling
8	Shenzhen Bao'an International Airport	SZX	1. Division2.1, 2.2, 5.1, 5.2, class3,8,9 for air material(Import & Export). 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export) 3. UN1845 Dry Ice (import only)	1.Shenzhen Airport Co., Ltd. --Acceptance, storage (Domestic) --Handling(Domestic & International) 2.Shenzhen Airport International Freight Terminal Co., Ltd. --Acceptance, storage (International)
9	Xiamen Gaoqi International Airport	XMN	1. Division2.1, 2.2, 5.1, class3,8,9 for air material (import & export) 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	Yuanxiang (Xiamen) International Airport Co., Ltd --Acceptance, storage --Handling
10	Chengdu Tianfu International Airport	TFU	1. Dangerous goods of navigation materials only: 2.1,2.2,3,5.1,8,9 class domestic transportation; 2. Only the entry and departure transportation of goods containing lithium-ion batteries in Part 1 of 966,967,969 and 970.	Sichuan Airport Group Aviation Ground Services Co., LTD --Acceptance, storage --Handling
11	Hangzhou Xiaoshan International Airport	HGH	1. Division2.1, 2.2, 5.1, class3,8,9 for air material. (Import and Export) 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	Hangzhou Xiaoshan International Airport Co., Ltd. --Acceptance, storage --Handling
12	Chongqing Jiangbei International Airport	CKG	1. Division2.1, 2.2, 5.1, class3,8,9 for air material. (Import & Export) 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	Chong Qing Aviation Group Service Co., Ltd. --Acceptance, storage --Handling
13	Changsha Huanghua	CSX	1. Class3, 9 for air material. (Import only) 2. Lithium Batteries in conformance with	Hunan Airport Logistics Co., Ltd.

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	International Airport		Section II in PI 966, 967 and PI 969-970. (Import & Export)	--Acceptance, storage --Handling
14	Wuhan Tianhe International Airport	WUH	1. Division2.1, 2.2, 5.1, class3,8,9 for air material. (Import only) 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	1.Hubei Airport Group Aviation Logistics Co., Ltd. --Acceptance, storage 2.Hubei Airport Aviation Ground Service Co., Ltd. --Handling
15	Guiyang Longdongbao International Airport	KWE	1. Division2.1, 2.2, 5.1, class3,8,9 for air material. (Import only) 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import only)	Guizhou Guiyang Longdongbao International Airport Co., Ltd. --Acceptance, storage --Handling
16	Dalian Zhoushui zi International Airport	DLC	1. Division2.1, 2.2, 5.1, class3,8,9 for air material. (Import only) 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import only)	Dalian International Airport Co., Ltd .--Acceptance, storage --Handling
17	Ningbo Lishe International Airport	NGB	1. Division2.1, 2.2, 5.1, class3,8,9 for air material. (Import only) 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import only)	Ningbo Airport Group Co., Ltd. --Acceptance, storage --Handling
18	Fuzhou Changle International Airport	FOC	1. Division2.1, 2.2, 5.1, class3,8,9 for air material. (Import only) 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	Xiangye (Fuzhou) International Airport Co., Ltd. --Acceptance, storage --Handling
19	Jinan Yaoqiang International Airport	TNA	1. Division2.1, 2.2, 5.1, class3,8,9 for air material. (Import only) 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import only) 3.Commodity category 6.1 Port shipment of dangerous goods.	Shandong Airport Management Group - Jinan International Airport Co., Ltd. --Acceptance, storage --Handling
20	Qingdao Jiaodong International Airport	TAO	1. Division2.1, 2.2, 5.1, class3,8,9 for air material. (Import only) 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import only)	Qingdao International Airport Group Co., Ltd. --Acceptance, storage --Handling
21	Guilin Liangjiang International Airport	KWL	1. Class 9 for air material. (Import only) 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import)	Guangxi Airport Management Group, Guilin Liangjiang

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				International Airport Co., LTD --Acceptance, storage --Handling
22	Hohhot Baita International Airport	HET	1. Division2.1, 2.2, 5.1, class3,8,9 for air material. (Import only) 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import only)	Hohhot Branch of Inner Mongolia Autonomous Region Civil Aviation Airport Group Co., Ltd. --Acceptance, storage --Handling
23	Nanning Wuxu International Airport	NNG	1. Division2.1, 2.2, class3,8,9 for air material. (Import only) 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import only)	Guangxi Airport Management Group, Nanning Wuxu International Airport Co., LTD --Acceptance, storage --Handling
24	Nanjing Lukou International Airport	NKG	Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	Eastern Airport Group Co., Ltd --Acceptance, storage --Handling
25	Kunming Changshui International Airport	KMG	Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import only)	Yunnan Airport Logistics Co., Ltd. --Acceptance, storage --Handling
26	Lanzhou Zhongchuan International Airport	LHW	1. Commercial DG class7(import only) 2 Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import only)	Lanzhou Zhongchuan International Airport Co., Ltd. --Acceptance, storage --Handling
27	Nanchang Changbei International Airport	KHN	Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import only)	Jiangxi Aviation Group Service Co., Ltd. --Acceptance, storage --Handling
28	Harbin Taiping International Airport	HRB	Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import only)	Heilongjiang Provincial Airport Management Group Co., LTD --Acceptance, storage --Handling

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29	Zhengzhou Xinzheng International Airport	CGO	Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	Henan Air Cargo Development Co, Ltd. --Acceptance, storage --Handling
30	Hefei Xinqiao International Airport	HFE	Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	Hefei Xinqiao International Airport Co., Ltd. --Acceptance, storage --Handling
31	Wenzhou Longwan International Airport	WNZ	Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import only)	Wenzhou Airport Group Co., Ltd --Acceptance, storage --Handling
Remark: Before carrying actual Dangerous Goods, airports above must get approval in advance from the Freight Management center of ground service management department, and act according to the Business Notice requirement.				

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2) Overseas Airport

NO.	Airport Name	Airport Code	Other Restrictions	Ground Handling Company
1	Seattle-Tacoma International Airport	SEA	Except Class 1 & 7 (Import & Export)	1. Worldwide Flight Services, INC. --Acceptance, storage. 2. Swissport USA, LNC --Handling
2	Toronto Pearson International Airport.	YYZ	Division 2.1, 2.2, 4.1, 4.2, and class 3, 5, 8, 9.(Import & Export)	1.Swissport Canada Handling Inc. --Acceptance,storage 2.Swissport Canada Inc. --Handling.
3	Brussels National Airport	BRU	Division 2.1, 2.2, Class 3 (PG II & PG III only), Division 4.1 (except self-reactive substances), Division 5.1, Class 8 (PG II and PG III, except strong corrosives), Class 9. (Import only))	1. Swissport Cargo Services Belgium NV --Acceptance, storage 2. Aviapartner Belgium NV -- Handling 3.WFS CARGO NV --Transportation between warehouse and ramp
4	Berlin Tegel International Airport	BER	Except Class 1 & 7 (Import & Export)	1.WISAG Cargo Service Berlin-Brandenburg GmbH & Co. KG --Acceptance, storage 2.WISAG Aviation Contracting GmbH & Co. KG -- Handling
5	Sydney International Airport	SYD	1. UN1845 Dry Ice (Import & Export) 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import only)	DNATA PTY LTD --Acceptance, storage. -- Handling
6	Melbourne International Airport	MEL	1. UN1845 Dry Ice (Import & Export) 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import only)	DNATA PTY LTD --Acceptance, storage -- Handling.

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7	Aeroports de Paris	CDG	1. Division 1.4S, class2,3,4,5,6,8,9 (Import only)) 2. Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	1.Alyzia Cargo Hangdling –Acceptance, storage 2.Aéroports de paris (ALYZIA) --Handling
8	Tel Aviv Ben Gurion Airport	TLV	Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	1.Swissport Cargo Services Israel Ltd --Acceptance, storage. 2.Quality Airport Services -- Handling.
9	London Heathrow Airport	LHR	Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	1.dnata Limited --Acceptance, storage. 2.Menzies Aviation (UK) Limited -- Handling.
10	Vancouver International Airport	YVR	Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	1.G.T.A dnata world cargo YVR Ltd. --Acceptance, storage. 2.Swissport CANADA INC -- Handling.
11	Moscow International Airport	SVO	Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import only)	1.Moscow Cargo LLC. --Acceptance, storage. 2.Limited Liability Company «Sheremetyevo Handling» -- Handling.
12	Madrid International Airport	MAD	Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import only)	1.Worldwide Flight Services, Servicios Aeroportuarios, S.A. --Acceptance, storage. 2.SOUTH EUROPE GROUND SERVICES S.L. -- Handling.
13	Milan Malpensa Airport	MXP	Lithium Batteries in conformance with Section II in PI 966, 967 and PI 969-970. (Import & Export)	1.WFS ITALIA SRL、 --Acceptance, storage. 2.AIRPORT HANDLING SPA -- Handling.
Remark: Before carrying actual Dangerous Goods, airports above must get approval in advance from the Freight Management center of ground service management department, and act according to the				

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Business Notice or official letters.

Remark:

1.The above transportation scope can be adjusted according to the transportation needs of front-line business and the support capacity of ground agents, and the specific business notice or letter of the Ministry of Local Service. Before changing the transportation scope of dangerous goods, it shall be evaluated by the freight management center of the local service management Department.

2. This provision will not be applicable when the ground service agent has enough capacity to meet the transport need of dangerous goods in some special or extremely emergency situations, such as natural disaster rescue, sudden epidemic prevention, etc., for the sake of public interest, with special requirement of government, the company, or Civil Aviation Administration.

3. Transport standard of lithium battery is added to Appendix H, the operating criterion and emergency response.

4.Items that fall under the exception clauses in the DGR are not subject to the restrictions in the above table. However, the airport ground handling agents responsible for safeguarding such items must possess qualifications officially filed with the relevant authority.

1.3.4 Implement strictly the PERMISSION FOR DANGEROUS GOODS BY AIR issued by Central & Southern Regional Administration of CAAC. In addition, HNA accepts the supervision set forth by the States of origin, transit and destination.

1.3.5 For airport shipping dangerous goods first time, the first three transportations shall be implemented under the leadership of dangerous goods instructors.

1.3.6 For the transportation of hazardous aviation materials between airports listed in the company's dangerous goods operation standards and airports not listed in the operation standards, the Procurement Department and the cargo management center of the ground service Management Department shall jointly formulate a transportation plan, submit it to the company for evaluation and approval, and the operation standard Department shall submit it to the Bureau for approval and record, and then carry out the transportation according to the plan approved by the Bureau (if applicable).

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1.3.7 HU will not accept dangerous goods or infected live animals which are prohibited to be transported in normal situation by *Technical Instructions* of ICAO.

1.3.8 For transportation of the torches with great significance (such as: Olympic torch, the torch of peace, etc.), refer to item 5.0.1.11 in DGR and A324 rules. According to the different fuels used for the torch, the transportation may be undertaken by UN1223 or UN3295 rules.

1.3.9 Liquid must be packaged with enough absorbing materials and make sure all inner liquid can be absorbed.

1.3.10 Dangerous goods *"*Excess baggage consigned as cargo*"* may not be restricted if meet the following conditions:

1.3.10.1 Dangerous goods in baggage for passengers and crew must refer to rules in section 13.2 of the latest valid IATA *dangerous goods rules*;

1.3.10.2 Excess baggage consigned as cargo must be checked baggage given by passengers or passenger's representative and the dangerous goods among it cannot excess permitted amount;

1.3.10.3 The package of the excess baggage should be marked with: *"*Excess baggage consigned as cargo*"*.

1.3.10.4 To prevent passengers form concealing dangerous goods which are prohibited to be transported by air into over-weight luggage and checking in as cargo, any institution or enterprise accepting over-weight luggage as cargo shall confirm with passengers or their representatives that there are no dangerous goods concealed in their over-weight luggage and proceed for further confirmation if there's any doubt that there may be prohibited dangerous goods in the luggage.

1.3.11 Lamps containing dangerous goods but not radioactive materials can be free from restriction of *Technical Instructions* of ICAO, as well as, the DGR of IATA, when it is accord with the conditions below:

1.3.11.1 Lamps each containing not more than 1 g of dangerous goods and packaged so that there is not more than 30 g of dangerous goods per package, provided that:

1) The lamps are certified to a manufacturer's quality management system; and

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Note:The application of ISO 9001:2008 may be considered acceptable for this purpose.

2) Each lamp is either individually packed in inner packagings, separated by dividers, or surrounded with cushioning material to protect the lamps and packed into strong outer packagings meeting the general provisions and capable of passing a 1.2 m drop test.

1.3.11.2 Lamps containing only gases of Division 2.2 provided they are packaged so that the projectile effects of any rupture of the bulb will be contained within the package.

1.3.12 When accepting dangerous goods, the acceptance personnel must use the currently valid Dangerous Goods Acceptance Checklist from the latest edition of the IATA Dangerous Goods Regulations, regardless of whether the goods are revenue cargo or non-revenue cargo (e.g., official cargo). They must accurately verify the suitability of the dangerous goods for air transport, the compliance of the packaging, and the correctness of the dangerous goods declaration in accordance with the requirements of Hainan Airlines' *Dangerous Goods Transport Manual*.

1.3.13 To prevent concealing dangerous goods from being loaded into the plane as non-dangerous goods, cargo sales agents and ground handling agents shall establish an accepting and checking procedure aiming at getting rid of concealing dangerous goods or take equivalent relevant measures and make sure the personnel in charge of cargo accepting fully implement it.

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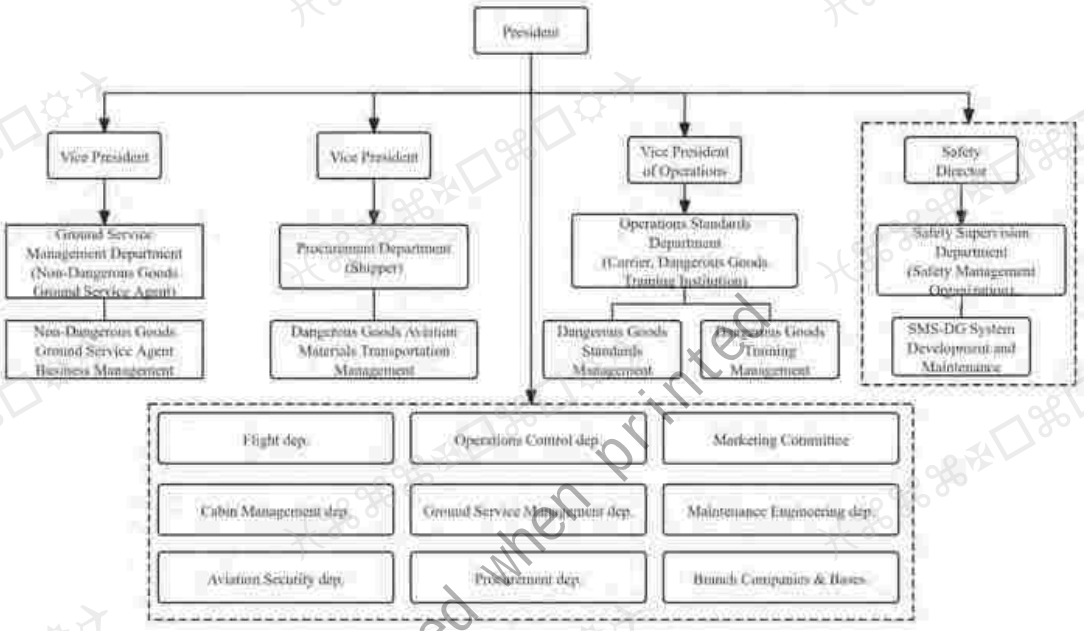
1.4 Management frame chart and responsibility of dangerous goods transportation

1.4.1 Management frame chart



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The company has assigned full-time personnel to manage dangerous goods air transport activities.All units shall carry out dangerous goods transportation, security, supervision and inspection, business self-inspection, information reporting and other work in accordance with the company's dangerous goods transportation regulations and the requirements in the manual.

1.4.2 Management organization and its functions

1.4.2.1 President responsibility

As the company's top leader in the safety management of dangerous goods air transport, the President's responsibilities include:

1) Responsible for the company's dangerous goods air transport safety management, formulate relevant policies and objectives, guide and supervise the establishment, implementation and continuous improvement of SMS-DG.

2) Responsible for the deployment and implementation of dangerous goods air transport regulations, systems and specific work requirements issued

by the competent unit, the Safety committee of the Group and the board of directors of the company.

3) Responsible for the approval of SMS-DG related standards, regulations, systems, plans, reports and other working documents.

4) Responsible for mobilizing company resources to solve major management issues and cross-departmental issues.

5) Responsible for coordinating the working relationship with competent units, governments at all levels and related enterprises and institutions on behalf of the company.

1.4.2.2 Safety director

1) Under the leadership of the President, perform the duties of the company's safety Director, responsible for the operation and management of the company's safety management system (including SMS-DG).

2) Responsible for the company's dangerous goods air transport safety management, formulate relevant policies and objectives, guide and supervise the establishment, implementation and continuous improvement of SMS-DG.

3) Responsible for the approval of SMS-DG related standards, regulations, systems, plans, reports and other working documents.

1.4.2.3 Responsibilities of the Department of Safety Supervision

1) Responsible for the compilation and revision of *Safety Management Manual* and SMS-DG related system documents and management systems.

2) Take the lead in formulating the annual dangerous goods safety work plan, and supervise the operation departments to implement the relevant work requirements.

3) Responsible for guiding and supervising all operating departments to implement hazard identification, risk assessment and control related to the transport of dangerous goods by air, and organizing cross-departmental risk management.

4) Responsible for the overall monitoring and evaluation of the company's dangerous goods safety performance, and organize related performance assessment and application.

5) Responsible for summarizing safety information related to the transport of dangerous goods by air, and supervising the handling of relevant voluntary and

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mandatory reports

6) Responsible for the formulation of annual dangerous goods safety audit and monitoring plan, take the lead in organizing all operating departments to carry out statutory self-inspection (dangerous goods), and supervise its implementation and problem rectification.

7) Responsible for the overall evaluation of the company's SMS-DG application and implementation, regularly evaluate and actively learn from the industry's advanced experience and technical research, and continuously improve management methods and efficiency.

8) Report dangerous goods incidents according to the requirements of Part 276 and Part 396 and organize the corresponding investigation according to the incident level.

1.4.2.4 Operational standards Department responsibilities

1) Maintain the validity of the company's *Dangerous Goods Transport Manual* and *Dangerous Goods Training Program*, and to comply with applicable regulations and the Company's operational requirements for the conduct of dangerous goods transport.

2) Responsible for the application and management of the company's dangerous goods transport permit.

3) Responsible for completing the company's relevant filing work to the bureau.

4) Responsible for the overall management of the company's dangerous goods training plan and budget, the allocation of dangerous goods teaching resources, the management of teaching materials and licenses.

5) Responsible for the management of dangerous goods training institutions, including the management of dangerous goods teaching and research and the management of dangerous goods teachers, and effectively maintain the external training qualifications of training institutions.

6) Responsible for the preparation of the company's dangerous goods

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self-inspection system, and cooperate with the emergency management office of the operation control department to regularly organize the company's dangerous goods emergency drill.

7) Responsible for regularly reporting to the Bureau the number of domestic operators of dangerous goods air transport practitioners, dangerous goods training institutions registered with the Civil Aviation Administration of dangerous goods air transport practitioners training amount and the number of dangerous goods training instructors.

8) Responsible for establishing a liaison mechanism with the Civil Aviation Administration (CAAC) regarding technology and usage standards for on-board lithium battery protective equipment. Promptly organize relevant departments to revise equipment procurement and usage procedures. Lead the Cabin Department in equipment acceptance inspections for procured devices. Establish equipment management data sheets following the emergency medical kit management model, monitor equipment validity periods, and coordinate the allocation of backup equipment. Also responsible for initiating equipment procurement requests upon aircraft introduction, equipment expiration, or damage.

9) Perform safety management work related to dangerous goods and conduct self-inspection

1.4.2.5 Flight department responsibility

1) Implement dangerous goods transportation according to regulations of *dangerous goods transportation manual* and *flight operation manual* chapter 11 and 12;

2) During dangerous goods transportation, captain signs *"special load notification for captain"* in preflight and ensure other flight crews to mater the contents in *"special load notification for captain"*, especially the location and emergency response code for dangerous goods;

3) When detecting dangerous goods leakage, contamination, rot or peculiar smell in flight, the flight crews should inform FOC on-duty or local agents or

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commanding center of the airport and local ATC. When detecting dangerous goods leakage, contamination, rot or peculiar smell on ground, flight crews should prevent the package being loaded into or removed from the aircraft;

4) When aircraft meets emergency, accidents, and incidents, if time permitted, flight crews should inform local ATC and FOC on-duty of the dangerous goods information in the "special load notification for captain" and handle it as emergency response;

5) Responsible for emergency incident report for dangerous goods in flight;

6) Responsible for arranging for initial and retraining of dangerous goods for relevant personnel in this department and keep records.

7) Responsible for arranging the dangerous goods emergency exercise on board for relevant personnel in this department.

8) Perform safety management work related to dangerous goods and conduct self-inspection

1.4.2.6 Maintenance Engineering Department Responsibility

1) Responsible for supervising on the usage of aviation materials of our company.

2) Assist functional departments for the handling of irregularities of dangerous goods.

3) Responsible for examination and maintenance of the plane after a dangerous goods incident or accident happened.

4) Responsible for inspecting on-board lithium battery protective equipment, referencing the inspection schedules for airborne equipment, to confirm equipment presence. Report information promptly when equipment is not in place.

5) Perform safety management work related to dangerous goods and conduct self-inspection

1.4.2.7 Operation control Department Responsibility

1) Responsible for receiving information about irregularities of dangerous goods,

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and report to 01 on duty person and emergency manager in time.

2) Define the level of the accident/incident, launch the Dangerous Goods Emergency Response Procedure.

3) Regularly organize the company's dangerous goods emergency drill.

4) Responsible for arranging for initial and retraining of dangerous goods for relevant personnel in this department and keep records.

5) Responsible for load control and loading of dangerous goods and sending relevant SITA telex to relevant airports.

6) Perform safety management work related to dangerous goods and conduct self-inspection

1.4.2.8 Cabin Management Department Responsibility

1) Responsible for intensifying cabin crew members' safety awareness of dangerous goods transported by air.

2) Responsible for emergency action and report of dangerous goods incident in cabin, assisting captain to calm the passengers down, making sure passengers' safety is well protected.

3) Responsible for arranging the dangerous goods emergency exercise on board for relevant personnel in this department, enhancing the ability of dealing with emergency.

4) Responsible for arranging for initial and retraining of dangerous goods for relevant personnel in this department and keep records.

5) It is responsible for developing emergency response procedures for lithium battery fire and smoke incidents on board, based on the regulatory documents and equipment manuals for onboard lithium battery protection equipment, and for conducting personnel training accordingly. In coordination with the Operations Standards Department and the Maintenance Engineering

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Department, it shall evaluate and determine the stowage locations of such equipment on each aircraft. It is also responsible for routine pre-boarding inspection of the protection equipment and continuous monitoring throughout the flight; for obtaining and installing spare parts and external tamper- proof devices; for establishing a cabin department equipment information notification mechanism; and for preserving and transferring physical evidence as required.

6) Perform safety management work related to dangerous goods and conduct self-inspection

1.4.2.9 Ground Service Management Department Responsibility

1) Fulfill the management responsibilities of a non-dangerous goods ground service agent.Responsible for the business guidance and supervision of dangerous goods ground support chain.

2) On behalf of the company, establish cooperative relations with ground service agencies, and sign cooperation or agency protection agreements including dangerous goods clauses.

3) Responsible for issuing standard documents such as Hainan Airlines' *Dangerous Goods Transport Manual* to ground service agent units and cargo sales agent units, ensuring that these units fully understand the contents of the *Dangerous Goods Transport Manual* and other documents relevant to their responsibilities when performing related duties.

4) Responsible for Posting notices of dangerous goods transportation requirements in areas such as passengers' check-in procedures and baggage reception, and supervise and implement the Posting of dangerous goods notices by their business agents/agencies to meet the requirements of our company.

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5) Proactively ask passengers for information about dangerous goods and inform them of the regulations on the transport of dangerous goods by air.

6) Responsible for strengthening the safety awareness of ground service personnel in the transport of dangerous goods by air.

7) Responsible for the baggage collection and transportation of passengers and crew members, and check the dangerous goods hidden in the baggage.

8) Responsible for the receipt and approval of dangerous baggage, and inform the captain of the loading information of dangerous baggage in writing.

9) Responsible for reporting dangerous goods transport incidents involving passenger baggage and cargo during ground support to the company as required, and for organizing emergency response efforts in accordance with the company's emergency response procedures and the requirements of internal and external departments at all levels.

10) Responsible for regular statistics of abnormal transport data of dangerous goods in baggage and cargo, and report to the company regularly.

11) Responsible for regularly collecting and reporting the volume of goods and dangerous goods to the Bureau on time.

12) Responsible for assisting ground agents to carry out emergency drills for abnormal transport of luggage and dangerous goods in freight.

13) Responsible for the specific security work of dangerous goods transportation, fulfill the obligation of informing the transportation of dangerous goods, control and guide the business outsourcing agencies, and establish cooperation contracts, and the security level of the business contracting agencies should be equal to or higher than the company's security level.

14) Responsible for the preparation and management of dangerous goods transport documents, records and labels.

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15) Responsible for organizing relevant personnel of the department to complete the preliminary and re-training of dangerous goods knowledge on time and keep records.

16) Responsible for supervising the dangerous goods training qualification of the personnel of the business outsourcing unit.

17) Responsible for the management of shippers and their agents for dangerous goods transport, establishing and continuously improving the integrity evaluation mechanism for shippers and shippers' agents of dangerous goods.

18) Perform safety management work related to dangerous goods and conduct self-inspection.

1.4.2.10 Purchasing Department Responsibility

1) Responsible for establishing, maintaining, and managing the aviation material database of dangerous goods.

2) Keeping track and control of aviation material database of dangerous goods.

3) Fulfil the responsibility as the shipper and make sure safe transportation of aviation material of dangerous goods.

4) Responsible for checking if posers of dangerous goods regulations are well posted in relevant sites of the department.

5) Responsible for arranging for initial and retraining of dangerous goods for relevant personnel in this department and keep records.

6) Responsible for arranging the emergency exercise of dangerous goods in the warehouse for relevant personnel in this department and keep records.

7) Responsible for the procurement of the company's on-board lithium battery protective equipment.

8) Perform safety management work related to dangerous goods and conduct self-inspection

1.4.2.11 Sales & Marketing Department Responsibility

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1) Responsible for notifying passenger about banned dangerous goods info when making ticket reservation.

2) Represent the company in establishing cooperative relationships with cargo sales agent units and coordinating the signing of cooperation agreements; clauses involving dangerous goods must be countersigned by relevant departments.

3) Responsible for dangerous goods training for personnel involved in dangerous goods air transport, ensuring they possess dangerous goods knowledge commensurate with their duties, such as ticket reservation and sales personnel.

4) Responsible for arranging the initial and retraining of dangerous goods for relevant personnel in this department and keep records.

5) Responsible for distributing the *Dangerous Goods Transport Manual* to ticket sales agents and supervising their dangerous goods training qualifications.

6) Perform safety management work related to dangerous goods and conduct self-inspection

1.4.2.12 Aviation Security Department Responsibility

1) Responsible for security control and management of dangerous goods transport of our company and making and modifying the security plan in time if our company conduct high-risk dangerous goods transportation.

2) Responsible for practicing and training of security knowledge for relevant personnel of company.

3) Responsible for handing and investigating the security issues happened in dangerous goods transportation.

4) If the external tamper-evident device of the onboard lithium battery protection equipment is damaged, the Aviation Security Officer shall conduct security checks and handle the situation accordingly.

5) Perform safety management work related to dangerous goods and conduct

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self-inspection

1.4.2.13 Foreign offices, Branch companies and operational bases Responsibility

1) Overall responsibility for the safe transport of dangerous goods in the respective region. Represent the company in communication and coordination with the Civil Aviation Authority and local agent units, complete the signing of dangerous goods-related agreements and distribution of the *Dangerous Goods Transport Manual*, and accept operational guidance from the directly affiliated business departments of Hainan Airlines Headquarters.

2) Launch special rectification campaign of dangerous goods periodically in the regions in charge as required by HQ of our company.

3) Responsible for reporting to authorities about the general situation of dangerous goods transport and supervising measures.

4) Accepting the daily inspection work conducted by authorities as delegator of our company.

5) Responsible for emergency handling and reporting of emergencies in local regions in charge.

6) Responsible for assisting security surveillance departments of our company in inspecting of local dangerous goods operation and investigating accidents.

7) Responsible for arranging for the initial and retraining of dangerous goods for relevant personnel all regions in charge, and keep records.

8) Each base and branch company shall designate specific personnel responsible for the storage and inspection feedback of backup equipment, and appoint a coordinator to manage the handover of protection equipment, the recovery of replaced equipment, while also assisting with damage handling, factory return testing, new equipment acceptance, and the disposal and physical evidence preservation of fire-damaged equipment.

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9) Perform safety management work related to dangerous goods and conduct self-inspection

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1.5 Shipper's Responsibilities

1.5.1 General Rules

When shipping dangerous goods, shipper must comply with Civil Aviation Transport Regulation for Dangerous Goods of the CAAC, Transportation Department Instruction, ICAO *Technical Instructions*, *Civil aviation dangerous goods transportation management regulations of China* and national law, government regulations, orders or requirements. Meanwhile, shipper must comply with dangerous goods transportation requirements of HNA, and requirements of DGR and this manual.

It is the shipper's responsibility to ensure that all of the applicable air transport requirements are met. Refer to 1.5.2 for details.

1.5.2 Specific Responsibilities

The shipper must comply with the following requirements before any dangerous goods package or composite package is delivered for transport:

1.5.2.1 The shipper must make sure that all personnel who check in their shipments and sign the transport documents have accept relevant training of dangerous goods and qualified as required by Civil Aviation Transport Regulation for Dangerous Goods of the CAAC, Transportation Department Instruction, and *Technical Instructions*.

1.5.2.2 The shipper must make sure the shipment is not prohibited to be transported by air, and is clarified, packaged, labeled, marked and accompanied with true and accurate documentation as required by Civil Aviation Transport Regulation for Dangerous Goods of the CAAC, Transportation Department Instruction, and *Technical Instructions* before delivering the dangerous goods packages or overpacks. Relevant laws and regulations must be met when delivery dangerous goods that are restricted

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to be transported by state laws and regulations.

1.5.2.3 Prohibit concealing dangerous goods in general goods or declare dangerous goods as general goods by cheating, hiding.

1.5.2.4 Dangerous goods documentation must contain the declaration signed by the shipper, stating that the dangerous goods have been described with complete and accurate proper shipping name and clarified, packaged, marked and labeled in accordance with *Technical Instructions* and are totally in line with conditions of air transport.

1.5.2.5 When necessary, the shipper shall provide Material Safety Data Sheet or appraisal report issued by authentication institutions accredited by the carrier, which indicates that the dangerous goods meet conditions of air transportation. The shipper must make sure goods listed on the dangerous goods transport documentation, Material Safety Data Sheet or appraisal report are in compliance with the actual goods shipped.

1.5.2.6 Dangerous goods transport documentation must use English besides the language required by originating country when international transportation is involved.

1.5.2.7 The shipper must keep one copy of relevant dangerous goods documents. Specifically, the air waybill must be kept for at least 36 months, while other documents must be retained for at least 24 months.The documents shall include dangerous goods transport documentation, Airway Bill and other supplementary materials and documentation required by Civil Aviation Transport Regulation for Dangerous Goods of the CAAC, Transportation Department Instruction, and *Technical Instructions*.

1.5.2.8 Staff of the agent of the shipper shall accept relevant training of dangerous goods and become qualified as required by Civil Aviation Transport Regulation for Dangerous Goods of the CAAC, Transportation

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Department Instruction, and *Technical Instructions*.

1.5.2.9 Agents of the shipper shall fulfil their responsibilities and obligations as a shipper when conducting dangerous goods transport as the representative of the shipper.

1.5.2.10 The shipper shall provide the carrier with emergency response measures for the dangerous goods being transported in case of any dangerous situations, and provide relevant certification materials showing compliance with air transportation conditions if necessary

1.5.2.11 The shipper shall ensure that the information listed on the air waybill, dangerous goods transport documents, and related certification materials is consistent with the actual dangerous goods being shipped.

1.5.2.12 An agent acting on behalf of the shipper in the air transportation of dangerous goods shall hold an authorization letter from the shipper and shall be subject to the provisions of this regulation regarding the liability of the shipper.

1.5.2.13 For the transportation of radioactive materials, the consignor is responsible for the nuclear and radiation safety and emergency response of the transportation of radioactive items, as well as the legality of the items to be consigned. The consignor must also complete all administrative approval procedures in accordance with the law. When the consignor or their agent delivers radioactive items for air transport, in addition to complying with the consignor responsibilities stipulated in the Regulations on the Transport of Dangerous Goods by Civil Aviation (CCAR-276) and the technical standards specified in the *Technical Instructions*, they must also fulfill the following responsibilities stipulated in the Regulations on the Safety Management of Radioactive Material Transport (hereinafter referred to as the Regulations):

1) Qualification Certificates

(1) The approval of the nuclear and radiation safety analysis report for the transportation of radioactive items shall specify the following main contents:

A. The name, address, and legal representative of the consignor;

B. The name and quantity of the radioactive items to be transported;

C. The design approval number of the transport container, the mode of transport, and the transport plan;

D. Additional operational management measures and regulations;

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E. The validity period;

F. The approval date and the approval document number.

(2) Consignors and their agents transporting Category II and III radioactive items must hold a radiation monitoring report for the transportation of radioactive items and proof of the design and manufacture of the containers used, filed with the State Council's nuclear safety regulatory department.

(3) For Category I radioactive items transported into or transiting through the territory of the People's Republic of China from abroad, the consignor or their authorized agent must prepare a nuclear and radiation safety analysis report for the transportation of radioactive items and submit it to the State Council's nuclear safety regulatory department for review and approval. Only after obtaining the approval certificate for the nuclear and radiation safety analysis report issued by the State Council's nuclear safety regulatory department may the consignor transport Category I radioactive items into or transit through the territory of the People's Republic of China.

(4)For Category II and III radioactive items transported into or transiting through the territory of the People's Republic of China from abroad, the consignor must entrust a qualified organization to conduct monitoring and prepare a radiation monitoring report for the transportation of radioactive items. This report must be submitted to the State Council's nuclear safety regulatory department for filing. The State Council's nuclear safety regulatory department shall issue a corresponding filing certificate for the radiation monitoring report of the radioactive items. For radioactive items with the same transport containers, the same radioactive contents, and a half-life of less than 60 days, the importing unit may complete the radiation monitoring report filing procedures once every six months.

2) Submission of Documents

(1) Transport Instructions: These should include special loading and unloading requirements, safety protection guidelines, the name and quantity of the radioactive items, their physical and chemical forms, and hazard risks.

(2) Surface Contamination and Radiation Level Monitoring Report:

- For Category I radioactive items, the monitoring report must be issued by a qualified radiation monitoring institution.
- For Category II and III radioactive items, the monitoring report may be

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issued by the consignor.

- The State Council's nuclear safety regulatory department is responsible for the qualification certification and public announcement of radiation monitoring institutions.

- The company and its ground service agents may entrust a qualified radiation monitoring institution to conduct random inspections and verification of the radiation monitoring reports issued by the consignor.

(3) Approval Documents:

- Design approval certificate for Category I radioactive item transport containers.

- Approval certificate for the nuclear and radiation safety analysis report for Category I radioactive items.

- Approval certificates for special form radioactive materials and low-dispersible radioactive items.

(Note: The approval certificate for the nuclear and radiation safety analysis report refers to the shipment approval certificate required by the *Technical Instructions*. It should be noted that the Regulations require the submission of the nuclear and radiation safety analysis report approval certificate for all Category I radioactive items, which is broader in scope than the requirements of the *Technical Instructions*.)

(4) Emergency Response Plan: This plan serves as guidance for responding to nuclear and radiation accidents during the transportation of the consigned radioactive items. It can be a standalone document or part of the transport instructions.

3) The Regulations classify radioactive materials into Category I, II, and III. Detailed classification content can be found in the Catalogue and Classification of Radioactive Materials jointly compiled by the national nuclear safety regulatory authority and other relevant units.

Note: The classification method stipulated in the Regulations is intended for scientific and effective supervision of the wide variety of radioactive materials and their packaging, and has no direct correspondence with the Class I, II, and III levels for radioactive material packaging specified in the *Technical Instructions*. Therefore, the company shall determine the proper shipping name, UN number, and radioactive level for radioactive materials in accordance with the *Technical Instructions*. For other matters not covered, refer to the Procedures for the Air Transport Management of

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Radioactive Materials.

1.5.3 Legal liability born

See Civil Aviation Transport Regulation for Dangerous Goods of the CAAC, Transportation Department Instruction, chapter 12.

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1.6 Responsibilities of HU and its agents

1.6.1 **Responsibilities of HU**

1.6.1.1 Must conduct dangerous goods transport in the scope of permits and within the term of validity specified in the transport license issued by local regional administration of civil aviation.

1.6.1.2 Shall establishing measures to avoid dangerous goods concealed in luggage, general cargo, mails, and supplies.

1.6.1.3 The following requirements must be met when accepting dangerous goods for air transportation.

1) Accompanied with complete dangerous goods transport documentation, unless otherwise required by *Technical Instructions*.

2) Check the packages, overpack packages or special packing box with dangerous goods in according to the accepting procedure of *Technical Instructions*.

3) Confirm that the signatory of dangerous goods transport documentation has been trained and is qualified as required by Civil Aviation Transport Regulation for Dangerous Goods of the CAAC, Transportation Department Instruction, and *Technical Instructions*.

1.6.1.4 Shall make and use the *Acceptance Checklist for Dangerous Goods* to confirm 1.6.1.2 and 1.6.1.3 above are complied.

1.6.1.5 Packages or overpacks with dangerous goods packed in and special packing box with radioactive materials packed in shall be loaded into the aircrafts in accordance with regulations specified in *Technical Instructions*.

1.6.1.6 Packages or overpacks with dangerous goods packed in and special packing box with radioactive materials packed in shall be checked if there's any leakage or damage before loaded into aircrafts or ULDs. Leaking or damaged packages, overpacks, or special packing box with dangerous goods packed in shall not be loaded into aircrafts.

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1.6.1.7 ULDs shall not be loaded into aircrafts before checking and conforming that there's no leakage of dangerous goods or any signs of damage.

1.6.1.8 Any dangerous goods loaded into aircrafts shall be offloaded (or ask relevant institutions to offload them) if any leakage or damage emerges. And make sure the rest of the shipments meet air transport conditions and other shipments are not contaminated.

1.6.1.9 Check if there's any signs of damage or leakage when offloading packages or overpacks with dangerous goods packed in and special packing box with radioactive materials packed in form aircrafts or ULDs. Conduct detailed examination towards positions where dangerous goods or ULDs are loaded if any signs of leakage or damages are found.

1.6.1.10 Dangerous goods shall not be loaded into the cockpit or cabin with passengers of aircrafts, unless otherwise required by *Technical Instructions*.

1.6.1.11 Any deleterious contamination caused by leakage or damage of dangerous goods shall be immediately removed from aircrafts once found on board. Aircrafts contaminated by radioactive materials shall be suspended to use and shall not be reused until any contactable surface radiation intensity or non-solid contamination is reduced to upper limit required by *Technical Instructions*.

1.6.1.12 Packages with dangerous goods that may cause interaction or interaction may be activated when there's a leakage shall not be loaded in contiguous positions.

1) Packages of toxic and infectious substances shall be loaded into the aircrafts in accordance with *Technical Instructions*.

2) Packages of radioactive materials loaded on aircrafts shall be separated from humans, living animations and undeveloped film rolls in accordance with Technical Insructions.

1.6.1.13 Protect dangerous goods which meet requirements of this regulation from

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being damaged when loading them into aircrafts and keep them fixed in cargo holds so the specified orientation will not be changed due to displacement. Packages with radioactive materials shall fully be anchored and ensured in any cases that the separation requirements specified in 1.6.1.12 are met.

1.6.1.14 Packages with Cargo Aircraft Only label shall be loaded into cargo aircrafts as per *Technical Instructions*.

1.6.1.15 The carrier or its agents must confirm that dangerous goods are stored in proper positions and meet requirements of storing, separation and isolation as specified in *Technical Instructions*.

1.6.1.16 Inform the shipper of the authentication institutions accredited by carrier, make sure that they meet relevant requirements imposed to authentication institutions of cargo air transport by CAAC and report accredited authentication institutions to CAAC for records whenever it's necessary to ask the shipper to provide appraisal report indicating that the dangerous goods meet conditions of air transportation.

1.6.1.17 After the completion of a flight carrying dangerous goods, all relevant documents pertaining to the air transport of dangerous goods must be retained for a minimum of 24 months. This is with the exception of the air waybill and the special load notification to the captain, which must be preserved for at least 36 months. The documentation shall at least include *Acceptance Checklist for dangerous goods,* dangerous goods transportation documents, AWB, and NOTOC.

1.6.1.18 If a ground service agent is entrusted to represent the company in providing ground services related to the air transport of dangerous goods, a ground service agency agreement involving the air transport of dangerous goods must be signed with the ground service agent. The entrusted ground service agent within China must comply with the

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requirements for ground service agents specified in these regulations, while the entrusted ground service agent outside China must comply with the relevant laws and regulations of the country where they are located.

1.6.1.19 Carrier shall sign THE CARGO GENERAL SALES AND SERVICE AGENCYAGREEMENT including content of safety transportation of dangerous goods by air with cargo sales agents and make sure they are qualified in the following aspects:

1) Have Business License of Legal Entity

2) Staff undertaking accepting of dangerous goods and general cargo, mail (non-dangerous goods) and staff undertaking carrying, storing, and loading of cargo and mail shall be trained by training institutions in compliance with requirements of this manual and accredited by the carrier, and qualified.

3) In the goods, mail location display and provide sufficient quantity, striking about the transport of dangerous goods information notice, to remind the consignment may contain any dangerous goods and dangerous goods transport transport relevant provisions and legal responsibility, these notice must include dangerous goods (including battery) intuitive example;

4) Carrier shall not ship dangerous goods as a shipper or a shipper's delegator.

5) Take proper measures to avoid pilferage and unauthorized use of dangerous goods which may cause damage of personnel and property.

6) Report to investigation functional departments about the situation of dangerous goods on the aircrafts when there is an accident of the aircrafts, serious incident, and incident.

7) All other activities of dangerous goods transportation performed by agents as delegator of HU shall be also in the accreditation scope of HU and shall comply requirements of this manual and Civil Aviation Transport

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Regulation for Dangerous Goods of the CAAC, Transportation Department Instruction.

1.6.1.20 If a cargo sales agent or ground service agent is entrusted to engage in business related to air cargo transportation, the agency agreement must require the agent to inspect the received cargo or take effective measures to prevent the concealment of dangerous goods in the cargo. At the same time, the company must approve the agent's cargo inspection and related measures and conduct regular inspections.

1.6.1.21 Establish and implement a credibility evaluation mechanism for consignors and their agents.

1.6.1.22 When accepting radioactive items for air transport, the carrier must hold a dangerous goods air transport license issued by the regional civil aviation administration, comply with the carrier responsibilities stipulated in CCAR-276 and the *Technical Instructions*, and fulfill the following responsibilities stipulated in the Regulations on the Safety Management of Radioactive Material Transport (hereinafter referred to as the Regulations):

1) Provide training on transport safety and emergency response knowledge to staff directly involved in the transportation of radioactive items, and conduct assessments. Staff who fail the assessment are not allowed to engage in related work. Conduct personal dose monitoring for staff directly involved in the transportation of radioactive items, and establish personal dose records and occupational health monitoring records. The *Technical Instructions* and the national standard Regulations for the Safe Transport of Radioactive Material (GB11806-2004) specify the criteria for determining whether personal dose monitoring is required, based on the evaluated effective dose in the workplace.

2) In the event of a nuclear or radiation accident during transport, the carrier must follow the emergency response plan provided by the consignor, carry out accident emergency response measures, and immediately report the incident to the environmental protection authority at or above the county level where the accident occurred, as well as to the local civil aviation safety regulatory department. If a nuclear or radiation accident occurs involving radioactive items on an aircraft, in addition to reporting to the civil aviation dangerous goods regulatory department, the carrier must immediately report to the State Council's nuclear safety regulatory department and the local environmental protection authority to

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obtain professional technical support for nuclear and radiation accidents.

3) When accepting radioactive items for transport, the carrier must strictly inspect the various certificates, documents, and approval certificates submitted by the consignor in accordance with the *Technical Instructions* and the Regulations. If the documents are incomplete or do not meet the requirements, the carrier must not accept the shipment.

4) If the radioactive items consigned by the consignor require approval or exemption from the national authority in accordance with the relevant requirements of the *Technical Instructions*, the carrier must obtain the corresponding approval or exemption from the regional civil aviation administration before transport.

1.6.2 Responsibilities of the agents.

Agents referred in this manual are companies or institutions who perform activities of dangerous goods transportation by air as representatives of our company, including cargo sales agents, ground services agents and other units who are delegated to perform activities of dangerous goods transportation by air by our company.

1.6.2.1 Cargo sales agents shall sign THE CARGO GENERAL SALES AND SERVICE AGENCY AGREEMENT including content of safety transportation of dangerous goods with our company.

1.6.2.2 Cargo sales agents shall not ship dangerous goods as a shipper or a shipper's delegator.

1.6.2.3 Hainan Airlines, as a ground agent and other agents entering into agreements with the Company, shall meet the following requirements regardless of whether they are engaged in the transport of dangerous goods by air:

1) Have Business License of Legal Entity;

2) Make *dangerous goods training program* and approved by local regional administrations of CAAC;

3) Make sure that staff have been trained and qualified according to this manual and *Technical Instructions*;

4) A ground service agency agreement including the transport of dangerous goods by air shall be signed with the operator, and the agreement shall

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contain the requirements of the entrusted party for inspecting the goods received or taking effective measures to prevent the dangerous goods hidden in the goods and the requirements for preventing the dangerous goods hidden in the postal baggage and the ground emergency response of dangerous goods;

5) Make management procedure of dangerous goods transportation by air, which shall include ground emergency response procedure and measures.

6) For those who provide or approve the *Dangerous Goods Transport Manual*, they shall also provide the manual in the familiar language of those involved in the air transport of dangerous goods at convenient reference locations in the workplace, so that relevant personnel can fulfill their duties in the air transport of dangerous goods.

7) Develop and implement baggage anti-hidden measures through the use of baggage collection check lists, verification of excess baggage, Posting anti-hidden notices, etc.

8) Learn and implement the regulations of dangerous goods transportation by the entrusted unit and pay attention to the operation differences among the entrusted units.

9) Display and provide sufficient and striking notice of goods and mail collection information on the transport of dangerous goods to remind attention of any provisions of dangerous goods and illegal transportation, these notices must include intuitive examples of dangerous goods (including batteries).

10) Other conditions required by CAAC.

1.6.2.4 Ground services agents who perform activities of dangerous goods transportation by air shall comply the following requirements besides 1.6.2.3:

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1) Make security measures in compliance with requirements of Technical Institutions.

2) Storage of dangerous goods shall meet requirements of storing, separation and isolation as specified in *Technical Instructions*.

3) Make sure that staff have well understood the content in the Dangerous Goods Transportation which has connections with his or her responsibilities and make sure the handling and transportation of dangerous goods are implemented as required by their *Dangerous Goods Transport Manual*.

4) Ground service agents shall complete the filing process with the Civil Aviation Regional Administration located at the airport where they provide aviation ground transportation services.

5) Responsibilities of HU in this manual are applicable to ground services agents who performed activities of dangerous goods transportation by air as delegator of our company.

6) If a Ground service Agent subcontracts part of the services specified in the Ground Handling Agreement to a Subcontractor, the services provided by the Subcontractor are considered part of the services provided by the Ground service Agent. The Subcontractor does not need to apply for separate filing, but the Ground service Agent is responsible for the validity of the Subcontractor's services and the hazardous materials (dangerous goods) qualifications of the Subcontractor's personnel.

Ground service agents shall coordinate and manage the safety production of subcontractors through agreements, conduct regular supervision and inspections, strengthen safety production management of subcontractors, and enhance integrity management.

1.6.2.5 Ground service agents shall conduct ground services for dangerous

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goods air transport in accordance with the *Dangerous Goods Transport Manual* provided by Hainan Airlines or the ground service agent's own *Dangerous Goods Transport Manual* approved by Hainan Airlines.

Where ground service agents approved by Hainan Airlines conduct operations in accordance with the Ground service Agent's Dangerous Goods by Air Transport Manual, Hainan Airlines shall inform the ground service agent of its differentiated requirements, and the ground service agent shall take measures to ensure that the relevant operations comply with Hainan Airlines' differentiated requirements.

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1.7 Dangerous Goods Transportation Training

1.7.1 Personnel training requirements

1.7.1.1 As the shipper of dangerous goods, the domestic carrier, the ground service agent and the dangerous goods training institution,the company ought to Institute and possess the *dangerous goods training program* that accord with the *Administrative regulations on the transportation of dangerous goods in civil aviation* and the *Technical Instructions* And carry out training activities according to the outline.

1.7.1.2 The Company requires that personnel engaged in the air transport activities of dangerous goods before performing any of its responsibilities it must comply with the requirements of the *Administrative regulations on the transportation of dangerous goods in civil aviation* and the *Technical Instructions for the Safe Transport of Dangerous Goods By Air* .Before they work on duty,they must pass the training and examination of the dangerous goods training institutions that meet the requirements, and can be competent for the corresponding responsibilities.For those who are not trained, fail to resume training on time or fail to pass the assessment, they shall not be arranged to engage in relevant work.

1.7.1.3 Every department base branch of the company are responsible for all types of personnel of the unit shall receive dangerous goods training and be evaluated as qualified according to the requirements of the Company's *Dangerous Goods Training Program* and have the requirements to perform the duties of the position. Detailed requirements for training objects, training courses and training evaluation can be found in the company's *Dangerous Goods Training Program*.

1.7.1.4 To keep the DGR knowledge update,Participants in dangerous goods training must resume training within 24 calendar months of the previous training

1.7.2 Training program

Companies as consignors or consignor agents for the transportation of dangerous goods, or other organizations, cargo sales agents, and ground service agents, must possess a *dangerous goods training program* when conducting training activities.

1.7.2.1 Before implementing the *Dangerous Goods Training Program* as a domestic carrier, the company must submit it to the regional administration for review.

1.7.2.2 Before implementing the *dangerous goods training program* for ground service agents, it must be submitted to the regional administration for filing.

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1.7.2.3 Before implementing the *dangerous goods training program* for cargo sales agents, it must obtain written approval from the company.

1.7.3 Requirements for Dangerous Goods Training Institutions

1.7.3.1 A dangerous goods training institution must file a record with the regional civil aviation administration where it is located at least 30 days before conducting its first training activity. If the institution terminates its training activities, it must notify the original filing civil aviation administration in writing within 30 days from the date of termination.

1.7.3.2 Documents required for institutional filing:

1) Dangerous Goods Training Institution Filing Information Form.

2) Proof of legal entity qualification;

3) *Dangerous goods training program*;

4) Establishment of a dangerous goods training management system;

5) Proof of at least three dangerous goods instructors who meet the requirements of the Regulations on the Transport of Dangerous Goods by Civil Aviation, along with teaching facilities and equipment that meet educational needs;

6) A declaration stating that the institution will conduct dangerous goods training activities in accordance with the Regulations on the Transport of Dangerous Goods by Civil Aviation and the filed content, and will keep the *dangerous goods training program* continuously updated.

7) If there are changes to the filed materials, the institution must report these changes to the civil aviation administration within 20 days.

1.7.3.3 Dangerous goods training institutions must conduct training in accordance with the filed *dangerous goods training program* and training management system, and adhere to the following requirements.

1) Conduct regular self-inspections to ensure continuous compliance with the *Regulations on the Transport of Dangerous Goods by Civil Aviation* and the requirements of the dangerous goods training management system.

2) The *dangerous goods training program* and instructors used during training must comply with the requirements of the *Regulations on the Transport of Dangerous Goods by Civil Aviation*.

3) The training conducted must comply with the requirements of the *Regulations on the Transport of Dangerous Goods by Civil Aviation*.

4) Establish and implement a training effectiveness evaluation system, and regularly organize teaching seminars and teaching quality assessment activities.

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1.7.3.4 Dangerous goods training institutions must undergo teaching quality evaluations organized by civil aviation administrative authorities.

1.7.3.5 Dangerous goods training institutions must accurately record the education and training status of their dangerous goods air transport personnel and retain such records for no less than 36 months, ready for inspection by civil aviation administrative authorities at any time. The records must include at least the following: the trainee's name, the date of the most recent completed training and assessment, a description of the materials, copies, or reference materials that meet the training and assessment requirements, the name and address of the unit providing the training and assessment, and evidence indicating that the personnel have been assessed as qualified.

1.7.3.6 Dangerous goods training institutions must establish information files for dangerous goods training instructors, including personal resumes, teaching records, internship records, training records, and teaching quality evaluation results. These information files must be retained for no less than three years.

1.7.3.7 Dangerous goods training institutions must ensure that their dangerous goods instructors continuously meet the requirements of the Regulations on the Transport of Dangerous Goods by Civil Aviation.

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1.8 Dangerous Goods Transportation Certificate Management

Before the transport of dangerous goods, HNA should receive the approval from civil aviation administrative departments at all levels

1.8.1 Validity of the certificate

1) The validity period of Hainan Airlines' dangerous goods air transport license complies with the regulations of the civil aviation authority, with a maximum validity period not exceeding 24 months.

2) If the following situation happens, the certificate becomes invalidation:

A The company submits a written statement of abandonment;

B The license is revoked or withdrawn according to the law;

C The license expires and no application for renewal is submitted, or it becomes invalid for other reasons.

1.8.2 Operational Standards department is responsible for application, revision, continuity or termination of HNA dangerous goods transportation certificate.

1.8.3 If the following situation happens, apply to civil aviation authority for revision of dangerous goods transportation certificate:

1) Approved operation scope;

2) Classification of dangerous goods approved for transportation;

3) Approved operation airport;

4) Limitations in original certificate;

5) Other necessary items designated by the company;

6) CAAC policy requirements.

1.8.4 When HNA dangerous goods transportation certificate needs to continue validity, apply to civil aviation authority 30 work days before the

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expiration of the certificate.

1.8.5 *Approval Letter for DG Transport by Air* cannot be altered, lent, sold or transferred.

1.8.6 If the *Approval Letter for DG Transport by Air is lost, damaged,* the regional administration of CAAC issued the Approval Letter should be informed, and Loss Announcement and declaration of invalidity should be published on public media before applying for the new one.

1.8.7 The company engaged in the air transport of dangerous goods and mail containing dangerous goods must obtain a dangerous goods air transport permit, and shall conduct such transportation activities in accordance with the requirements and conditions specified in the permit. When transporting dangerous goods subject to legal or regulatory transport restrictions, the company must comply with the applicable laws and regulations.

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1.9 Dangerous Goods Transportation Preparation

1.9.1 Transportation documents preparation

1) Operational Standards department shall order new DGR from IATA in December of each year;

2) After getting the latest version of the *Dangerous Goods Regulations* at the beginning of each year, Operational Standards department organizes the team compiling *Dangerous Goods Transportation Manual* to learn new changes of *Dangerous Goods Regulations*.

3) The style of "dangerous goods declaration" and the "acceptance and transportation checklist of dangerous goods" should be consistent with the style of the current version of *Dangerous Goods Regulations*. Meanwhile, in order to facilitate use of "dangerous goods declaration" and "acceptance and transportation checklist of dangerous goods", they must be available in bilingual.

4) When the styles of "dangerous goods declaration" and the "acceptance and transportation checklist of dangerous goods" change, must promptly re-release a new version of "dangerous goods declaration" and the "acceptance and transportation checklist of dangerous goods", while callback all the unused old "dangerous goods declaration" and the "acceptance and transportation checklist of dangerous goods".

5) When the styles of "dangerous goods declaration" and the "acceptance and transportation checklist of dangerous goods" change, the Quality Management Center must organize personnel of related units to learn new changes,and keep relevant records.

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1.9.2 Label preparation

1) Label administrator of Sales & Marketing Department Freight Branch is responsible to print enough hazard labels and operation labels according to label style in current version of DGR;

2) Label administrator of Sales & Marketing Department Freight Branch is responsible to distribute valid label to company's dangerous goods transportation operation bases authorized by CAAC. And local cargo office is responsible to provide the label to local ground agency;

3) When accepting goods, if detecting loss, separation or illegibility of the label, provide the same label to shippers for substituting the defective label;

4) Label administrator of Sales & Marketing Department Freight Branch is responsible to periodically check the use of the label. If not enough, supplement immediately;

5) If the label style of new DGR changes, label administrator must promptly print new labels and distribute to related using units, meanwhile, callback all the unused old labels;

6) When the label changes, the Operation standard Center of the Operation Standard Department issues the label update content. The Freight management center of the ground service Management Department must organize personnel of relevant units to learn the changed content and keep relevant records.

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1.10 Provision of Dangerous Goods Transportation Information

1.10.1 Information provided to captain

1.10.1.1 For flights with dangerous goods, cargo loading department shall provide "special load notification for captain" to captain as soon as possible before takeoff. Refer to section 7.5 for content and format of the notification.

1.10.1.2 "Special load notification for captain" must have signature of flight loading principal to confirm there is no damage or leakage of packages loaded into the aircraft.

1.10.1.3 Captain must sign on "special load notification for captain" for indicatio of receiving the information.

1.10.1.4 The "Special Cargo Notification to Captain" is prepared in triplicate. After being signed by the captain, one copy is retained by the captain, one copy is kept at the station of origin, and the remaining copy is sent to the destination station with the Air Waybill.

1.10.1.5 "Special load notification for captain" shall be in both Chinese and English.

1.10.1.6 If there are dangerous goods carried by passengers and crew that need to be approved by the operator and notified to the crew, the Special Baggage Captain's Notice shall be provided to the captain prior to the take-off of the aircraft on which the dangerous goods are to be carried.

1.10.1.7 Each implementing department shall establish information transfer procedures to ensure that the crew has access to written information on the Special Cargo Captain's Notice or Special Baggage Captain's Notice.

1.10.2 Information and indications provided to flight crews

1.10.2.1 Flights with dangerous goods should equipped with flight operation

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manual, the responsibility for flight crews during dangerous goods transportation should be listed in the manual. The manual also needs to provide the guidance for dangerous goods emergency response.

1.10.2.2 Refer to chapter 11.18.11 of flight operation manual for responsibility of flight crews during dangerous goods transportation.

1.10.2.3 Refer to chapter 12.5 of flight operation manual for the guidance for dangerous goods emergency response.

1.10.3 Information provided to passengers

The Marketing Management Committee, Ground Service Department, all Base/Branch Companies must conspicuously post a sufficient number of notices at their own ticket offices, check-in counters, security checkpoints, boarding gates, baggage claim areas, and any other locations where passengers can check in. These notices must inform passengers of the types of dangerous goods prohibited for air transport and include intuitive examples of prohibited dangerous goods. They must also inspect responsible airports and all levels of sales and service agents.

1.10.3.1 When selling tickets to passengers, information regarding the types of dangerous goods prohibited for air transport must be provided. When passengers purchase tickets via the internet, information about dangerous goods prohibited from being carried on board must be provided in text or image form. Completion of the ticket purchase process must only be possible after the passenger acknowledges awareness of the restrictions on dangerous goods in baggage.

1.10.3.2 During passenger check-in, information regarding the restrictions on passengers carrying dangerous goods as stipulated in the *Technical Instructions* must be provided. For self-service check-in, the information provided must include images, and completion of the

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check-in process must only be possible after the passenger acknowledges awareness of the restrictions on dangerous goods in baggage.

1.10.4 Information provided to shippers

The freight management center of the local service management department must ensure that its own operating units and urge the ground agency to display and provide sufficient and conspicuous notices on the transportation of dangerous goods in the eye-catching place at the collection and transportation office of goods and mail, In order to remind attention of any dangerous goods and dangerous goods for the illegal transportation of dangerous goods, These notices must include an intuitive example of dangerous goods (including batteries), at the same time, Set up information about the air transport of dangerous goods on the company's cargo external website, When the shipper must clearly express that he / she understands the relevant requirements and legal responsibilities of the air transport of dangerous goods, Otherwise, the cabin booking procedures cannot be completed.

1.10.5 Message provided to Operation and control personnel of aircraft.

1.10.5.1 Ground Handling Agents (GHA) / Cargo Control Position shall notify the company's AOC Dispatch Release position (FOC_qpfxx@hnair.com) and AOC Planning & Control position (FOC_jhkzx@hnair.com) in writing of dangerous goods information as early as possible prior to the departure of an aircraft scheduled to carry dangerous goods, copying Cargo Control 1 (hykzx1@hnair.com) and Cargo Control 2 (hykzx2@hnair.com). The information provided shall be a copy of the same information contained on the NOTOC (Notification to Captain). The Cargo Management Center of the Ground Service Management Department shall monitor implementation.The AOC shall maintain immediate access to the replica

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of the Notification to Captain or its contained information throughout the flight phase, until the aircraft carrying dangerous goods arrives at the destination airport.

1.10.5.2 If there are dangerous goods carried by passengers and crew that need to be approved by the operator and informed to the crew, each ground support unit shall provide the aircraft operations controller with a copy of the same information as in the Special Baggage Captain's Notice before the aircraft to be loaded with dangerous goods takes off. The information notification procedure is detailed in Ground Operations Manual 4.2.6.

1.10.6 Provision of Information to Load Control Personnel

1.10.6.1 If passengers or crew members carry permitted dangerous goods that require notification to the captain and are stowed in the cargo compartment, the ground support unit shall notify the load and balance department of the dangerous goods information received, and shall complete the Captain's Notification of Special Baggage form as required.

1.10.6.2 For dangerous goods transported as cargo, operations personnel shall, while providing information such as cargo weight to the Load Control Unit, also communicate the relevant dangerous goods information. They shall promptly submit the accurately completed "Special Cargo Notification to Captain" information to the Load Control Unit.

1.10.6.3 The dangerous goods information transmitted to the Load Control Unit shall include at least the following:

1) Cargo AWB Number

2) Proper Shipping Name and UN number/ID number;

3) Class or Division and subsidiary risk(s) corresponding to the hazard labels used. For Class 1 explosives, the Compatibility Group must also be indicated.

4) Packing Grade

5) For non-radioactive materials: The number of packages, exact loading position, and for each package, the net quantity as required or the gross mass if applicable, EXCEPT for:

(1) UN 1845 (Dry Ice): Optionally provide only the UN number, Proper

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Shipping Name, Class, total quantity of dry ice loaded in each cargo compartment of the aircraft, and the name of the airport where the cargo is to be unloaded.

(2) UN 3480 (Lithium ion batteries), UN 3090 (Lithium metal batteries), and UN 3551 (Sodium ion batteries): Optionally provide only the UN number, Proper Shipping Name, Class, total quantity per loading position, airport(s) of unloading for the package(s), and whether Cargo Aircraft Only (CAO) is required. As the company currently only operates passenger aircraft and no cargo aircraft, it does not carry UN 3480, UN 3090, or UN 3551. If transported under government exemption, all requirements of sections 7.5.1 and 7.5.2 of this manual must be met.

6) For radioactive materials: The number of packages, overpacks, or freight containers, the Transport Index (TI) per package (if applicable), the exact loading position, and the category (I-WHITE, II-YELLOW, III-YELLOW).

7) CAO (Cargo Aircraft Only) or not?

8) Port of unloading

9) Certificate of exemption from government (if applicable)

10) ULD (Unit Load Device) Identification Code.

1.10.7 Information provided to others

1.10.7.1 Cargo and luggage acceptance department shall organize staffs to receive post training and equip them with *dangerous goods transportation manual,* the responsibility related to dangerous goods transportation should be listed in the manual. The manual also needs to provide the guidance for dangerous goods emergency response.

1.10.7.2 Dangerous goods operator shall organize staffs to receive post training and equip them with dangerous goods transportation procedures, the responsibility related to dangerous goods transportation should be listed in the procedures. The procedures also need to provide the guidance for dangerous goods emergency response.

1.10.7.3 Dangerous goods transportation airport shall organize staffs to receive

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post training and equip them with dangerous goods transportation procedures, the responsibility related to dangerous goods transportation should be listed in the procedures. The procedures also need to provide the guidance for dangerous goods emergency response.

1.10.8 Information provided to airport authority or ATC by captain

1.10.8.1 If any emergency happens in flight, if permitted, captain should quickly inform information of dangerous goods in the aircraft to ATC so as to notice airport authority.

1.10.8.2 The notice should include transportation entry and UN/ID code, class/division, compatibility group of category 1, any subordinate hazard, numbers, location or telephone number for place where can find the captain information notification.

1.10.8.3 If it is impossible to include all information, choose contents most related to the situation or numbers, class or division of dangerous goods in the cargo compartment.

1.10.8.4 Refer to item 12.5 in *flight operation manual* for details.

1.10.9 Information for aircraft accident or incident

Operation and control department shall immediately provide information of dangerous goods loaded on the aircrafts to emergency response institutions, central south administration of CAAC, or relevant authorities in local country who handle such issues when an accident or a serious incident happens on a plane with dangerous goods loaded and it may have relationship with the dangerous goods transported as cargo. This information shall be in line with the NOTOC provided to the captain.

1.10.10 Information of dangerous goods accident or incident

Refer to item 15.3 of this manual for dangerous goods accident or incident reported to CAAC

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1.10.11 Information provided to related airport authority or HNA by departure airport authority

1.10.11.1 For flights with dangerous goods, departure airport authority shall send high consequence goods telegraph to transfer station and destination before takeoff. Inform related stations of information at least including class, numbers or location.

1.10.11.2 For flights with dangerous goods, departure airport authority or local cargo office shall send email or fax to quality management center of cargo department before takeoff. Notice should at least include transportation entry and UN/ID code, class/division, numbers, shipper, consignee and location information.

1.10.11.3 According to special provisions of IATA *Dangerous Goods Regulations*, once the leak, spill, fire or other incident / accident related to substances or articles transported as "non-restricted items" occur, still must comply with reporting requirements.

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1.11 Cargo Security

1.11.1 General requirement

Staffs involved in dangerous goods transportation should accept related aviation security training, know aviation security knowledge, enhance security awareness, implement responsibility, take proper measures according to dangerous goods security requirements and response for security incidents and reduce the security risk.

1.11.2 Security Purpose

Ensure safe dangerous goods transportation during acceptance, screening, loading, storage, delivery, and transfer. Prevent dangerous goods being stolen to the society and endanger the society security.

1.11.3 Application Range

This regulation applies to every part of dangerous goods transportation.

1.11.4 Security Plan

1.11.4.1 Specific allocation of responsibilities for security to competent and qualified persons with appropriate authority to carry out their responsibilities;

1.11.4.2 Records of dangerous goods or Class of dangerous goods transported;

1.11.4.3 Review of current operations and assessment of vulnerabilities, including inter-modal transfer, temporary transit storage, handling and distribution as appropriate;

1.11.4.4 Clear statement of measures including training policies (including response to higher threat conditions, new employee/employment verifications etc.), dangerous goods transportation practices, equipment and resources that are to be used to reduce security risks;

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1.11.4.5 Effective and up to date procedures for reporting and dealing with security threats, breaches of security or security incidents;

1.11.4.6 Procedures for the evaluation and testing of security plans and procedures for periodic review and update of the plans;

1.11.4.7 Measures to ensure the security of transport information contained in the plan; and

1.11.4.8 Measures to ensure that the security of the distribution of transport documentation is limited as far as possible.

1.11.5 Security requirements for high consequence dangerous goods

1.11.5.1 High consequence dangerous goods are those which have the potential for misuse in a terrorist incident and which may, as a result, produce serious consequences such as mass casualties or mass destruction. For the following high consequence dangerous goods, security personnel should monitor importantly.

1) Division 1.1 explosives;

2) Division 1.2 explosives;

3) Division 1.3 compatibility group C explosives;

4) Division1.4,UN0104,UN0237,UN0267,UN0289,UN0361,UN0365,UN0366,UN0440,UN0441,UN0455,UN0500; UN0512, UN0513

5) Division 1.5 explosives;

6) Division 1.6 explosives;

7) Division 2.3 Toxic Gas (not including Aerosol);

8) Category 3 desensitized explosives;

9) Division 4.1 desensitized explosives

10) Division 6.1 substances of Packing Group I, except when transported under the excepted quantity provisions of 2.6 IATA DGR;

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11) Division 6.2 infectious substances of Category A (UN 2814 and UN 2900); Grade A Medical Waste (UN3549)

12) Class 7,where the activity per single package is greater than or equal to the transport security critical value of 3000A_2 , unless for the following radionuclides whose transport security critical values are provided in the table below.

TABLE 1.7.B
Transport Security Thresholds for Specific Radionuclides (1.7.3.1.3)

Radionuclide	Element	Transport Security Threshold (TBq)
Am-241	Americium	0.6
Au-198	Gold	2
Cd-109	Cadmium	200
Cf-252	Californium	0.2
Cm-244	Curium	0.5
Co-57	Cobalt	7
Co-60		0.3
Cs-137	Caesium	1
Fe-55	Iron	8,000
Gd-153	Gadolinium	10
Ge-68	Germanium	7
Ir-192	Iridium	0.8
Ni-63	Nickel	600
Pd-103	Palladium	900
Pm-147	Promethium	400
Po-210	Polonium	0.6
Pu-238	Plutonium	0.6
Pu-239		0.6
Ra-226	Radium	0.4
Ru-106	Ruthenium	3
Se-75	Selenium	2
Sr-90	Strontium	10
Tl-204	Thallium	200
Tm-170	Thulium	200
Yb-169	Ytterbium	3

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1.11.5.2 Dangerous goods described in item 1) must be supervised by exclusive persons and have supervision measures. Once the consignee not receiving goods or goods lost, policeman should be informed immediately to prevent dangerous goods being moved to the society and endanger the society security.

1.11.5.3 All package opened during inspection must be submitted to personnel for

repacking according to requirements of dangerous goods transportation.

1.11.5.4 For other aviation security requirements for cargo and dangerous goods, refer to Chapter 15, Aviation Cargo and Mail Security, of the company's Aviation Security Program.

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1.12 Dangerous goods air transport data submission

In order to accurately grasp the situation of the transport of dangerous goods by air and strengthen the safety management of the transport of dangerous goods by air, this chapter is formulated in accordance with the Regulations on the Administration of the Transport of Dangerous Goods by Civil Air and the Measures for the Administration of the Submission of Dangerous Goods Air Transport Data.

1.12.1 Submission of data

As an operator, training institution, or ground service agent, the company must regularly report data such as dangerous goods air transport volume, throughput, number of employees, number of training instructors, training schedules, training records, and training implementation status to the authority's designated website in accordance with the *Measures for the Reporting and Management of Dangerous Goods Air Transport Data*. The above data must be collected in advance by designated personnel from each unit and submitted only after verification to ensure accuracy.The specific reporting entities are as follows:

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1.12.1.1 According to the requirements of Schedule 1-1, the ground service Management Department shall designate one person to submit the volume and throughput of dangerous goods by air of the unit before the 15th of the next month, and submit the data in accordance with the requirements of these Measures using the account of "Dangerous Goods Air Transport Information Management System" applied to the local civil aviation regional Administration.

1.12.1.2 According to the requirements of Schedule 1-2 and Schedule 1-3, the unit engaged in the ground agent of the company shall, in combination with

the actual transportation situation, appoint a special person to submit the throughput of dangerous goods air transport and the number of dangerous goods air transport practitioners of the ground service agent of the unit before the 15th of the next month and January 31 of the next year respectively.

1.12.1.3 The Operations Standards Department shall designate a dedicated person to report the number of dangerous goods air transport employees and the number of dangerous goods training instructors of the unit by January 31 of the following year, in accordance with the requirements of Appendix 1-3 and Appendix 1-4. The data shall be submitted using the 'Dangerous Goods Air Transport Information Management System' account applied for from the local regional civil aviation administration, and shall be reported as required.

1.12.1.4 The Operations Standards Department shall designate a dedicated person to report the dangerous goods training plan for the next month by the end of the current month, in accordance with the requirements of Appendix 1-5. Additionally, in accordance with the requirements of Appendices 1-6 to 1-8, a designated person shall report the unit's dangerous goods training records (implementation status) by the 15th of the month following the completion of the training. The data shall be submitted using the 'Dangerous Goods Air Transport Information Management System' account applied for from the local regional civil aviation administration, and shall be reported as required.

1.12.1.5 If the data changes significantly year-on-year, enterprises and institutions shall submit relevant explanations according to the requirements of the Transportation Department of the Civil Aviation Administration and the

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Regional Administration of Civil Aviation.

1.12.1.6 The URL for the "Air transport of dangerous goods information management system" is: https://dg.caac.gov.cn/.

1.12.2 Attached chart

Attached table1-1

Dangerous Goods Air Transport Volume Reporting Form

填报单位： 20 年 月 填报日期：

类（项）别 / 运输量（千克）	第1类	第2类			第3类	第4类			第5类		第6类		第7类	第8类	第9类			合计	其中	
		2.1项	2.2项	2.3项		4.1项	4.2项	4.3项	5.1项	5.2项	6.1项	6.2项			第9类锂电池	第9类含锂电池的设备	第9类其他		客机运输量	货机运输量
国内航线																				
港澳台航线																				
国际航线																				
合计																				

注1：危险品货物具有多重危险性时，按其主要危险性填报。

注2：如本月未运输危险品货物，危险品航空运输量按“0”填报。

注3：境内承运人报送国内航线、国际航线以及港澳台航线运输量，外国承运人报送国际航线运输量，港澳台承运人报送国际航线、港澳台航线运输量。

注4：有机电解质的钠离子电池统计入第9类锂电池中，含有有机电解质的钠离子电池的设备统计入第9类含锂电池的设备中。

Attached table 1-2

Dangerous Goods Air Transport Throughput Reporting Form

填报单位： 20 年 月 填报日期：

类（项）/ 吞吐量（千克）			第1类	第2类			第3类	第4类			第5类		第6类		第7类	第8类	第9类			合计
				2.1项	2.2项	2.3项		4.1项	4.2项	4.3项	5.1项	5.2项	6.1项	6.2项			第9类锂电池	第9类含锂电池的设备	第9类其他	
国内吞吐量	进港																			
	出港																			
港澳台吞吐量	进港																			
	出港																			
国际吞吐量	进港	境内航空公司																		
		外国航空公司																		
	出港	境内航空公司																		
		外国航空公司																		

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注 1：危险品货物具有多重危险性时，按其主要危险性填报。
注 2：如本月未操作危险品货物，危险品航空运输吞吐量按“0”填报。
注 3：地面服务代理人的分包商无需报送。
注 4：有机电解质的钠离子电池统计入第 9 类锂电池中，含有有机电解质的钠离子电池的设备统计入第 9 类含锂电池的设备中。

Attached table 1-3

Employee Quantity Reporting Form

填报单位：　　20 年　　填报日期：

序号	工作职责 1	工作职责 2	工作职责 3	工作职责 4	工作职责 5	工作职责 6	工作职责 7	工作职责 8	工作职责 9	工作职责 10	
职责类别	负责准备托运的危险品货物	负责办理或接收交运的普通货物（非危险品）	负责办理或接收托运的危险品货物	负责处理仓库货物、装载和卸载集装器以及装载和卸载飞机货舱	负责接收旅客和机组行李、管理航空器登机口、及其他机场内旅客服务人员	负责航空器装载计划	负责飞行的飞行机组	负责飞行运行和飞行签派	负责客舱安全的客舱机组	负责旅客和机组及其行李、货物和邮件安检	合计
从业人员数量（人）											

注：危险品航空运输从业人员承担多项工作职责时，按其主要承担的职责类别填报，不重复报送。

Attached table 1-4

Dangerous Goods Training Instructor Quantity Reporting Form

填报单位：　　20 年　　填报日期：

教员数量（人） 危险品培训机构 教员类型	A 类	B 类	合计

Attached table 1-5

Training Schedule Form

填报单位：　　20 年 月　　填报日期：

预计培训开始时间	预计培训结束时间	培训地点	培训类型	授课教员/专家	培训涉及危险品工作职责

注 1：本月月底前报送下月培训计划，培训实施前支持修改。
注 2：线下培训报送地点，线上培训报送“线上”。
注 3：培训类型包括教员培训/危险品培训（初训）/危险品培训（复训）等。

Attached table 1-6

Training Record Form (Part 1) (Instructors and Employees)

填报单位：　　20 年 月　　填报日期：

培训类型（教员培训/危险品培训（初训）/危险品培训（复训））	培训开始时间	培训结束时间	培训地点	培训课时	授课教员/专家	授课教员类别（A 类/B 类/专家）	涉及危险品工作职责	培训人数

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Attached table 1-7

Training Record Form (Part 2) (Instructors and Employees)

填报单位： 20 年 月 填报日期：

参训人员	培训大纲编号	个人证件类型	个人专属编号	工作单位	危险品工作职责	评估结果（优秀/合格/不合格）	有效期至	笔试成绩（如适用）	实操成绩（如适用）

Attached table 1-8

Training (Activity) Implementation Status Form (Instructors Only)

填报单位： 20 年 月 填报日期：

培训（活动）类型（实操培训/实习/教学研讨）	组织单位	参加教员姓名	开始时间	结束时间	地点

注1：按照每一期培训报送实施记录。培训类型包括：教员培训、危险品培训（初训）、危险品培训（复训）等。
注2：培训（活动）完成是指本期培训（活动）从计划、教学、评估、签注等所有环节均已完成。
注3：教员类别包括“A类、B类或专家”。
注4：教员危险品基础知识培训、教员初始培训、教员持续培训无需报送“培训涉及危险品工作职责”。
注5：实操培训、实习、教学研讨报送“参加教员姓名、开始时间、结束时间、地点”。
注6：线下培训报送地点，线上培训报送“线上”。
注7：有考核成绩的需要填写成绩。
注8：个人证件类型包括不限于：身份证、护照、工作证等，个人专属编号对应为证件中的编号，能唯一对应参训学员。

Attached table 1-9

Dangerous Goods Air Transport Data Reporting Catalog and Requirements

表名	报告周期	填报单位	报送截止日期
危险品航空运输量报送表	月报	持有危险品航空运输许可的境内承运人、港澳台地区承运人、外国承运人	次月15日
危险品航空运输吞吐量报送表	月报	在民航地区管理局备案的危险品地面服务代理人	次月15日
从业人员数量报送表	年报	境内承运人、在民航地区管理局备案的地面服务代理人	次年1月31日
危险品培训教员数量报送表	年报	危险品培训机构	次年1月31日
培训计划表	月报	危险品培训机构	本月月底前报送下月计划
表6—1培训记录表（一）（教员及从业人员）	月报	危险品培训机构	培训完成后的次月15日
表6—2培训记录表（二）（教员及从业人员）			培训完成后的次月15日
表6—3培训（活动）实施情况表（仅教员）			培训（活动）完成后的次月15日

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1.13 Self-audit Policy for Dangerous Goods Management

1.13.1 Purpose

According to Regulations on Management of Civil Aviation Dangerous Goods Transportation, there shall be regular self-audit on manual standard, management procedure, training program, staff qualification, practical handling, etc. that related to Dangerous Goods handling, ensuring that the company’ s Dangerous Goods transportation and safety management standard is up-to-date and legally executed.

1.13.2 Self-audit Basis

In accordance with the ICAO *Technical Instructions*, the Regulations on the Transport of Dangerous Goods by Civil Aviation, the IATA *Dangerous Goods Regulations*, the company's *Dangerous Goods Transport Manual*, *Dangerous Goods Training Program*, *Safety Management Procedures Manual*, *Dangerous Goods Safety Management Manual*, the company's statutory self-inspection items database, and other relevant documents and operational notices issued by the authority and the company.

1.13.3 Self-audit Scope

1.13.3.1 The company's operation standards department is responsible for developing the company's dangerous goods self-inspection system, and the responsible units for self-inspection are the company's production and operation departments and bases/branches, standards management departments, dangerous goods training management departments, passenger and cargo sales departments, the company's operating departments as ground agents, and the company's departments engaged in the consignment of dangerous goods aviation materials as shippers, etc. All units involved in business outsourcing or regulatory agencies, self-inspection should cover outsourcing units and regulatory agencies.

1.13.3.2 The content of self-inspection includes but is not limited to the implementation of self-inspection of dangerous goods air transport

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permits, agreements, manual standards, training programs, personnel qualifications, management procedures and related work directly related to air transport safety, so as to keep them up-to-date and effective, and relevant regulations are strictly implemented.

1.13.4 Qualification Requirements for Self-Inspection Personnel

Self-inspection personnel must possess dangerous goods qualifications that correspond to the job responsibilities involved in their self-inspection or be qualified to handle/receive dangerous goods cargo(Personnel responsible for dangerous goods training qualification inspections and compliance self-audits are the dangerous goods training administrators of each unit.). If the company has additional training requirements for dangerous goods self-inspection personnel, they must also complete that training before conducting dangerous goods self-inspection work.

1.13.5 Self-Inspection Frequency

Each responsible unit for self-inspection shall conduct dangerous goods self-inspection at least once per year.

1.13.6 Formulation and Implementation of Self-Inspection Plans

1.13.6.1 Statutory Self-Inspection

Each unit shall use the clauses related to dangerous goods content within statutory self-inspection as the basis for conducting their dangerous goods self-inspection work.

1.13.6.2 Manual Standards and Management Procedure Audits

Each unit shall complete the development of its annual dangerous goods self-audit plan (including checklist) for the current year in the first quarter, based on the email notification from the Operations Standards Department. The plan must include self-inspection for the consistency and implementation status of company-level and department-level manuals, regulatory documents, the *Dangerous Goods Transport Manual*, and the Dangerous Goods Training Syllabus manuals, standards, and management procedures applicable to their department. After formulating the annual self-inspection plan, each unit shall file it with the

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Operations Standards Department and conduct self-inspection according to the plan.

1.13.6.3 Training Management Procedure Self-Inspection

Based on email notifications from the Operations Standards Department, each unit shall complete monthly spot checks on personnel qualifications and quarterly self-inspections of training management procedures as required, to inspect and improve the execution of training within their unit.

1.13.7 Rectification and Re-inspection

In principle, each responsible unit for self-inspection must issue rectifications for problems identified during self-inspection through the company's Safety Management Platform. Management shall follow the closed-loop process as required by procedure 0322 (Safety Rectification Management Procedure) in the company's Safety Management Procedures Manual. Regular verification shall be conducted through "look-back" inspections.

Each responsible unit for self-inspection is accountable for its self-inspection activities. In cases of inadequate, non-conducted, non-compliant, or dishonest self-inspection, or if falsification exists, and where false information or problems are discovered during irregular spot checks by the Safety Supervision Department or the Operations Standards Department, rectification notices will be issued or performance evaluation actions will be taken.

1.13.8 Self-Inspection Effectiveness Evaluation and Improvement

Each responsible unit for self-inspection shall conduct a targeted summary for improving key areas of dangerous goods management in the following year, based on prominent issues and weaknesses identified during the annual self-inspection. They shall complete their unit's annual dangerous goods self-inspection report and file it with the Operations Standards Department by the end of January of the following year.

1.13.9 Retention of Self-Inspection Records

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Records generated during dangerous goods transport self-inspection activities, such as checklists, non-conformity rectification notices, self-inspection reports, etc., shall be archived and managed by each responsible unit according to the record management procedures. The retention period for paper or electronic copies of these documents is 36 months.

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1.14 Filing of the Company as a ground agent

1.14.1 purpose

In order to regulate the activities of the company in the air transportation of dangerous goods as the non-dangerous goods transportation ground service agent and ensure the safety of dangerous goods air transport, in accordance with the Regulations on the Transport of Dangerous Goods by Civil Aviation and the Measures for the Administration of Filing of Ground Service Agents for Dangerous Goods Transport in Public Air Transportation.

1.14.2 New requirements for archival filing

1.14.2.1 A Ground Handling Agent (GHA) shall file with the CAAC Regional Administration where the airport providing ground services is located before commencing aviation ground service agency activities for the first time. Filing is not required if the GHA provides services only for itself.

1.14.2.2 If a GHA provides aviation ground services at airports under the jurisdiction of different CAAC Regional Administrations, it shall file separately with the respective Regional Administration of each airport.

1.14.2.3 Subsidiaries providing air transport ground services with independent legal person status shall submit filings to the regional administration bureau of the airport's location under the name of their parent legal entity prior to commencing operations.

1.14.2.4 Subsidiaries providing air transport ground services without independent legal person status must obtain written authorization from their parent legal entity prior to commencing operations and then submit the filing to the regional administration bureau of the airport's location.

1.14.2.5 Filing materials are specified in section 1.14.3. Operating procedures and other matters not covered herein refer to the "Administrative Measures for Filing of Ground Service Agents for Public Air Transport of Dangerous Goods".

1.14.3 Requirements for change and filing

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1.14.3.1 If the dangerous goods transport-related ground service agency scope (including service items, types of cargo ground service filings, or types of passenger ground service filings) specified in the *Filing Form* undergoes changes, the ground service agent shall file an updated filing prior to commencing any new related business activities. Additionally, if any of the following filing materials are modified, the revised materials shall be submitted to the regional administration bureau of the airport's jurisdiction within 20 days to update the filing:

1) Filing Form;

2) Certificate of legal person status or written authorization from the parent legal entity;

3) Description of cargo handling agency operations (including signed agreements, subsidiaries, and equity affiliations);

4) *Dangerous Goods Transport Manual*;

5) *Dangerous Goods Training Program;*

6) Information on the dangerous goods management department and full-time/part-time personnel;

7) A declaration confirming compliance with the Regulations on the Transport of Dangerous Goods by Civil Aviation and filing materials regarding:

Prevention of hidden dangerous goods;

Ground emergency response procedures;

Continuous updates to the *Dangerous Goods Transport Manual* and Training Program.

1.14.4 Requirements for invalid record filing

When the company does not have the conditions to serve as a non-dangerous ground agent or does not engage in non-dangerous ground agency business, it shall immediately communicate with the registered regional administration to carry out the cancellation of the record, and stop the relevant ground agency services.

1.14.5 Implementation of record

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1.14.5.1 When the information of dangerous goods related responsible person and specific management personnel of the non-independent legal person in the company changes, the base / branch shall initiate and complete the change record.

1.14.5.2 When the business license of the company, *dangerous goods training program*, hidden prevention measures and other information change, the bidding department shall initiate the change record, and the units engaged in the non-dangerous ground agency work in the company shall complete the change record to the regional administration locally.

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1.15 Management of dangerous goods identification agencies

1.15.1 scope of application

This procedure applies to identification agencies that have entered into a Cooperation Agreement on Air Transport Condition identification for Cargo with the company.

1.15.2 definition

Identification Agencies: refers to the organization that determines whether air transport goods or their samples are dangerous goods according to the "technical rules"), "proposal on dangerous goods transport-test and standard manual" and other international and domestic laws, regulations, rules and standards, and explain the air transport conditions and other activities.

1.15.3 Accreditation of Identification Agencies

1.15.3.1 The Identification Agencies shall meet the following conditions:

1) With an independent legal personality.

2) It has a fixed workplace and laboratory suitable for the identification activities, and the experimental equipment has passed the metrological verification, calibration or corresponding inspection.

3) Hold the relevant accreditation certificate in accordance with the requirements of national laws and regulations, and the certificate shows the corresponding ability.

4) With the technical responsible person, authorized signatory and professional technical personnel suitable for the appraisal activities, the above personnel shall receive the training of category I personnel required in the Technical Rules and pass the qualification.

5) Establish the sample accuracy identification procedure and the sample preservation procedure.

6) Liability insurance with insured compensation of no less than RMB 2 million.

1.15.3.2 Accreditation of Identification Agencies

1) After receiving the approval requirements of the Identification Agencies, the Ground Service Department shall evaluate whether the relevant conditions of the Identification Agencies are met in accordance with the Regulations on the

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Administration of the Transport of Dangerous Goods by Civil Aviation and the Administrative Measures for the Administration of Cargo Air Transport Conditions and the requirements in 1.15.3.1 above.

2) After the initial assessment, the Ground Service Department will conduct a thorough review of the relevant materials from appraisal agencies, select those that meet the qualifications, preserve the documents and files in both written and electronic formats, and submits the formal report through official channels.

3) After the official document is approved, the Ground Service Department will sign the agreement and notify the relevant company departments, agent agencies, and shippers.

4) The validity period is typically two years, and the relevant certification documents must be preserved for a duration not shorter than the validity period.

1.15.4 Responsibility of Identification Agencies

1.15.4.1 The Identification Agencies shall carry out appraisal activities in accordance with the quality system that meets the requirements, and the appraisal report issued has the function of anti-counterfeiting identification, and can check the authenticity of the appraisal report through the network.

1.15.4.2 The Identification Agencies shall keep a negative page for the accuracy of the experimental data and conclusions provided in the appraisal report, and keep the appraisal application documents, records of the appraisal process, and copies of the appraisal report for more than two years (including).

1.15.4.3 The technical personnel of the Identification Agencies shall regularly participate in the special training of air transport appraisal of dangerous goods to master the latest international and domestic knowledge of air transport of dangerous goods.

1.15.5 Change of the qualification recognized by Identification Agencies

1.15.5.1 The Company shall be responsible for supervising the recognized Identification Agencies to ensure that they continuously meet the requirements of CCAR-276-R1 and supporting management measures. Under the following circumstances, the accreditation shall be canceled and reported to

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the Civil Aviation Administration for change and filing information:

1) Identification is beyond the approved scope.

2) Dangerous goods accident, post-accident accident or other unsafe incidents due to wrong identification.

3) The qualification of dangerous goods of the appraisal staff has expired.

4) Issuing false experimental data or identification report.

5) Not labeled in accordance with its quality system.

6) Those who do not rectify the detected problems, or fail to make the rectification within the specified time, and still fail to meet the standards required by the company after reevaluation.

7) Failing to meet the other requirements of the Administrative Measures for the Identification Agencies of Cargo Air Transport Conditions.

8) Failed to submit the materials required for validity management under Section 1.15.8.1 to the Operations Standards Department and Ground Services Management Department as stipulated.

1.15.6 Resumption of qualification

1.15.6.1 Recognition shall not be resumed within six months from the date of cancellation of the qualification.

1.15.6.2 After exceeding six months, if the appraisal agency submits another application, the Ground Service Department will conduct a re-evaluation in accordance with the accreditation procedures to determine whether the accreditation qualification can be restored.

1.15.7 oversight inspections of Identification Agencies

1.15.7.1 The Operations Standards Department and company Dangerous Goods Instructors shall conduct supervision and inspection of classification/identification agencies.

1.15.7.2 The supervision and inspection follows a periodic cycle. After completing an inspection in any given calendar year, the next inspection shall be organized and implemented in the second calendar year following a one-year interval. For example, if an inspection of an agency is completed in 2025, the next inspection must be completed within 2027.

1.15.7.3 In principle, at least a two-person team (i.e., Lead Auditor and Review

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Auditor) shall be arranged to conduct the audit with division of responsibilities, ensuring the agency meets company requirements.

1.15.8 Validity Management of Identification Agencies

1.15.8.1 When the information required in the "On-site Inspection Checklist for Cargo Air Transport Condition Identification Agencies" (template see Appendix F of the Operations Certification Center Work Manual) and the "Application Form for Qualification Recognition of Cargo Air Transport Condition Identification Agencies" (template see Section 4.1 of the Cargo Management Center Work Manual) changes, the identification agency shall send the change information via email to the Flight Standards Department - Transportation Training Section (wxpgls@hnair.com) and the Ground Service Department - Cargo Management Center (hgbhypzgl@hnair.com) within 3 days.

1.15.8.2 The Operations Standards Department shall evaluate the updated information in accordance with the On-site Inspection Checklist for Air Transport Condition Identification Agencies and subsequently notify relevant units.

1.15.8.3 The Ground Service Department shall perform evaluations based on the Application Form for Accreditation of Air Transport Condition Identification Agencies and notify involved parties accordingly.

1.15.8.4 The company's cargo air transport conditions appraisal body accreditation record form

	Organization name	Scope of accreditation
Recognition of the Identification Agencies	Beijing DGM Air Transport Technology Development Co., LTD	Category 1 dangerous goods√ 2.1Dangerous Goods√ 2.2Dangerous Goods√ 2.3Dangerous Goods√ Category 3 dangerous goods√ 4.1Dangerous Goods√ 4.2Dangerous Goods√ 4.3Dangerous Goods√ 5.1Dangerous Goods√ 5.2Dangerous Goods√ 6.1Dangerous Goods√ 6.2Dangerous Goods√ Category 7 dangerous goods√ Category 8 dangerous goods√ Category 9 dangerous goods (Including the lithium battery UN38.3 test)√ Lithium batteries only□ Drop test of package 1.2 m√

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	Beijing SINO-Dangerous Goods Transportation Consultant Ltd	Category 1 dangerous goods√ 2.1Dangerous Goods√ 2.2Dangerous Goods√ 2.3Dangerous Goods√ Category 3 dangerous goods√ 4.1Dangerous Goods√ 4.2Dangerous Goods√ 4.3Dangerous Goods√ 5.1Dangerous Goods√ 5.2Dangerous Goods√ 6.1Dangerous Goods√ 6.2Dangerous Goods√ Category 7 dangerous goods√ Category 8 dangerous goods√ Category 9 dangerous goods√ Lithium batteries only□ Drop test of package 1.2 m√
	Shanghai Chemical Institute testing Co., LTD	Category 1 dangerous goods √ 2.1Dangerous Goods √ 2.2Dangerous Goods √ 2.3Dangerous Goods √ Category 3 dangerous goods√ 4.1Dangerous Goods√ 4.2Dangerous Goods√ 4.3Dangerous Goods√ 5.1Dangerous Goods √ 5.2Dangerous Goods √ 6.1Dangerous Goods √ 6.2Dangerous Goods √ Category 7 dangerous goods √ Category 8 dangerous goods √ Category 9 dangerous goods (Including the lithium battery UN38.3 test)√ Lithium batteries only□ Drop test of package 1.2 m√
	PONY Test Group Shanghai Co., LTD	Category 1 dangerous goods □ 2.1Dangerous Goods√ 2.2Dangerous Goods □ 2.3Dangerous Goods □ Category 3 dangerous goods√ 4.1Dangerous Goods√ 4.2Dangerous Goods√ 4.3Dangerous Goods√ 5.1Dangerous Goods □ 5.2Dangerous Goods □ 6.1Dangerous Goods □ 6.2Dangerous Goods □ Category 7 dangerous goods □ Category 8 dangerous goods √ Category 9 dangerous goods (Including the lithium battery UN38.3 test)√ Lithium batteries only□ Drop test of package 1.2 m√
	PONY Test Group Shenzhen Co., LTD	Category 1 dangerous goods □ 2.1Dangerous Goods√ 2.2Dangerous Goods □ 2.3Dangerous Goods □ Category 3 dangerous goods√ 4.1Dangerous Goods√ 4.2Dangerous Goods√ 4.3Dangerous Goods√ 5.1Dangerous Goods√ 5.2Dangerous Goods □

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		6.1Dangerous Goods □ 6.2Dangerous Goods □ Category 7 dangerous goods □ Category 8 dangerous goods√ Category 9 dangerous goods (Including the lithium battery UN38.3 test)√ Lithium batteries only□ Drop test of package 1.2 m√
	Civil Aviation Second Research Institute Co., Ltd.	Category 1 dangerous goods√ 2.1Dangerous Goods√ 2.2Dangerous Goods√ 2.3Dangerous Goods√ Category 3 dangerous goods√ 4.1Dangerous Goods√ 4.2Dangerous Goods√ 4.3Dangerous Goods√ 5.1Dangerous Goods√ 5.2Dangerous Goods√ 6.1Dangerous Goods√ 6.2Dangerous Goods√ Category 7 dangerous goods√ Category 8 dangerous goods√ Category 9 dangerous goods (Including the lithium battery UN38.3 test)√ Lithium batteries only□ Drop test of package 1.2 m√
	Zhejiang Chemical Products Quality Inspection Station Co., LTD	Category 1 dangerous goods√ Category 2 dangerous goods√ Category 3 dangerous goods√ Category 4 dangerous goods√ Category 5 dangerous goods√ Category 6 dangerous goods□ Category 7 dangerous goods□ Category 8 dangerous goods√ Category 9 dangerous goods (Including the lithium battery UN38.3 test)√ Lithium batteries only□ Drop test of package 1.2 m√
	Institute of Test and Analysis, Guangdong Academy of Sciences (Guangzhou Analysis and Test Center, China)	Category 1 dangerous goods√ Category 2 dangerous goods√ Category 3 dangerous goods√ Category 4 dangerous goods√ Category 5 dangerous goods√ Category 6 dangerous goods□ Category 7 dangerous goods√ Category 8 dangerous goods√ Category 9 dangerous goods√ Lithium batteries only□ Drop test of package 1.2 m√

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	Tianjin Jinjian Dangerous Goods Technology Co., Ltd.	Category 1 dangerous goods□ Category 2 dangerous goods√ Category 3 dangerous goods√ Category 4 dangerous goods√ Category 5 dangerous goods√ Category 6 dangerous goods√ Category 7 dangerous goods□ Category 8 dangerous goods√ Category 9 dangerous goods√ Lithium batteries only□ Drop test of package 1.2 m√

Notes:

1.Beijing DJM Air Transportation Technology Development Co., Ltd.: The inspection scope for Class 1 dangerous goods is only recognized for item 1.4. Both UN38.3 testing and 1.2m drop testing are recognized, conducted at the laboratory of its Shenzhen branch. The company has a total of 7 branches, located in Shanghai, Tianjin, Qingdao, Dalian, Xiamen, Guangzhou, and Shenzhen, all of which are its subsidiaries.

2.Beijing Sinotrans CSC Transportation Consulting Co., Ltd.: The 1.2m drop test is recognized.

3.Shanghai Research Institute of Chemical Industry Testing Co., Ltd.: Both UN38.3 testing and 1.2m drop testing are recognized.

4.Pony Testing International Group Shanghai Co., Ltd.: Both UN38.3 testing and 1.2m drop testing are recognized. The identification scope for Class 9 dangerous goods is limited to lithium batteries and magnetic substances.

5.Pony Testing International Group Shenzhen Co., Ltd.: Both UN38.3 testing and 1.2m drop testing are recognized. Item 4.1 does not include self-reactive substances. The identification scope for Class 9 dangerous goods is limited to lithium batteries and magnetic substances.

6.Civil Aviation Second Research Institute Co., Ltd.: Both UN38.3 testing and 1.2m drop testing are recognized.

7.Zhejiang Chemical Products Quality Inspection Station Co., Ltd:Both UN38.3 testing and 1.2m drop testing are recognized.

8.Institute of Test and Analysis, Guangdong Academy of Sciences (Guangzhou Analysis and Test Center, China):The 1.2m drop test is recognized.

9.Tianjin Jinjian Dangerous Goods Technology Co., Ltd.:The 1.2m drop test is recognized.

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2 Limitations of Dangerous Goods Transport

2.0 Most dangerous goods can be transported by air provided that certain principles are strictly adhered to. However, some dangerous goods are prohibited from air transport under any circumstances due to their high level of hazard. Additionally, certain dangerous goods are generally prohibited but may be transported by air with special approval from relevant national authorities. Furthermore, some dangerous goods are prohibited from transport on any passenger aircraft and can only be transported on cargo aircraft. These restrictions are established in accordance with the IATA Dangerous Goods Regulations (DGR). Relevant countries and carriers may impose stricter restrictions, which are referred to as "variations." All variations are published in Section 2.8 of the IATA DGR. Our company's variations have not yet been published in the DGR, but the relevant variation provisions and methods for obtaining them are as follows:

HU-01 No shipper (including shipper agents) may transport dangerous goods as defined in the DGR before passing the company's shipper qualification review.

HU-02 The company refuses to transport fissile materials and large radioactive sources.

HU-03 The company prohibits the acceptance of oxygen generators and oxygen masks containing oxygen-generating devices.

HU-04 The company currently does not transport high-risk dangerous goods.

HU-05 The company prohibits the acceptance of gun-type dry powder fire extinguishers.

HU-06 For restrictions on dangerous goods carried by passengers and crew, please refer to Section 13.3.3 of this manual.

HU-07 For ordinary commercial lithium battery shipments, the company currently only transports goods compliant with DGR Packing Instructions PI966 Section II, PI967 Section II, PI969 Section II, and PI970 Section II. Additionally, such shipments must pass the company's shipper qualification review prior to transport.

In special circumstances, if there is a need to transport separately packed lithium metal batteries (UN3090), the accepting unit must submit a written application to the Cargo

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Management Center of the Ground Service Management Department in advance. The shipment can only be accepted after the Operations Standards Department obtains exemption approval from the Civil Aviation Administration of China's Central and Southern Regional Administration. Furthermore, in accordance with DGR PI968, separately packed lithium metal battery shipments (UN3090) may only be transported on passenger aircraft if transport exemptions are obtained from the competent authorities of the country of origin, the carrier's country, transit countries, overflight countries, and the destination country, and if such exemptions are reported to ICAO. Otherwise, the transport of separately packed lithium metal batteries on passenger aircraft is prohibited.

HU-08 The company currently approves the transport of certain dangerous goods only at specific stations. However, the approved stations and types of dangerous goods are adjusted based on the company's actual transport needs. Please contact the company's cargo management unit for verification.

HU-09 The acceptance of dangerous goods is limited to the Cargo Management Center of the company's Ground Service Management Department and authorized cargo agents of Hainan Airlines.

HU-10 The transport of dangerous goods via airmail or the inclusion of dangerous goods in airmail is strictly prohibited.

HU-11 The company generally does not accept animal pathogen microorganisms (viruses) or samples, as well as animal disease materials, except in cases involving public interest.

HU-12 The company does not accept dangerous goods mixed with general cargo under the same air waybill.

HU-13 Before shipping dangerous goods, shippers must pass the review and filing process with the Cargo Management Center of the company's Ground Service Management Department. Dangerous goods may only be shipped within the approved transport stations and categories agreed upon during the review.

HU-14 The consignee's telephone or fax number must be clearly stated on the air waybill.

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HU-15 For the ground transport and handling of dangerous goods between the cargo warehouse and the apron, the ground service agent at each airport responsible for dangerous goods shipments must implement the requirements for damage prevention, segregation, and securing in accordance with the loading/unloading principles stipulated in Section 11.1 of this manual.

HU-16 Regulations on the transport of dangerous goods vary among countries and carriers. When transporting dangerous goods, the company must strictly comply with the dangerous goods transport regulations of the competent authorities of the countries involved in import and export. Variations for dangerous goods transport in countries such as the United States, Canada, Belgium, and Germany can be found in Section 2.8 of the IATA Dangerous Goods Regulations (DGR) and on the official websites of the respective national governments.

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2.1 Dangerous Goods Forbidden in Aircraft Under Any Circumstances

2.1.1 Any substance which, as presented for transport, is liable to explode, dangerously react, produce a flame or dangerous evolution of heat or dangerous emission of toxic, corrosive, or flammable gases or vapours under conditions normally encountered in transport must not be carried on aircraft under any circumstances.

2.1.2 Certain dangerous goods known to meet the description above have been included in the List of Dangerous Goods (Subsection 4.2 in *Dangerous Goods Transportation* of IATA) with the word "Forbidden". It must be noted that it is impossible to list all dangerous goods which are forbidden in aircraft under any circumstances. It is therefore essential that appropriate care be exercised to ensure that no such goods are offered for transport.

2.1.3 No unit or individual shall carry in luggage or through goods, mail consignment, collection or transport of dangerous goods which are prohibited for air transport in any circumstances as stipulated in the *Technical Instructions*

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2.2 Dangerous Goods Forbidden to be Transported by Aircraft Unless Exempted

2.2.1 The Civil Aviation Administration may grant approval for provisions of the *Technical Instructions*,when transporting dangerous goods explicitly prohibited in the *Technical Instructions* for carriage by passenger aircraft and/or cargo aircraft but specifically authorized through approval,or meeting other operational purposes compliant with the *Technical Instructions*.In the condition of extremely emergency, or other transportation method are inappropriate, or it is against the public interest for fully following the rules, the Civil Aviation Administration can exempt all the relevant regulation of the TI.In such approved or exempted operations, carriers shall ensure that the overall safety level of dangerous goods transportation by air achieves equivalence to the safety requirements stipulated in these regulations.

2.2.2 Dangerous goods forbidden to be carried by aircraft unless exempted can be transported by air if they have been approved for transport beforehand by the authorities of appropriate countries (Countries where departure, transit, overflying and arrival airports, as well as operators are located) and to be transported under safe transportation provisions instituted according to Annex 18(Section 2.1) in *Safe Air Transportation of Dangerous Goods*.

2.2.3 Except where the level of safety in transport is acceptable and approval or exemption is granted by the civil aviation authority in accordance with the *Technical Instructions*, no unit or individual may carry the following dangerous goods in baggage or consign, accept, or carry them as cargo or mail:

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2.2.3.1 Radioactive material which is:

1) In vented type B(M) packages;

2) In packages which require external cooling by an ancillary cooling system;

3) In packages subject to operational controls during transport;

4) Explosive;

5) A pyrophoric liquid.

2.2.3.2 Unless otherwise provided, articles and substances (including those described as “not otherwise specified”) which are identified in the List of Dangerous Goods (Section 4.2) in DGR of IATA as being forbidden.

2.2.3.3 Infected live animals.

2.2.3.4 Liquids having a vapour inhalation toxicity which requires Packing Group I package.

2.2.3.5 Substances that are offered by shippers for transport in a liquid state at temperatures equal to or exceeding 100°C (212°F), or in a solid state at temperatures equal to or exceeding 240°C (464°F).

2.2.3.6 Any other articles or substance as specified by the appropriate national authority.

2.2.3.7 Dangerous goods prohibited from air transport under normal conditions as stipulated in the *Technical Instructions*.

2.2.4 The exemption paper should at least include the following information about the dangerous goods: UN/ID serial numbers, appropriative names for transport, categories, packages and applicable quantities, special operational requirements, special emergency measures, names and addresses of consignees and shippers, departure and arrival airports, flight routes, transport dates and valid period for exemption.

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2.3 Hidden Dangerous Goods

2.3.1 Cargo declared under a general description may contain hidden hazardous articles whose nature is not apparent to be identified through shippers' declaration. Operators' acceptance staff must be adequately trained to assist them to identify and detect dangerous goods presented as general cargo and check the suspicious cargo according to provisions 2.3. 2 in this manual.

If the declared cargo contains the listed items in 2.3.4, receivers should ask the shippers to carefully check their cargo and consign the appointed institutions to issue certain approval. Having confirmed that the cargo is exempted of any dangerous goods, shippers must be asked to confirm by endorsement of the "Air Waybill" that no part of the package contents is dangerous. For example, fill in cargo category and name column in the waybill with words such as "Not restricted as per special provision A –" (for international transportation) or "Not restricted as per special provision A – (for domestic transportation).

2.3.2 To avoid undeclared dangerous goods being loaded onto the aircraft, as well as being taken by passengers in their luggage, the personnel of cargo booking, sales, cargo acceptance, or ticket booking and sales, the check-in staff can verify each cargo or luggage from the shipper or the passenger, if that cargo or luggage are suspected containing dangerous goods.

2.3.2.1 Cargo or luggage of the passenger may contain dangerous goods described in generic name.

2.3.2.2 Other label or marking for possibly containing of dangerous goods.

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TABLE B.4.A
GHS Pictograms and their Criteria (B.4)

Pictogram							
Pictogram Name	**Explosive**	**Gases Under Pressure**	**Flammable**	**Oxidizer**	**Toxic**	**Corrosive**	**Aquatic Toxicity**
Appears on	Explosives		Gases Aerosols Liquids Solids	Oxidizing Gases Oxidizing Liquids Oxidizing Solids	Acute Toxicity Skin Oral Inhalation	Corrosive to Metal Skin Corrosion Serious Eye Damage	Acute Chronic
	Self Reactive Substances and Mixtures		Self Reactive Substances and Mixtures Pyrophoric Liquids and Solids				
	Organic Peroxides		Self-Heating Substances and Mixtures				
			Substances and Mixtures, Which in Contact With Water, Emit Flammable Gases				
			Organic Peroxides				

Notes:

1. *The GHS pictograms, as shown above may indicate products which are dangerous goods for transport. There are however national and regional differences which may mean that packages bearing such pictograms are not classified as dangerous goods in transport.*
2. *When a substance is required to show corrosive symbol based solely on classification criteria of "serious eye damage" in the GHS classification, the substance does not meet the classification criteria of corrosive materials for transport.*

TABLE B.4.B
GHS Pictograms and their Criteria (B.4)

Pictogram		
Pictogram Name	**Harmful**	**Respiratory**
Appears on	Harmful to Skin Oral Inhalation	Respiratory Sensitization Carcinogenicity Toxic to Reproduction
	Skin Irritation Eye Irritation	Specific Target Organ Systemic Toxicity Single Exposure
	Respiratory Tract Irritation Narcotic Effects	Specific Target Organic Systemic Toxicity Repeated Exposure
	Skin Sensitization	Aspiration Hazard Germ Cell Mutagenicity

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2.3.2.3 those dangerous goods which may be carried by passengers in accordance with 2.3 in DGR.

2.3.3 Declaration

One thing for the acceptance staff to pay special attention to in acceptance of this kind of cargo is to remind shippers of declare without mistakes.

2.3.4 Typical Examples about Hidden Dangerous Goods:

2.3.4.1 AIRCRAFT ON GROUND (AOG) SPARES-see AIRCRAFT SPARE PARTS/AIRCRAFT EQUIPMENT.

2.3.4.2 AIRCRAFT SPARE_PARTS/AIRCRAFT EQUIPMENT : May contain explosives(flares or other pyrotechnics), chemical oxygen generators, unserviceable tyre assemblies, cylinders of compressed gas (oxygen, carbon dioxide, nitrogen or fire extinguishers), paint, adhesives,aerosols, life-saving appliances, first aid kits, fuel in equipment, wet or lithium batteries, matches, etc.

2.3.4.3 AUTOMOBILES,AUTOMOBILE PARTS/SUPPLIES-(car, motor, motorcycle) may contain ferromagnetic material which may not meet the definition for magnetized material but which may be subject to special stowage requirements due to the possibility of affecting aircraft instruments (see 3.9.2.2). May also contain engines,including fuel cell engines, carburettors or fuel tanks which contain or have contained fuel, wet or lithium batteries, compressed gases in tyre inflation devices, fire extinguishers, shocks/struts with nitrogen, air bag inflators/air bag modules, flammable adhesives, paints,sealants and solvents, etc.

2.3.4.4 BATTERY-POWERED DEVICES/EQUIPMENT-may contain wet or lithium batteries.

2.3.4.5 BREATHING APPARATUS-may indicate cylinders of compressed air or

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oxygen, chemical oxygen generators or refrigerated liquefied oxygen.

2.3.4.6 CAMPING EQUIPMENT — May contain flammable gases (butane, propane, etc.), flammable liquids (kerosene, gasoline, etc.), flammable solids (hexamine,matches, etc.) or other dangerous goods.

2.3.4.7 CARS、CAR PARTS —see AUTOMOBILES, etc..

2.3.4.8 CHEMICALS-may contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidizers, organic peroxides,toxic or corrosive substances.

2.3.4.9 .COMAT (COMPANY MATERIALS)-such as aircraft parts, may contain dangerous goods as an integral part,e.g. chemical oxygen generators in a passenger service unit (PSU), various compressed gases such as oxygen,carbon dioxide and nitrogen, gas lighters, aerosols, fire extinguishers, flammable liquids such as fuels, paints and adhesives and corrosive material such as batteries. Other items such as flares, first aid kits, life-saving appliances,matches, magnetized material, etc.

2.3.4.10 CONSOLIDATED CONSIGNMENTS (GROUPAGES)-may contain any of the defined classes of dangerous goods.

2.3.4.11 CRYOGENIC (LIQUID)-indicates refrigerated liquefied gases such as argon, helium, neon and nitrogen.

2.3.4.12 CYLINDERS-may indicate compressed or liquefied gas.

2.3.4.13 DENTAL APPARATUS-may contain flammable resins or solvents, compressed or liquefied gas, mercury and radioactive material.

2.3.4.14 DIAGNOSTIC SPECIMENS-may contain infectious substances.

2.3.4.15 DIVING EQUIPMENT-may contain cylinders (such as scuba tanks, vest bottles, etc.) of compressed gas (air,oxygen, etc.), high intensity diving lamps which can generate extremely high heat when operated in air.

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Inorder to be carried safely, the bulb or battery must be disconnected.

2.3.4.16 DRILLING AND MINING EQUIPMENT-may contain explosive(s) and/or other dangerous goods.

2.3.4.17 DRY SHIPPER (VAPOUR SHIPPER)-may contain free liquid nitrogen. Dry shippers are subject to these Regulations when they permit the release of any free liquid nitrogen irrespective of the orientation of the packaging.

2.3.4.18 ELECTRICALEQUIPMENT/ELECTRONIC EQUIPMENT-may contain magnetized materials or mercury in switch gear and electron tubes, wet batteries, lithium batteries or fuel cells or fuel cell 'cartridges that contain or have contained fuel.

2.3.4.19 ELECTRICALLY POWERED APPARATUS-(wheelchairs, lawn mowers, golf carts, etc.) may contain wet batteries, lithium batteries or fuel cells or fuel cell cartridges that contain or have contained fuel.

2.3.4.20 EXPEDITIONARY EQUIPMENTS:May contain explosives (flares), flammable liquids (gasoline), flammable gas (propane, camping gas) or other dangerous good.

EXPEDITIONARY,EQUIPMENT-may contain explosives(flares), flammable liquids (gasoline), flammable gas (propane, camping gas) or other dangerous goods.

2.3.4.21 FILM CREW OR MEDIA EQUIPMENT:May contain explosive pyrotechnic devices, generators incorporating internal combustion engines, wet batteries, lithium batteries, fuel, heat producing items, etc.

FILM CREW OR MEDIA EQUIPMENT-may contain explosive pyrotechnic devices, generators incorporating internal combustion engines, wet batteries, lithium batteries, fuel, heat producing items, etc.

2.3.4.22 FROZEN EMBRYOS-may contain refrigerated liquefied gas or Carbon

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dioxide, solid (dry ice).

2.3.4.23 FROZEN FRUIT, VEGETABLES, ETC.-may be packed in Carbon dioxide, solid (dry ice).

2.3.4.24 FUELS-may contain flammable liquids, flammable solids or flammable gases.

2.3.4.25 FUEL CONTROL UNIT:May contain flammable liquids.

2.3.4.26 HOT AIR BALLOON:May contain cylinders with flammable gas, fire extinguishers, engines internal combustion, batteries, etc.

2.3.4.27 HOUSEHOLD GOODS-may contain items meeting any of the criteria for dangerous goods including flammable liquids such as solvent based paint, adhesives, polishes,aerosols (for passengers, those not permitted under Subsection 2.3), bleach, corrosive oven or drain cleaners,ammunition, matches, etc.

2.3.4.28 INSTRUMENTS-may conceal barometers, manometers,mercury switches, rectifier tubes, thermometers, etc. containing mercury.

2.3.4.29 LABORATORY / TESTING EQUIPMENT:May contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances, lithium batteries, cylinders of compressed gas, etc.

2.3.4.30 MACHINERY PARTS-may contain adhesives, paints,sealants, solvents, wet and lithium batteries, mercury,cylinders of compressed or liquefied gas, etc.

2.3.4.31 MAGNETS AND OTHER ITEMS OF SIMILAR MATERIAL-may individually or cumulatively meet the definition of magnetized material (see 3.9.2.2).

2.3.4.32 MEDICAL SUPPLIES / EQUIPMENT:May contain items meeting any of

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the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances or lithium batteries.

2.3.4.33 METAL CONSTRUCTION MATERIAL,METALFENCING,METAL PIPING-may contain ferromagnetic material, which may be subject to special stowage requirements due to the possibility of affecting aircraft instruments (see 3.9.2.2).

2.3.4.34 PARTS OF AUTOMOBILE(CAR,MOTOR,MOTORCYCLE):May contain wet batteries,etc.

2.3.4.35 PASSENGERS BAGGAGE-may contain items meeting any of the criteria for dangerous goods. Examples include fireworks, flammable household liquids, corrosive oven or drain cleaners, flammable gas or liquid lighter refills or camping stove cylinders, matches, ammunition, bleach,aerosols (those not permitted under Subsection 2.3), etc.

2.3.4.36 PHARMACEUTICALS:May contain items meeting any of the criteria for dangerous goods, particularly radioactive material, flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances.

2.3.4.37 PHOTOGRAPHIC SUPPLIES / EQUIPMENT:May contain items meeting any of the criteria for dangerous goods, particularly heat producing devices, flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances or lithium batteries

2.3.4.38 .PROMOTIONAL MATERIAL-see PASSENGER BAGGAGE.

2.3.4.39 RACING CAR OR MOTORCYCLE TEAM EQUIPMENT:May contain engines, including fuel cell engines, carburetors or fuel tanks which contain fuel or residual fuel, flammable aerosols, cylinders of compressed

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gases, nitromethane, other fuel additives, wet batteries, or lithium batteries, etc.

2.3.4.40 REFRIGERATORS:May contain liquefied gases or an ammonia solution.

2.3.4.41 REPAIR KITS:May contain organic peroxides and flammable adhesives, solvent based paints, resins, etc.

2.3.4.42 SAMPLES FOR TESTING-may contain items meeting any of the criteria for dangerous goods, particularly infectious substances, flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances.

2.3.4.43 SEMEN-may be packed with Carbon dioxide, solid (dry ice) or refrigerated liquefied gas. See also DRYSHIPPER.

2.3.4.44 SHIPS' SPARES-may contain explosives (flares), cylinders of compressed gas (life rafts), paint, lithium batteries(emergency locator transmitters), etc.

2.3.4.45 SHOW, MOTION PICTURE, STAGE AND SPECIAL EFFECTS EQUIPMENT-may contain flammable substances, explosives or other dangerous goods.

2.3.4.46 SPORTING GOODS/SPORTS TEAM EQUIPMENT:May contain cylinders of compressed or liquefied gas (air, carbon dioxide, etc.) lithium batteries, propane torches, first aid kits. flammable adhesives, aerosols, etc

2.3.4.47 SWIMMING POOL CHEMICALS:May contain oxidizing or corrosive substances

2.3.4.48 SWITCHES IN ELECTRICAL EQUIPMENT OR INSTRUMENTS:May contain mercury.

2.3.4.49 TOOL BOXES-may contain explosives (power rivets),compressed gases or aerosols, flammable gases (butane cylinders or torches), flammable adhesives or paints,corrosive liquids, lithium batteries, etc.

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2.3.4.50 TOUCHES:Micro torches and utility lighters may contain flammable gases and be equipped with an electronic starter. Larger torches may consist of a torch head (often with a self-igniting switch) attached to a container or cylinder of flammable gases.

2.3.4.51 UNACCOMPANIED PASSENGERS BAGGAGE/PERSONAL EFFECTS-may contain items meeting any of the criteria for dangerous goods, such as fireworks,flammable household liquids, corrosive oven or drain cleaners, flammable gas or liquid lighter refills or camping stove cylinders, matches, bleach, aerosols, etc. (those not permitted under Subsection 2.3).

2.3.4.52 VACCINES-may be packed in Carbon dioxide, solid(dry ice).

Note: Articles and substances which do not fall within the definitions of dangerous goods as shown in these Regulations and which in the event of leakage may cause a serious clean-up problem or corrosion to aluminium on along term basis must be checked by the shipper to at least ensure that the packaging is adequate to prevent leakage during transportation. These may include brine,powdered or liquid dyes, pickled foodstuffs, etc.

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2.4 Dangerous Goods in Excepted Quantities

2.4.1 General

A very small amount of dangerous goods can be loaded for transport as dangerous goods in excepted quantities and can be exempted from limitations for dangerous goods marking, loading and documentation requirements in DGR of IATA. This kind of dangerous goods is called Dangerous Goods in Excepted Quantities.

In addition to meeting requirements in this part, dangerous goods in excepted quantities should be conform to the following provisions:

1) training requirements;
2) dangerous goods in air mail;
3) classification and packing group criteria;
4) loading restrictions;
5) reporting of dangerous goods accidents/incidents and other emergencies;
6) in the case of radioactive material, the requirements for radioactive material in excepted packages;
7) Definitions.

2.4.2 Dangerous Goods Permitted in Excepted Quantities

Only dangerous goods which are permitted on passenger aircraft and meet the criteria of the following classes, divisions and packing groups (if applicable) may be carried under the provisions for Dangerous Goods in Excepted Quantities:

1) Substances of Division 2.2, without a subsidiary risk, but excluding UN1950,UN2037,UN2857, UN3164, UN1043, UN1044, UN3500, UN3511.
2) Substances of Class 3, all packing groups, but excluding Packing Groups I

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with a subsidiary risk and UN1204,UN2059, UN3473;

3) Substances of Class 4, Packing Groups II and III but excluding all self-reactive substances and UN2556,UN2557,UN2907,UN3292 and UN3476, UN2555;

4) Substances of Division 5.1, Packing Groups II and III;

5) Substances of Division 5.2, only when contained in a chemical kit, first aid kit or Polyester resin;

6) All substances of Division 6.1, except those having an inhalation toxicity of Packing Group I;

7) Substances of Class 8, Packing Groups II and III but excluding UN1774,UN2794,UN2795,UN2800,UN2803,UN2809,UN3028 and UN3477; and UN3506.

8) Substances and articles of Class 9, excluding solid carbon dioxide, GMO, genetically modified micro-organisms. Not include all articles.

2.4.3 Packaging quantity, code identification

1) Dangerous goods in excepted quantities are shown with a letter code in column F of dangerous goods name list, meaning represented as follows:

See the following table for excepted quantities code

Code	the maximum allowable number of Each inner packages	the maximum allowable number of Each outer packages
E0	Not allowed to transport as excepted quantities	
E1	30g/30ml	1kg/1L
E2	30g/30ml	500g/500ml
E3	30g/30ml	300g/300ml
E4	1g/1ml	500g/500ml
E5	1g/1ml	300g/300ml

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2) For gas, inner packaging requirements are decided by water volume of inner device; the outer packaging requirements are decided by water volume of all inner device and the whole outer device;

3) When unified packing dangerous goods in excepted quantities with different codes, must be in accordance with the maximum number restrict requirements.

2.4.4 Package

See operation requirements in section 2.6.5 of IATA Dangerous Goods rules for specific packaging requirements.

2.4.5 Acceptance and transportation requirements of our company

1) Our company refuses to carry dangerous goods in excepted quantities departing from China or from abroad to China and will do the transactions according to DGR of IATA on acceptance of these dangerous goods. However, radioactive materials in medical use are not included here.

2) Dangerous goods in excepted quantities cannot be transported as checked baggage or carry-on baggage or contained in air mail.

2.4.6 Shipper's Responsibilities

Before handing to the operator, the shipper must ensure that a package containing dangerous goods in excepted quantities will withstand normal conditions of air transport and will not subject to any special requirements which might necessitate handling, ventilation, storage, shading from direct sunlight, storage away from source of heat, etc.

2.4.7 Label

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1) Package with exceptional quantity, the label must be stable and clear to see as shown in Figure 2.1. Each single class or segregation of dangerous goods in the package must be shown in label. If the shipper or consignee's name is not shown anywhere in the package, it must be included in the label.

2) Label must be in a square shape, with minimum dimensions of 100 × 100 mm which conforms in format and color to the specimen reproduced in Figure 2.1. same color to write, black or red. If the package is included in an overpack, this label must be clearly visible or appear on the overpack also. See Subsection 2.6.7 in DGR of IATA for detailed information.

3) Label must be pasted on one same side of the package, label cannot be fold, different parts of one label cannot be pasted on different sides of the package.

4) The shipper must check whether the boxes on the label are filled with the contents of inner goods: * category and division of dangerous goods. ** The shipper or consignee must enter their name, address, title, date and sign it. The signature may be written by hand but cannot be printed.

Figure 2.1 Excepted Quantity Package Mark

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2.4.8 Documentation

1) The Shipper's Declaration for Dangerous Goods is not required.

2) The "Nature and Quantity of Goods" box of the air waybill must be

completed with the words “Dangerous Goods in Excepted Quantities” and when excepted packages of radioactive material are involved, the appropriate wording “Radioactive material, excepted package . . .” as required by Chapter 8 in this manual.

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2.5 Dangerous Goods in Limited Quantities

2.5.1 General

Dangerous goods may be carried as “Limited Quantity” only if they comply with the provisions about packaging, quantity limitations and tests of packaged goods provided in DGR of IATA and in this manual. All requirements for the transport of dangerous goods in limited quantities apply identically for passenger and cargo aircraft unless otherwise provided for.

2.5.2 Dangerous Goods Permitted in Limited Quantities

Only dangerous goods which are permitted on passenger aircraft, and which meet the criteria of the following classes, divisions and packing groups (if appropriate) may be carried under the provisions for dangerous goods in limited quantities:

1) Aerosol in Divisions 2.1 and 2.2, and UN 2037 without a subsidiary risk; gases in Division 2.2 without a subsidiary risk except refrigerated liquefied cold gases.

2) Flammable liquids in Packing Groups II and III;

3) Flammable solids of Division 4.1 in Packing Groups II and III but excluding self-reactive substances irrespective of packing group; Substances of Division 4.3 in Packing Groups II and III, solids only;

4) Oxidizers of Division 5.1 in Packing Groups II and III; Organic peroxides of Division 5.2 only when contained in a chemical kit, or a first aid kit;

5) Toxic substances of Division 6.1 in Packing Groups II and III;

6) Corrosives of Class 8 in Packing Groups II and III but excluding UN 2794, UN 2795, UN 2803, UN 2809, and UN 3028, UN3506;

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7) Only Dibromodifluoromethane (UN 1941), Benzaldehyde (UN 1990), Ammonium nitrate fertilizers (UN 2071), Environmentally hazardous substance, solid, n.o.s. (UN 3077), Environmentally hazardous substance, liquid, n.o.s. (UN 3082), Chemical kit or First aid kit (UN 3316), Aviation regulated liquid n.o.s.* (UN3334), Aviation regulated solid, n.os.s.* (UN3335), Consumer Goods ID8000 of Class 9 substances.

2.5.3 Dangerous Goods Not Permitted in Limited Quantities

The following articles or substances are NOT permitted under the provisions for Limited Quantities:

1) those forbidden for transport under any circumstances;

2) those permitted only on cargo aircraft;

3) those in Packing Group I;

4) Class 1: Explosives;

5) Class 2: Division 2.1 (other than aerosol); in Division 2.2 Liquefying refrigerated gases and Division 2.3 Toxic gases;

6) Class 4: Self-reactive substances of Division 4.1; those in Division 4.2 or those with a subsidiary risk of 4.2;

7) Class 6: Division 6.2 Infectious substances;

8) Class 7: Radioactive material;

9) Class 8: Corrosives UN 2794, UN 2795, UN 2803, UN 2809 and UN 3028;

10) Class 9: Miscellaneous dangerous goods except Dibromodifluoromethane (UN 1941), Benzaldehyde (UN 1990), Ammonium nitrate fertilizers (UN 2071), Environmentally hazardous substance, solid, n.o.s. (UN3077), Environmentally hazardous substance, liquid, n.o.s. (UN 3028), Chemical kit or First aid kit (UN 3316).

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2.5.4 Quantity Limitations

1) The net quantity per package must not exceed the corresponding maximum quantity specified in Column H or L of the Identification List in 4.2 *DGR* of IATA. The packaging is required to meet the requirements of the corresponding packing instruction number with the letter Y.

2) The gross weight of a “Limited Quantity” package must not exceed 30 kg (66 lbs.).

3) The” Limited Quantity” package must not use singular (single) packaging including compound ones.

4) The outer package of dangerous goods of limited quantities must be pasted with label of limited quantities, as shown below:

Limited Quantities Mark

Dimension:100mm×100mm

2.5.5 Package Performance Test

Conduct according to provisions in Subsections 2.7.6 in DGR of IATA.

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2.6 State and Operator Variations

2.6.1 Variations exist among the provisions about dangerous goods transport of different states and operators. The shipper, consignee and his agent, operator and his agent and sales agent must observe the related provisions of dangerous goods transportation regarding state and operator. See Subsection 2.8.2 and 2.8.3 in DGR of IATA for Other State and Operator Variations.

2.6.2 Our company dangerous goods transport variations please see this manual section 2.0.

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2.7 Dangerous Goods in Air Mail

2.7.1 General

The ICAO, the Universal Postal Union as well as the IATA and the CAAC have forbidden to transport dangerous goods or entrainment of dangerous goods by airmail, except those have been specified in the TI. Any concealment or false claim to transport dangerous goods as common goods by airmail is also forbidden.

2.7.2 Requirements

1) Upon acceptance, the contents of air mail must be examined carefully. If any doubt arises, decision about acceptance must be made after seeking out the case. It is not allowed to accept any suspicious articles which haven't been absolutely confirmed to be safe on board. Any air mail incapable to be examined and confirmed must all and singular be refused for acceptance.

2) For certain chemical products, in case being uncertain whether they are dangerous goods or not, they must be, at first, sent to the third-party institution that CAAC has appointed for testing. Those who prove to be dangerous goods through testing must be dealt with in accordance with policies of dangerous goods transport of the company.

2.7.3 Provisions

The dangerous goods listed in this subsection may be accepted in mail for air carriage subject to the provisions of the national postal authorities concerned and the parts of these Provisions which relate to such materials upon approval of CAAC. Considering the realistic conditions of our state currently, HNA doesn't accept dangerous goods in mail departing from

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China for air carriage.

1) Exempted patient specimens provided by TI 2;6.3.1.4 should classified, packed, and marked as per TI 2;6.3.2.3.8

2) Infectious substances, assigned to Category B (UN 3373) only, when packed in accordance with the requirements of Packing Instruction 650 and accompanied by Shipper's Declaration of Dangerous Goods. Dry Ice (Carbon Dioxide, Solid) as refrigerant UN3373 must be in accordance with the requirements of Packing Instruction 954.

3) Radioactive material in an excepted package, UN2910 and UN2911 only, provided the activity does not exceed one tenth of that permitted in Table 10.3.C. The package must be marked with the name and address of the shipper and the consignee, and "radioactive material-quantities permitted for movement by post" and must bear the radioactive material, excepted package label.

4) Lithium-ion batteries contained in equipment (UN 3481) meeting the provisions of Section II of Packing Instruction 967. No more than four cells or two batteries may be mailed in any single package.

5) Lithium metal batteries contained in equipment (UN 3091) meeting the provisions of Section II of Packing Instruction 970. No more than four cells or two batteries may be mailed in any single package.

2.7.4 In case of violation of the above provisions by containing dangerous goods by air or in air mail or transporting dangerous goods in air mail as common cargo by concealing or giving false information about their nature, penalty must be determined in accordance with pertinent state regulations.

2.7.5 Requirements for the lithium battery transport in the mail

1) Postal enterprise must obey the Document 31[2014] of Civil Aviation Administration and State Post Bureau, namely Management Approach of Lithium Battery by Air, when transporting lithium batteries.

2) Unless the postal operators have issued by the competent authorities of the Chinese civil aviation air transport of dangerous goods certificate, otherwise, cannot transport of lithium batteries.

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2.8 Dangerous Goods in Operator's Assets (or onboard Articles) (COMAT)

2.8.1 Articles and substances of the company's assets may be classified as dangerous goods but are required to be installed aboard aircraft in accordance with airworthiness requirements and operating provisions. These articles and substances are not limited by pertinent supervising provisions about dangerous goods transport in this manual but should be transacted as dangerous goods in the transport process.

2.8.2 The following articles and substances are limited by DGR.

2.8.2.1 Aircraft Equipment

Articles and substances which would otherwise be classified as dangerous goods but which are required to be installed or put aboard the operating aircraft of the company in accordance with pertinent airworthiness requirements and operating provisions issued to meet special loading requirements or authorized by the State of the operator to meet special requirements;

2.8.2.2 Consumer Goods

Aerosols, alcoholic beverages, perfumes, eau de toilettes, liquefied gas lighters (excluding disposable gas lighters and lighters prone to leakage under reduced pressure) used or sold onboard the aircraft during flight or consecutive flights, and portable electronic devices containing lithium-ion or lithium-metal cells or batteries that comply with the provisions of Section 2.8.3 of this Manual.

2.8.2.3 Carbon Dioxide, Solid (Dry Ice)

Carbon dioxide solid, (dry ice) for use in refrigerated food and beverage service aboard the aircraft.

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2.8.2.4 Hygiene products

Alcohol-containing hand sanitizers and alcohol-containing cleaning supplies used by the operator on the aircraft for the sanitation of passengers and crew during one or a series of flying.

2.8.2.5 Battery-Powered Electronic Devices

Electronic devices such as electronic flight bags, personal entertainment devices, credit card readers, etc., containing lithium-metal or lithium-ion cells or batteries, used by the carrier onboard the aircraft during a flight or series of flights, and their spare lithium batteries, provided they comply with the provisions of Section 2.8.3 of this Manual.

2.8.3 For the lithium cells or batteries (including power banks) and the equipment powered by them mentioned in 2.8.2.2 and 2.8.2.5, the following conditions must be met:

2.8.3.1 Spare lithium batteries and power banks must be individually protected to prevent short circuits when not in use;

2.8.3.2 Measures must be taken to prevent accidental activation of portable electronic devices;

2.8.3.3 The batteries must:

1) Be of a type that meets the requirements of each test specified in Subsection 38.3 of Part III of the United Nations Manual of Tests and Criteria;

2) Have a lithium content not exceeding 2 g for lithium-metal batteries, or a rated energy not exceeding 100 Wh for lithium-ion batteries.

2.8.4 Air material

2.8.4.1 Unless being defined, articles and substances intended as replacements for those referred to in section 2.8.2, provision 1) or articles and substances

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referred to in section 2.8.2, provision 1) which have been removed for replacement, must be transported in accordance with provisions of dangerous goods transport in this manual.

2.8.4.2 Besides articles and substances defined in 2.8.2, other assets of the company are also limited for transport by provisions in this manual.

2.8.4.3 When transporting aircraft spares, the shipper with dangerous goods must have them classified, identified, packed, marked, and labeled and fill in documentation of dangerous goods transport for consignment by strictly complying with requirements of DGR if the currently valid classifying criteria in DGR are followed. Cargo acceptance staff should correctly conduct acceptance check, storage and aircraft loading according to DGR.

2.8.4.4 Aircraft spares which haven't proved to be dangerous goods by the shipper in accordance with DGR must be transported as common goods. Aircraft equipment of the company belonging to dangerous goods are not subject to limitation about dangerous goods operation in *Technical Detailed Rules* if they are loaded on aircraft due to requirements of pertinent airworthiness and operational regulations of the company, or other special reasons as indicted in DGR. It is allowed to transport aircraft spares of dangerous nature in specially designed containers which must at least meet basic requirements of this kind of dangerous aircraft spare prescribed DGR.

2.8.4.5 Common dangerous aircraft spares include :(only for illustrating purposes)

1) Oxygen bottles – have two kinds of dangers as in 2.2 and 5.1. To prevent entry of other gases into the oxygen bottles due to too low pressure, oxygen deflation should not be performed in low pressure conditions. If deflated to empty, the bottle must be discarded as useless. Therefore,

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deflated oxygen bottles are also in the category of dangerous goods unless the value is open for the free flow of internal and external gas currents.

2) Extinguisher bottles—as in 2.2. Some extinguisher bottles may contain explosive caps which belong to 1.4C or 1.4S. If the weight of explosive substance in each extinguisher bottle is less than 3.2 kg, the classification and division of the extinguisher bottle remains unchanged and the gas inside it is inflammable and non-toxic as in 2.2. Only do operations according to 2.2. Don't label explosives' labels. Don't take apart explosive caps. The usual weight of explosive substance in each explosive cap in our company is 0.5 or 0.72 kg, determined by MSDS of the explosive cap.

How to know the weight of explosive substance contained in the explosive cap?

For example, there is a kind of extinguisher bottle in the aircraft spares' warehouse with the number 473957. The number of the explosive cap's lower-level unit is 446617. Note that each of the extinguisher bottles has two explosive caps. According to its MSDS, the weight of explosive substance in each explosive cap is 0.72 kg. Then, the weight of explosive substance in explosive caps of each extinguisher bottle is 0.72 x 2= 1.44 kg< 3.2 kg. Do operations with this kind of extinguisher bottle only according to 2.2.

If transported separately from other goods, the explosive cap should be viewed as explosive substance. HNA is not qualified for air transport of explosive substance.

3) Passenger Service Unit (Aircraft spares without oxygen generators don't belong to dangerous goods)

4) ELT-EMERGENCY LOCATOR TRANSMITTER (with underwater

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beacon as the name usually mentioned) - Class 9. ELT has batteries in it. Due to various manufacturers or battery models, there is a possibility for the battery to contain lithium or corrosive substances and the possibility is determined by the manufacturer's MSDS.

Besides the normal requirement of being prevented from short circuit when packed, a very important point for the battery in ELT is to use waterproof packaging since ELT can react when encountering water (transmitting emergency locating signals).

For example, be packed in plastic bags to prevent entry of water. ELT with batteries taken apart can be transported as normal goods.

5) Tire or tire unit- if inflated pressure of usable tire or tire unit doesn't exceed the maximum rated pressure' it will not be limited by IATA. It means not belonging to dangerous goods, can be transported as general goods. For criteria about the rated pressure of various common tires, refers to HNA's Maintenance and Engineering Department engineering card and should be tested by Maintenance and Engineering Department.

However, it should be noted that unusable tyre is categorized into forbidden goods for transport by air once inflated. It can be transported by air if deflated.

6) Oxygen generator -in 5.1, belongs to dangerous goods forbidden on passenger aircraft.

2.8.4.6 Aircraft spares which are not dangerous goods but can often be misunderstood as dangerous goods:

Aircraft wheels, aircraft brakes, Pegasus II (lubricant), etc. Aircraft tires meeting DGR Special Provision A59 may be transported as non-restricted items.

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2.9 Regulation for preventing transport of dangerous goods as common goods.

2.9.1 In order to prevent implied dangerous goods being transported as common goods, cargo acceptance personnel and security personnel should be trained and take appointment with certificate, so that they can identify the undeclared or implied dangerous goods.

2.9.2 Notice

Before cargo acceptance, the shippers must be informed by the acceptance personnel with the information listed below:

2.9.2.1 Legal liability of the shipper who transport the dangerous goods illegally.

2.9.2.2 The State and company's regulation about transport of dangerous goods.

2.9.2.3 Informing the shipper to notice the information for DG transport.

2.9.3 Inspection of shipping documents.

The cargo acceptance personnel should check the integrity, accuracy, item name of the shipping report, to verify if this consignment is dangerous goods or contains any dangerous goods. The shipper should provide relative documentary evidence if necessary. The shipper is required to truthfully fill out the shipping documents and other air transport documents with criterion. The item name list of air cargo declaration should be specific enough to item name of unit package, and generic item name, such as samples, files, data, electronic products, accessories, machine components, chemical products, and medical products, is strictly prohibited. The shipper cannot fake or conceal the item name or entrain any dangerous goods in general cargo, or cannot fake, change, and abuse the identification report of air cargo transportation. If the actual consignment is not compliance with the item name was declared, the

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consignment can be refused, or the shipper must make a new declaration. This kind of airmail items will not go through the inspection of security department.

2.9.4 Spot inspection

2.9.4.1 Shipments delivered by the shipper should pass the screening machine of the custom by 100% to confirm that it contains no dangerous goods.

2.9.4.2 The cargo can be opened for physical inspection if it cannot be identified by the screening machine.

2.9.4.3 When the cargo is open for inspection, the acceptance personnel should check carefully whether the item name is specific. Besides, for assemble cargo, the items in it must all coincide with the item name in the Shipper's Declaration.

2.9.4.4 Electronic device should be inspected for lithium batteries.

2.9.4.5 The consignment should be inspected for undeclared items.

2.9.4.6 For those suspected consignment that may contain dangerous goods, the shipper must provide relative information or identification report issued by third-party of identification institution of air cargo transportation to ensure that this consignment is not dangerous goods or restricted goods, and it contains no dangerous materials. If the consignment is transported as not restricted goods, then the shipper should indicate "not restricted" "non-hazardous" "non-dangerous" in the item name column of shipping list, if the cargo meets the DGR requirement as "NOT RESTRICTED" cargo, then it needs to show the cargo has no hazard on Air waybill, put "Not Restricted as per special provision A—" (for international transportation) or put "According to Special Provision A—, this cargo is not restricted" (for domestic transportation) in commodity column. Shipper should provide guarantee letter if necessary. The followings are the procedure for verifying the Identification Report:

1) The Identification Report should be the original copy.

2) The delegated unit must coincide with the shipper.

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3) The sample name in the Identification Report must coincide with the goods being transported.

4) The actual cargo package must coincide with packaging instruction requirement listed in the Identification Report.

5) The original Identification Report should be check for the signature and anti-fake label of the identification institution.

6) The Identification Report should be identified, through its serial number, to make sure that its original coincides with the Identification Report published in the official website of the identification institution recognized by the operator.

2.9.4.7 Shippers or sales agents with illegal transport record should be inspected with higher standard to avoid any dangerous goods in the consignment.

2.9.4.8 Shipper who intentionally conceal, withhold the shipping name of dangerous goods, or entrain dangerous goods in the consignment should be reported to the local Civil Aviation Administration, our company and forwarded to the Public Security Office in the airport.

2.9.4.9 The cargo and security department should apply normal requirement when accepting and inspecting the Non-Dangerous Goods air material.

2.9.4.10 The Handling Requirement for Cargo Acceptance Staff from Cargo Sales Agency:

Cargo acceptance staff from cargo sales agency shall follow *Prevention of Hidden Dangerous Goods Checklist* to exam the cargo, avoid hidden dangerous goods being accepted. Other form of checklist which is on Hainan Airlines' file could be the one to follow when examining the cargo.

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2.9.4.11 The Handling Requirement for Cargo Acceptance Staff from Hainan Airlines and its Ground Handling Agency:

Cargo acceptance staff from Hainan Airlines and its ground handling agency shall follow *Prevention of Hidden Dangerous Goods Checklist* to exam the cargo and mail, or follow other related checklists together, avoid hidden dangerous goods being accepted. Other form of checklist which is on Hainan Airlines' file could be the one to follow when examining the cargo and mail.

2.9.4.12 *Prevention of Hidden Dangerous Goods Checklist*

Prevention of Hidden Dangerous Goods Checklist

Flight #:_____ Flight Date:_____

Cargo Air Waybill # :_____

Shipper:_____ Commodity:_____

Weight:_____ Piece:_____ Open Box Checked Piece:_____

Check Items:	YES	NO
1. Shipper has a valid government issued identity card.	☐	☐
2. The declared commodity match with actual commodity.	☐	☐
3. There is no undeclared dangerous goods and prohibited goods.	☐	☐
4. No oil or liquid leaking, no smoke or gas emission.	☐	☐
5. No non-related marks or labels.	☐	☐
6. For the cargo has uncertain nature, if there is any non-haz MSDS that approved by Hainan Airlines.	☐	☐
7. The declared weight matches with actual weight.	☐	☐
Open Box Checked Result:		
There are no hidden dangerous goods or prohibited goods.	☐	☐

Date: Signature:

Remark:if any of the answer is "NO", the cargo cannot be accepted. If the agency is using its own version of checklist, it must get approval from Hainan Airlines firstly.

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2.9.4.13 Requirement of Keeping in File

Hainan Airlines, its ground handling agency and cargo sales agency shall keep the *Prevention of Hidden Dangerous Goods Checklist* for at least 6 months for future audit.

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2.10 Contingency plan for DG Transport in extremely emergency

2.10.1 Purpose

To specify the contingency plan regarding to the application for Temporary exempt and transport permission as well as the information reporting procedure in emergency circumstance.

2.10.2 Range of application

1) This contingency plan applies to the transport of dangerous goods listed in provision 2.10.4 of this manual, but any exemption should be authorized by the competent department of states government in advance.

2) This plan is applicable to the transport of those dangerous goods that beyond the company's transport restriction or the transport qualification of ground handling agent.

2.10.3 Management position

The Freight Branch of Sales & Marketing Department is responsible for the protection of dangerous goods accepted as cargo, while the Ground Service Dept. is responsible for the protection of dangerous goods accepted as luggage, in emergency circumstance.

2.10.4 Definition for DG transport in emergency circumstance.

1) Urgent transport tasks or needs of dangerous goods come officially from different party and government organizations, regarding to state politics, military, diplomacy, state security, public interest, national sentiment and overall national interest, etc.

2) Transport tasks or needs of dangerous goods come officially from relative social organizations regarding to state honor, people's lives and property safety, emergency rescue, etc.

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3) Other outbreak events of air transport.

2.10.5 Protection procedure

2.10.5.1 Notification procedure for DG transport in emergence circumstance.

All units or person who receives the notification of DG transport tasks should forward relative information in ten minutes to the freight duty leader with confirmation. And the freight duty leader should notify the AOC director, meanwhile, sending a text message to the company's manager directly (the form of the message: According to the notification of XXX, dangerous goods of XX would be transported on xx(date) by HUxxxx, please be noted), and report to the chief duty officer.

2.10.5.2 Procedure for DG transport task in emergency circumstance.

A For those special transport tasks of dangerous goods that beyond the transport restriction of the company, the freight duty leader should ask for instruction from the chief duty officer, organize all personnel of relevant departments to evaluate rationally the transport risks or the negative effects of refuse.

a If the company's managers are agreed to the transport tasks, the tasks should follow the rules of transport security procedure of dangerous goods in emergency circumstance of the company.

b The chief duty officer or principal officer of relatively operating department assigned by the company's leader should explain the reason to the government for understanding and provide other more suitable solutions.

B Protection procedure and responsibility of DG transport in emergency circumstance.

a When the transport tasks of dangerous goods happen in circumstance of

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extremely emergency, or other transport ways are inappropriate, or it may be against to the public interest if fully comply with the regulation of company's transportation, the company can apply with an transport exemption from the Civil Aviation Administration providing that every effort will be taken to transport safety.

b Only dangerous materials or luggage in need of certain emergency circumstance can be transported.

C Before the acceptance of dangerous goods, the cargo acceptance department should inform relative information of the dangerous goods being transported to the HU's freight manager on duty, and then the duty manager should notify this information to the Operation Control Department and ask for instructions from the 01-duty officer. Afterwards, the Safety Inspection Department should report this information to the Civil Aviation Administration with an exemption application in written form. The acceptance action will not be taken until getting an approval from the Civil Aviation Administration.

Before the acceptance of dangerous luggage, the luggage acceptance department should inform relative information of the dangerous luggage being transported to the freight manager on duty, and then the duty manager should notify this information to the 01-duty officer for approval. The Safety Inspection Department should report this information to the Civil Aviation Administration with an exemption application in written form. And the acceptance action will not be taken until getting an approval from the Civil Aviation Administration.

D When a written approval of exemption is received from The Civil Aviation Administration, the company should inform the ground handling

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agent to protect the transport, meanwhile, personnel with transport qualification of dangerous goods or dangerous goods instructor should be sent to supervise the handling procedure and provide technical support.

E Dangerous goods should be packed, collected, stored, and handled according to the exemption files. Information transfer and contingency plan during the transport should be prepared. All the transport actions of dangerous goods must be implemented on the premise of safety.

F All relevant departments should adopt 24-hours duty system to receive transport tasks arranged by related government departments.

G All units should maintain timely information transmission and emergency management during irregular transport event.

2.10.5.3 The follow-up handling procedure for transporting dangerous goods in emergency circumstance.

After finishing the transport tasks of dangerous goods in emergency circumstance, the chief duty officer should report the protection information about the tasks to company manager in charge, and the freight duty manager is responsible to summarize the protection, providing suggestion and advice for the revise of the operation manual, completing the procedure for transporting dangerous goods.

2.10.5.4 Requirement

A Each department or person should precisely and detailed report the transport information of dangerous goods under emergency circumstance.

B Each department or person should be constantly prudent and highly conscientious and stick to the handling procedure of transporting dangerous goods in emergency circumstance.

C If the task of transport dangerous goods in emergency circumstance is

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beyond the current transport restriction of the company which is required to be decided by company's manager, the chief duty officer must ask for instructions from the manager directly.

D Relevant department should keep the related files about the transport task of dangerous goods in emergency circumstance since the task has been finished. The air waybill and the special cargo notification to the aircraft captain are to be preserved for a minimum of 36 months, while other documents pertaining to the air transport of dangerous goods should be retained for at least 24 months.Those files should include the temporary exempt permission of transporting dangerous goods, the Acceptance Checklist, Air Waybill, as well as the Special Load Notification to Captain, etc.

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3 Classification of Dangerous Goods

3.1 General Principles

Dangerous goods are categorized into nine classes according to the classification of their hazards. Class 1,2,4,5 and 6 are further subdivided into hazard divisions due to the wide scope of the class. Many dangerous goods are not only of one main dangerous nature but also one or more subsidiary hazards.

Wastes must be categorized according to their hazards and the classification criteria of hazard they correspond to. Wastes not otherwise subject to the classification criteria in DGR of IATA but covered under the Basel Convention should be classified into Class 9.

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3.2 Classification

3.2.1 Class 1—Explosives

Division 1.1—Articles and substances having a mass explosion hazard;

Division 1.2—Articles and substances having a projection hazard but not a mass explosion hazard;

Division 1.3—Articles and substances having a fire hazard, a minor blast hazard or a minor projection hazard ,or both but not a mass explosion hazard;

Division 1.4—Articles and substances presenting no significant hazard;

Division 1.5—Very insensitive substances having a mass explosion hazard;

Division 1.6—Extremely insensitive articles which do not have a mass explosion hazard;

3.2.2 Class 2—Gases

Division 2.1—Flammable gases;

Division 2.2—Non-flammable, non-toxic gases.

Division 2.3—Toxic gases.

3.2.3 Class 3—Flammable Liquids

3.2.4 Class 4—Flammable Solids; Substances Liable to Spontaneous Combustion; Substances Which, When in Contact with Water, Emit Flammable Gases

Division 4.1—Flammable solids, self-reactive substances and solid desensitized explosives.

Division 4.2—Substances liable to spontaneous combustion.

Division 4.3—Substances which, when in contact with water, emit flammable gases.

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3.2.5 Class 5—Oxidizing Substances and Organic Peroxides

Division 5.1—Oxidizer.

Division 5.2—Organic peroxides.

3.2.6 Class 6—Toxic and infectious Substances

Division 6.1—Toxic substances.

Division 6.2—Infectious substances.

3.2.7 Class 7—Radioactive Material

3.2.8 Class 8—Corrosives

3.2.9 Class 9—Miscellaneous Dangerous Goods

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3.3 Packing Groups

For packing purposes, substances are assigned to the relevant packing group according to the degree of danger they present:

Packing Group I—high danger

Packing Group II—medium danger

Packing Group III—low danger.

Note:Articles are not assigned to packing groups. For packing purpose, specific packaging performance level is established in applicable packing instruction.

3.3.1 UN and ID numbers

UN serial number is made up of 4 digits. Articles or substances within numbers 0000-3400 are assigned by comply with UN Classification System. If there is no serial number for a certain article or substance in UN Classification System, it then will be assigned with a temporary serial number (ID8000).

3.3.2 Shipper's Responsibility:

The shipper is responsible for identifying and classifying all dangerous goods intended for transport by air in compliance with *DGR* of IATA. Especially, before packing any dangerous goods for transport by air, the shipper must:

3.3.2.1 identify correctly and fully all articles and substances that meet the criteria as dangerous goods within the consignment;

3.3.2.2 classify each item of dangerous goods by determining into which of the 9 classes it falls and, when necessary, determine any subsidiary hazards;

3.3.2.3 after ascertaining the class and division of each item of dangerous goods, assign each item to its corresponding packing class.

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3.4 Class 1—Explosives

3.4.1 Definition

3.4.1.1 Explosive substances (a substance which is not itself an explosive but which can form an explosive atmosphere of gas, vapour or dust is not included in Class 1), except those that are too dangerous to be transported or those whose predominant hazards are appropriate to other classes;

3.4.1.2 Explosive articles, except devices containing explosive substances in such quantity or of such a character that their inadvertent or accidental ignition or initiation, during transport, will not exert any influence on the external of the device either by projection, fire, smoke, heat or loud noise; and

Articles and substances not mentioned above which are manufactured with a view to producing a practical explosive or pyrotechnic effect.

Note: Usually, most of explosives in the dangerous goods list of DGR of IATA are not permitted for transport by air. The list contains pertinent information and the transport can be performed when exempted by relevant state authority according to IATA regulations and regulations in this manual.

3.4.2 Divisions of Explosives

3.4.2.1 Division 1.1, Articles and substances having a mass explosion hazard (a mass explosion is one which affects almost the entire load virtually and instantaneously).

3.4.2.2 Division 1.2, Articles and substances having a projection hazard but not a mass explosion hazard.

3.4.2.3 Division 1.3, Articles and substances having a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard. This division comprises articles and substances that give

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rise to considerable radiant heat; or burn one after another, producing minor blast or projection effects or both.

3.4.2.4 Division 1.4, Articles and substances that present no significant hazard.

This division comprises articles and substances which present no significant hazard (only a small hazard) in the event of ignition or initiation during transport. The effects are largely confined to the package and no projection of fragments in considerably range is to be expected. An external fire will not cause instantaneous explosion of the contents of the package.

3.4.2.5 Division 1.5, Very insensitive substances, having a mass explosion hazard, which are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions of transport.

3.4.2.6 Division 1.6, Extremely insensitive articles which do not have a mass explosion hazard.

This division comprises articles which contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation. Hazard of articles in this division is caused by the explosion of a single species of article.

3.4.3 Classification of Compatibility Group For Explosives

The possibility that whether different explosives can be loaded together for safe transport is due to the fact that whether they are in the same compatibility group.

Explosives in the same compatibility group can be loaded together for transport. Explosive are classified into the following thirteen compatibility groups:

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3.4.3.1 Compatibility Group A(1.1),Primary explosive substances

3.4.3.2 Compatibility Group B(1.1 、 1.2 、 1.4),Article containing a primary explosive substance but not containing two or more effectively protective features. Some articles, such as detonators or detonator assemblies for triggering blasting, are included in this group, even though they do not contain primary explosives.

3.4.3.3 Compatibility Group C(1.1、1.2、1.3、1.4),Propellant explosive substance or other deflagrating explosive substance or article containing such explosive substance.

3.4.3.4 Compatibility Group D(1.1、1.2、1.4、1.5),Secondary detonating explosive substance or black powder or article containing secondary detonating explosive substance, in each case without means of initiation and without a propelling charge or articles containing a primary explosive substance and containing two or more effective protective features.

3.4.3.5 Compatibility Group E(1.1 、 1.2 、 1.4),Article containing a secondary detonating explosive substance, without means of initiation, with a propelling charge (other than one containing a flammable liquid or gel or hypergolic liquids)

3.4.3.6 Compatibility Group F(1.1、1.2、1.3、1.4),Article containing a secondary detonating explosive substance, with a self-initiation means, with a propelling charge (other than one containing a flammable liquid or gel or hypergolic liquids) or without a propelling charge.

3.4.3.7 Compatibility Group G(1.1、1.2、1.3、1.4),Pyrotechnic substance, or article containing a pyrotechnic substance, or article containing both an explosive substance and an illuminating, incendiary, tear- or smoke-producing substance (other than a water-activated article or one containing white

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phosphorus, phosphide, a pyrophoric substance, a flammable liquid or gel or hypergolic liquids)

3.4.3.8 Compatibility Group H(1.2、1.3),Article containing both an explosive substance and white phosphorus

3.4.3.9 Compatibility Group J(1.1、1.2、1.3),Article containing both an explosive substance and a flammable liquid or gel.

3.4.3.10 Compatibility Group K(1.2、1.3),Article containing both an explosive substance and a toxic chemical agent.

3.4.3.11 Compatibility Group L(1.1、1.2、1.3),Explosive article or substance containing an explosive substance and presenting a special risk (e.g. due to water activation, or the presence of hypergolic liquids, phosphides or a pyrophoric substance) and needing isolation of each type.

3.4.3.12 Compatibility Group N(1.6N),Articles containing only extremely insensitive detonating substances.

3.4.3.13 Compatibility Group S(1.4S),Article or substance so packed or designed that any hazardous effects arising from accidental functioning are confined within the package unless the package has been destroyed by fire, in which case all blast or projection effects are limited to the extent that they do not significantly hinder or prohibit fire fighting or other emergency response efforts in the immediate vicinity of the package.

3.4.4 Classification of Explosives and Packaging Approval

3.4.4.1 Before transport, determination of category, compatibility group and proper shipping name for any new explosive article or substance must be approved by the competent authority of the manufacturer. It must also be approved by the competent authority of the operator if necessary.

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3.4.4.2 Any of the following type must be approved according to the statement in 1):

1） a new explosive substance, or a combination or a mixture of explosive substances, which is considered to be significantly different from other combinations or mixtures already classified;

2） a new design of an explosive article or an article containing a new explosive substance or a new combination or mixture of explosive substances;

3） a new design of package for an explosive article or substance including a new type of inner packaging.

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3.5 Class 2—Gases

3.5.1 Definition

A gas is a substance which at 50°C (122°F) has a vapour pressure greater than 300 kPa; or is completely gaseous at 20°C (68°F) at a standard pressure of 101.3 kPa.

3.5.1.1 Dangerous goods of Class 2 contain compressed gas, liquefied gas, dissolved gas, refrigerated liquefied gas, mixture of one or more kinds of gases and vapor of one or more kinds of substances, article inflated with gases and aerosol.

3.5.1.2 The depiction of physical state of gas in transport conditions is as follows:

1) Compressed gas—a gas which, when packaged in a container under pressure for transport, is entirely gaseous at –50°C (–58°F); this category includes all gases with a critical temperature less than or equal to –50°C;

2) Liquefied gas—a gas which, when packaged in a container under pressure for transport, is partially liquid at temperatures above –50°C. A distinction is made between:

- ◆ High pressure liquefied gas—a gas with a critical temperature between –50°C (–58°F) and +65°C (149°F);
- ◆ Low pressure liquefied gas—a gas with a critical temperature above +65°C (149°F);

3) Refrigerated liquefied gas—a gas which, when packaged for transport, is made partially liquid because of its low temperature;

4) Dissolved gas—a gas which, when packaged under pressure for transport, is dissolved in a liquid phase solvent.

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5) **Adsorbed gas**— a gas is absorbed into a solid porous material that with an internal receptacle pressure of less than 101.3 kPa at 20°C and less than 300 kPa at 50°C.

Notes: *1. Carbonated beverages and inflatable sports ball are not included in dangerous goods of Class 2.*

2. "Cryogenic liquid" means the same as "refrigerated liquefied gas".

3.5.2 Divisions of Gases

Substances of Class 2 are assigned to one of three divisions based on the primary hazard of the gas during transport.

3.5.2.1 Division 2.1 Flammable Gas

Gas which at 20°C (68°F) and a standard pressure of 101.3 kPa:

1) Gas that can be ignited when it is 13% by volume or less in a mixture with air; Or mixed with air, the combustion range is at least 12% of the gas, regardless of its lower combustion limit.

2) The flammability must be determined by tests or calculated in accordance with the method adopted by the International Organization for Standardization (see ISO Standard 10156; 2017). If the above method cannot be used due to lack of sufficient data, the test must be carried out with a similar method recognized by the competent national authority.

Note: Aerosols (UN 1950), small Receptacles containing gas (UN 2037) and Gas cartridges (UN 2037) must be regarded as being in Division 2.1 when the criteria in 3.2.5.2.1 in DGR of IATA are met. For chemicals with air pressure, from UN3500 to UN3505, see Special Provision A187 in the IATA "Dangerous Goods Regulations".

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3.5.2.2 Division 2.2 Non-flammable, Non-toxic Gas

1) Asphyxiant gases—normally can dilute or replace the oxygen in the atmosphere; or

2) Oxidizing gases - gases usually more easily to cause or promote combustion of other materials compared to the air. Must pass the test or calculate the oxidation according to the method used by ISO (see ISO 10156:1996 and ISO 10156-2:2005) ; or

3) Gas that does not belong to other categories.

3.5.2.3 Division 2.3 Toxic Gas

Gases which:

(a) are known to be so toxic or corrosive to humans as to pose a hazard to health; or

(b) are presumed to be toxic or corrosive to humans because they have an LC50 value equal to or less than 5,000 mL/m3 (ppm)

3.5.2.4 Exception

1) Gases of division 2.2 that are transported in temperature of 20 ℃ and in pressure lower than 200Kpa, not liquefied gas or cooling gas, are not subject to DGR restrictions.

2) Gases of division 2.2 that meet the following conditions are not subject to DGR:

(1) Foods, including carbonated beverages (excluding UN1950-aerosol);

(2) Sports balls;

(3) Tire meeting DGR special provision A59;

Note: This exemption does not apply to lamps. For lamps, see the section 1.3.11 in this manual.

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3.5.3 **Aerosols or Aerosol Dispensers**

Class 2 also includes “aerosols”. An aerosol dispenser means any non-refillable receptacle made of metal, glass or plastic containing a compressed gas, a liquefied gas, a dissolved gas under pressure, with or without a liquid, paste or powder, and fitted with a self-closing release device allowing the contents to be ejected as solid or liquid particles in suspension in a gas, as a foam, paste or powder, or in a liquid or gaseous state.

3.5.3.1 Refer to 3.2.5 in the IATA DGR for methods of identifying aerosol dispensers.

3.5.3.2 For aerosols, the division of Class 2 and the subsidiary risks depend on the nature of the contents in the aerosol dispenser. See the following provisions.

1) An aerosol must be assigned to Division 2.1 if the contents include 85% or more of flammable components by weight and the chemical heat of combustion is 30 kJ/g or more.

2) An aerosol must be assigned to Division 2.2 if the contents contain 1% or less of flammable components by weight and the heat of combustion is less than 20 kJ/g.

3) Aerosols not meeting the above two provisions must be classified in accordance with the tests described in the *UN Manual of Tests and Criteria*, Part III, section 31. Extremely flammable and flammable aerosols must be classified in Division 2.1; non-flammable in Division 2.2.;

4) Gases of Division 2.3 must not be used as a propellant in an aerosol dispenser.

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5) Where the contents other than the propellant of aerosol dispensers to be ejected are classified as Division 6.1, Packing Groups II or III or Class 8, Packing Groups II or III, the aerosol must have a subsidiary risk of Division 6.1 or Class 8.

3.5.3.3 An aerosol dispenser containing gases in Division 2.3 and toxic or corrosive substances, Packing Group I is prohibited from transport.

3.5.4 Mixtures of Gases

For the classification of gas mixtures into divisions (including vapours of dangerous substances from other classes), regulations in 3.2.3 in DGR of IATA must be followed.

3.5.5 Hazard Precedence

Gases and gas mixtures with hazards associated with more than one division take the following precedence:

Division 2.3 takes precedence over Division2.1 and Division 2.2;

Division 2.1 takes precedence over Division 2.2.

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3.6 Class 3—Flammable Liquids

3.6.1 Definition

Liquids, liquids mixtures or solids solution or turbid liquid which will release flammable vapour at temperatures of not more than 60°C (140°F) in closed-cup test or not more than 65.6°C (150°F) open-cup test are normally referred to as the flash point.

Class 3 includes the following substances:

(a) Flammable liquids; and

(b) Liquid with desensitized explosives.

3.6.2 Flammable liquids are assigned to packing groups according to their flammability (flash point) and volatility (boiling point). See Table 3-1 for details.

3.6.2.1 Packing Group Assignment

Table 3-1 Class 3—Packing Group Assignment of Dangerous Goods

Packing Group	Flash Point(Closed-cup)	Initial Boiling Point
I	——	≤ 35°C
II	< 23°C	> 35°C
III	≥ 23°C but ≤ 60°C	

3.6.2.2 For a liquid possessing an additional hazard(s), the packing group determined from Table 3.6.A and the packing group based on the severity of the additional hazard(s) must be considered. In such cases, the precedence of hazard characteristics appearing in Table 3.10.A in *DGR*(3-5 in this manual)should be used to determine the correct classification and packing group of the liquid.

3.6.2.3 The hazard group of viscous flammable viscous material, such as paints, varnishes, enamels, lacquers, adhesives and polishes, having a flash point below 23°C (73°F) are normally assigned to Packing Group II but they may be assigned to Packing Group III in conformity with the procedures prescribed in 3.3.3 in DGR of IATA.

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3.7 Class 4—Flammable Solids; Substances Liable to Spontaneous Combustion; Substances which, in Contact with Water, Emit Flammable Gases

3.7.1 Class 4 is divided into three divisions as follows:

•Division 4.1 Flammable solids.

•Division 4.2 Substances liable to spontaneous combustion.

•Division 4.3 Substances which, in contact with water, emit flammable gases.

3.7.2 Division 4.1—Flammable Solids

3.7.2.1 Definition: Solids which, under conditions encountered in transport, are readily combustible or may cause or contribute to fire through friction; self-reactive substances which are liable to undergo a strongly exothermic reaction; desensitized explosives which may explode if not diluted sufficiently.

3.7.2.2 Flammable solids include flammable solids,self-reactive substances and solid desensitized explosives.

3.7.2.3 Flammable solids are readily combustible solids and solids which may cause fire through friction. Readily combustible solids are powdered, granular or pasty substances which are dangerous if they can be easily ignited by brief contact with an ignition source, such as a burning match, and if the flame spreads rapidly. The danger may not only come from the fire but also from toxic combustion products. Metal powders are especially dangerous because of the difficulty of extinguishing a fire since normal extinguishing agents such as carbon dioxide or water can increase the hazard.

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3.7.2.4 Self-reactive substances are thermally unstable substances liable to undergo a strongly exothermic decomposition even without the participation of oxygen (air) during transport.

1) The decomposition of self-reactive substances can be initiated by friction, impact or contact with friction, heat, catalytic impurities, (e.g. acids, alkalis, and heavy-metal compounds). The rate of decomposition increases with temperature and varies with the substance. Decomposition, particularly if no ignition occurs, may result in the evolution of toxic gases or vapors. For certain self-reactive substances, the temperature must be controlled. Some self-reactive substances may decompose explosively, particularly if confined; this characteristic may be modified by the addition of diluents or by using appropriate packaging. Some self-reactive substances burn vigorously.

2) Self-reactive substances are classified according to the degree of danger. They must be transported in accordance with the related specifically listed names the generic entries UN 3221 to UN 3240 in the List of Dangerous Goods in DGR of IATA. Appropriate secondary risks and related information are also given. The name of the relevant substance is clearly listed in the Dangerous Goods List of the IATA Dangerous Goods Code, and the relevant substance refers to UN2965, UN3242 and UN3251.The generic entries specify:

--- the self-reactive substance type (C to F);

--- the physical state, i.e. liquid/solid;

--- when temperature control is required.

Self-reactive substances which require temperature control are forbidden for transport by air unless exempted.

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3) During the transport, packages or unit load devices containing self-reactive substances of Division 4.1 must be protected from direct sunlight and stored away from all sources of heat in a well-ventilated area.

3.7.2.5 Desensitized explosives are explosive substances which are wetted with water or alcohols or are diluted with other substances to form a homogeneous solid mixture to suppress their explosive properties.

3.7.2.6 Polymer and Compound (stable)

Polymer refers to substance that might come up intense heat generating reaction, creating Macromolecules or Polymer, during normal transportation condition without adding stabilizer. Substance matches the following conditions can be regarded as Polymer as defined in the Division 4.1:

1) The Self Accelerating Polymerization Temperature(SAPT)of the substance or compound in its transportation package, with or without adding chemical stabilizer, is 75°C or below.

2) The reaction heat of the substance or compound is over 300 Joules per gram, and

3) The substance or compound does not match any standard from Class 1 to Class 8.

4) Compound which matches the standard of polymer shall be classified as Polymer in Division 4.1.

5) If the SAPT of the Polymer in its transport package is 50°C or below, then temperature control measures shall be taken during transportation.

Note: Substance with dangerous character of Class 1 to Class 8 that matches the standard of Polymer shall conform to the requirements of Special Provision A209.

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3.7.3 Substances Liable to Spontaneous Combustion

3.7.3.1 Definition: Substances, which are liable to spontaneous heating under normal conditions encountered in transport, or to heating up in contact with air, and being then liable to catch fire.

3.7.3.2 Substances Liable to Spontaneous Combustion includes pyrophoric substances and self-heating substances.

3.7.3.3 Self-heating of a substance, leading to spontaneous combustion, is caused by a reaction of that substance with oxygen (in the air) if the heat developed is not conducted away sufficiently rapidly to the surroundings. Spontaneous combustion occurs when the rate of heat production exceeds the rate of heat loss and the auto-ignition temperature is reached. Two types of substances can be distinguished with spontaneous combustion properties.

1) Pyrophoric substances (liquid or solid) including mixtures and solutions are substances which, even in small quantities, ignite within 5 minutes of coming in contact with air. These substances are the most liable to spontaneous combustion.

2) Self-heating substances are substances, which in contact with air without an additional energy supply are liable to self-heating. These substances will ignite only in large amounts (kilograms) and after long periods of time (hours or days).

3.7.3.4 Pyrophoric solids, pyrophoric liquids and self-heating substances in Division 4.2 must be classified in accordance with the test method and criteria in DGR of IATA, Subsection 3.4.2.3

3.7.3.5 All pyrophoric liquids and solids must be assigned to Packing Group I. Some self-heating substances conforming to regulations in 3.4.2.4.2 in

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DGR of IATA must be allocated to Packing Group Ⅱ or Ⅲ by following the relevant criteria:

3.7.4 Division 4.3—Substances Which, in Contact with Water, Emit Flammable Gases

3.7.4.1 Substances which are liable to become spontaneously flammable by interaction with water, or to give off flammable gases in contact with water.

Note: In the List of Dangerous Goods, substances annotated with the words" Water-reactive" belong to this division.

3.7.4.2 Certain substances in contact with water, emit flammable gases which can form explosive mixtures with air. Such mixtures are easily ignited by all ordinary sources of ignition, for example, naked lights, sparking handtools or unprotected light bulbs. The resulting blast wave and flames may endanger people and the environment. The test method in 3.4.3.3 in DGR of IATA must be used to determine whether the reaction of a substance with water leads to the development of a dangerous amount of gases which may be flammable. It must not be applied to pyrophoric substances.

3.7.4.3 Substances which, in contact with water, emit flammable gases must be classified in Division 4.3 in accordance with the test methods and criteria in 3.4.3.3 in DGR of IATA. Substance under test which ignites spontaneously in any step of the test procedure or emits a flammable gas at a rate greater than 1 L/kg per hour must be assigned to Division 4.3.

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3.7.4.4 Substances which, in contact with water, emit flammable gases must be allocated to packing groups by following testing results derived from regulations in 3.4.3.3 and the following categories of A,B and C.

1) If the substance reacts vigorously with water at ambient temperatures and generally demonstrates a tendency for the gas produced to ignite spontaneously, or which reacts readily with water at ambient temperatures such that the rate of evolution of flammable gas is equal to or greater than 10 L/kg of substance over any one minute period.

2) If the substance reacts readily with water at ambient temperatures such that the maximum rate of evolution of flammable gas is equal to or greater than 20 L/kg of substance per hour, and does not meet the criteria for Packing Group I.

3) If the substance reacts slowly with water at ambient temperatures such that the maximum rate of evolution of flammable gas is greater than 1 L/kg of substance per hour, and does not meet the criteria for Packing Groups I or II,determined as level Ⅲ.

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3.8 Class 5—Oxidizing Substances and Organic Peroxides

3.8.1 Class 5 is divided into two divisions:

Division 5.1 Oxidizing substances.

Division 5.2 Organic peroxides.

3.8.2 Division 5.1 Oxidizing substances.

3.8.2.1 Definition: Oxidizing substances are substances which, in themselves are not necessarily combustible, but may generally cause or contribute to the combustion of other material by yielding oxygen.

3.8.2.2 Oxidizing substances are classified in accordance with the test criteria in DGR of IATA. In the event of divergence between test results and known experience, the appropriate authority of the State of origin must be consulted to establish the appropriate classification and packing group.

3.8.2.3 Solid ammonium nitrate based fertilizer must be classified according to United Nations *Test and Standard Manual* Chapter 3 section 39's regulation.

3.8.2.4 Substances having other risks, e.g. toxicity or corrosivity should be assigned to packing groups according to the classification regulations for multi-hazardous articles and substances in DGR of IATA.

3.8.3 Division 5.2 Organic peroxides

3.8.3.1 Definition: This division is made up of organic substances which contain the bivalent structure -O-O- and may be considered derivatives of hydrogen peroxide in which one or both of the hydrogen atoms have been replaced by organic radicals.

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3.8.3.2 Organic peroxides are thermally unstable substances which may undergo exothermic, self-accelerating decomposition. In addition, they may have one or more of the following properties:

1) be liable to explosive decomposition;

2) conflagration

3) be sensitive to impact or friction;

4) react dangerously with other substances;

5) cause damage to the eyes.

3.8.3.3 Category:

Organic peroxides are permitted for transport under the appropriate generic entry (UN3101 to UN3120)appearing in the List of Dangerous Goods. The generic entries specify:

1) the organic peroxide type (“B” to “F”);

2) the physical state (liquid or solid);

3) temperature control when required

Note: Organic peroxides requiring temperature control during transport are forbidden for transport by air unless exempted by regulations outlined in DGR of IATA.

3.8.3.4 Special Hazard

1) Organic peroxides are liable to exothermic decomposition, which can be started by heat, contact with impurities (e.g. acids, heavy metal compounds, and amines), friction or impact. The rate of decomposition increases with temperature and varies with the peroxide formulation. Decomposition may result in the evolution of harmful or flammable gases or vapours. Some organic peroxides decompose explosively, particularly if confined. Many organic peroxides burn vigorously.

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2) Contact of organic peroxides with the eyes should be avoided. Certain organic peroxides will cause serious injury to the cornea even after brief contact, or will be corrosive to the skin.

3) During the course of transport, packages or unit load devices containing organic peroxides must be protected from direct sunlight ,stored away from all sources of heat in a well ventilated area and mustn't be placed below other goods.

3.8.3.5 Desensitization

In many cases, organic peroxides are desensitized by the addition of organic liquids or solids, inorganic solids or water in order to ensure safety during transport and handling.

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3.9 Class 6—Toxic and Infectious Substances

3.9.1 Class 6 is divided into two divisions as follows:

Division 6.1—Toxic substances.

Division 6.2—Infectious substances

3.9.2 Division 6.1—Toxic substances.

3.9.2.1 Definition: Toxic substances are substances which are liable to cause death or severe injury or to harm human health if swallowed, inhaled or contacted by the skin.

Note: Toxins from plant, animal or bacterial sources which do not contain any infectious substances or toxins should be considered for classification in Division 6.1 and assignment to UN 3172.

3.9.2.2 Classification

To be classified as “Toxic”, a substance must meet the minimum criteria shown in Tables 3.6.A and 3.6.B. in DGR of IATA.

3.9.2.3 Packing Group Criteria

Toxic substances of Division 6.1 including pesticides must be assigned to packing groups according to their toxicity during transport. Account must be taken of human experience in instances of accidental poisoning, and of special properties possessed by any individual substance, such as liquid state, high volatility, any special likelihood of penetration, and special biological effects. In the absence of human experience the grouping must be based on the available data from animal experiments. When a substance exhibits a different order of toxicity by different routes of administration, the highest degree of danger must be assigned.

Toxic data LC_{50} or LD_{50} resulting from animal tests should be followed in packing grouping.The package grouping criteria for the oral and dermal routes as well as for inhalation of dusts and mists are as shown in Table 3-2. The package grouping criteria for vapour inhalation are as shown in Table 3-3. For a certain toxic substances with the toxicity of its vapour and its mist being different from each other, the packing group must be determined

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by the higher toxicity of the two.

Table 3-2

Oral, Dermal and Dust/Mist Inhalation Hazards—— Division 6.1 Packing Group Criteria

Packing Group	Oral Toxicity LD_{50}(mg/kg)	Dermal Toxicity LD_{50}(mg/kg)	Inhalation Toxicity by Dusts and Mists LC_{50}(mg/L)
I	≤ 5	≤ 50	≤ 0.2
II	＞5 but ≤ 50	＞50 but≤ 200	＞0.2 but ≤ 2
III	＞ 50 but ≤ 300	＞200 but≤ 1000	＞2 but ≤ 4.0

Table 3-3

Vapour Inhalation Hazard—Division 6.1 Packing Group Criteria

Packing Group	Inhalation Hazard
I	LC_{50}≤ 1000ml/m^3,V≥10×LC_{50}
II	LC_{50}≤ 3000ml/m^3,V≥LC_{50}, and not meeting criteria for Packing Group I
III	LC_{50}≤ 5000ml/m^3,V≥ 0.2×LC_{50}, and not meeting criteria for Packing Group I or Ⅱ.

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Note: Tear gas substances must be included in Packing Group II even if their toxicity data correspond to Packing Group III values.

3.9.2.4 Toxic Substances Forbidden for Transport

Liquid toxic substances in Packing Group I which may cause toxicity through vapour inhalation are forbidden to be transported on passenger and cargo aircraft.

3.9.2.5 Oral, dermal and inhalation toxicity of toxic substances in Division 6.1 must be determined by the test methods in 3.6.1.5 in DGR.

Note: Packing group criteria for Division 6.1 as listed in Table 3.9.A and 3.9.B roots in the toxicity criteria derived from the above test methods.

3.9.2.6 If a certain mixed liquid doesn't contain toxic value LC_{50} of vapour inhalation, toxicity criteria of vapour inhalation for this mixed liquid must be determined separately in accordance with the following two provisions:

1) If LC_{50} data of each toxic substance is known, its packing group must be ascertained in accordance with provisions and formulas in 3.6.1.6.1 in DGR.

2) If LC_{50} data of each toxic substance is unknown, its packing group must be ascertained in accordance with the simplified test in 3.6.1.6.2 in DGR.

3.9.2.7 Acute LD_{50} data of one or more active substance must be determined in accordance with provisions and formulas in 3.6.1.7 in DGR of IATA when assigning mixtures of Division 6.1 to certain classes and packing groups in accordance with oral and dermal toxicity criteria listed in Table 3.9.A.

3.9.2.8 Pesticide

1) All active pesticide substances and their preparations for which the LC_{50} and/or LD_{50} values are known and which are classified in Division 6.1 must be classified under appropriate packing groups in accordance with the criteria in 3.6.1.5 in DGR of IATA as described by the above 5).Active elements of pesticides and their preparations which are characterized by subsidiary risks must be classified according to Table 3.13.A with the assignment of appropriate packing groups.

2) If the oral or dermal LD_{50} value for a pesticide preparation is not known, but the LD_{50} value of its active substance(s) is known, the LD_{50} value for the preparation may be obtained by applying the procedures in 3.6.1.7 in DGR.

3) The proper shipping name used in the transport of the pesticide must be selected on the basis of the active ingredient, the physical state of the pesticide and any subsidiary risks it may exhibit.

4) LD_{50} toxicity data for pesticides may be obtained from the most current

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edition of *Classification of Pesticides by Hazard and Guidelines to Classification* available from the International Programme on Chemical Safety, World Health Organization (WHO), 1211 Geneva 27, Switzerland. However, the transport classification and package grouping must be assigned in accordance with DGR.

3.9.3 Division 6.2—Infectious substances

3.9.3.1 Definition: Division 6.2 are substances which are infectious to humans or animals, including transmissible micro-organisms, biological products, genetically modified micro-organisms and organisms ,fungi, clinical and medical wastes and patients specimen.

1) Infectious Substances are substances which are known or are reasonably expected to contain pathogens. Pathogens are defined as micro-organisms (including bacteria, viruses, rickettsiae, parasites, fungi) and other agents such as prions, which can cause disease in humans or animals.

Note: Toxins from plant, animal or bacterial sources which do not contain any infectious substances or micro-organism should be considered for classification in Division 6.1 and assigned to UN 3172 or UN3462.

2) Biological Products are those products derived from living organisms which are manufactured and distributed in accordance with the requirements of appropriate national authorities, which may have special licensing requirements, and are used either for prevention, treatment, or diagnosis of disease in humans or animals, or for development, experimental or investigational purposes related thereto. They include, but are not limited to, finished or unfinished products such as vaccines. The classification regulations of biological products are as follows:

(1) Medical and biological products manufactured and packed in accordance

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with provisions of the state sanitation authorities, transported with the ultimate packing for sales and intended for medical staff and individual use are not decided as infectious substances in this manual and not subject to provisions restricting dangerous goods of Division 6.2.

(2) Biological products which don't conform to criteria of Item a.but contain infectious substances of Class A or B must be assigned to Division 6.2((UN2814 、UN2900 or UN3373).

Note: In certain circumstances, some concessionary biological products may pose hazards to organisms only in certain areas of the world. In this case, the competent state authorities shall require the biological products to be in conformity with local requirements of infectious substances or exert other restrictions as appropriate.

3) Genetically Modified Micro-organisms and Organisms refer to micro-organisms and organisms in which the germ plasm has been intentionally modified not by natural reproduction.

4) Cultures are pathogens which are strengthened or reproduced to achieve high concentration for experimental purposes. Therefore, upon leakage, possibility of infectivity will increase. This definition is only limited to cultures prepared especially for pathogen reproduction and does not include cultures prepared for diagnostic and medical treatment purposes.

5) Patient specimens are those collected directly from humans or animals, including, but not limited to, excreta, secreta, blood and its components, tissue and tissue fluid being transported for purposes such as diagnosis, investigational activities, disease treatment and prevention.Those meeting criteria for classifying biological products must be assigned to UN2814,UN2900 or UN3373.

6) Medical and Clinical Wastes are wastes derived from the medical treatment

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of animals or humans or from bioresearch. The company doesn't accept such substances for transport.

Note: Substances containing infectious to the environment must be classified as UN2814, UN2900 or UN3549. Medical care of particles containing infectious substances produced by human medical treatment or animal veterinary treatment must be classified as UN3549. UN3549 shall not be used for biological research. Substances or liquids must; Class B infectious substances are classified as UN3291.

There are reasons to believe that medicines with low substance content or are willing to join UN3291. The determination process can consider international regional or national waste lists. The shipping name of 3291 is "Clinical waste, unspecified, nos" or "Medical waste, nos" or "Long-term medical care, universal UN". Refers to "(Regular Medical waste, nos).

3.9.3.2 Classification of Infectious Substances

Infectious substances must be classified in Division 6.2 and assigned to UN 2814, UN 2900, UN3291,UN 3373 or UN3549, as appropriate.

Infectious substances are divided into Category A and Category B.

1) Category A: Will cause permanent disability, life-threatening or fatal disease when it is exposed to healthy humans or animals during transportation. See the examples in Table 3.6.D of DGR.

Note: Infectious substances meeting this criteria that will cause disease to both humans and animals must be assigned to UN2814. Those infectious substances will only cause disease to animals must be assigned to UN2900.The proper shipping name of UN 2814 is Infectious substance, affecting humans. The proper shipping name of UN 2900 is Infectious substance, affecting animals.

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2) Category B: Infectious substances which do not meet the criteria of Category A. Infectious substances of Category B (except culture bacteria) must be assigned to UN 3373. Cultures bacteria of Category B must be assigned to UN2814 or UN2900.

Note: The proper shipping name of UN 3373 is Diagnostic Specimens or Clinical Specimens.

3.9.3.3 Infected Animals

1) HNA doesn't accept infected live animals for transport.

2) the already-infected living animals

Live animals shall not be used to transport infectious substances unless they cannot be otherwise shipped. Active substances intended to be infected and known or suspected to contain infectious substances may only be transported by air in accordance with the terms and conditions approved by the relevant national authorities of the originating country, the transit country, the country of arrival and the country of the operator in accordance with the TI (Part S-1; 2).

3) Infected animal material

Animal material that is intentionally infected to reproduce grade A or to be classified as grade A-only culture species must be classified as UN 2814 or UN2900. For animal material infected with grade B pathogens, an UN3373 must be included, except for those that should be classified as grade A in the culture.

3.9.3.4 Exceptions

1) Substances which do not contain infectious substances or are unlikely to cause disease to humans or animals are not subject to this manual (or DGR) unless they meet the criteria of other Class.

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2) Substances containing micro-organisms, or no pathogenicity to humans or animals are not subject to this manual (or DGR) unless they meet the criteria of other class.

3) Substances that have been neutralized or inactivated of any present pathogens so that they no longer pose a health risk are not subject to this manual(or DGR) unless they meet the criteria of other class.

4) Environmental samples (including food and water samples), which are considered to pose no significant risk of infection are not subject to this manual (or DGR), unless they meet the criteria for other class.

5) Dried blood spots, collected by applying a drop of blood onto absorbent material, or faecal occult blood screening tests and blood or blood components which have been collected for the purposes of transfusion or for the preparation of blood products to be used for transfusion or transplantation and any tissues or organs intended for use in transplantation are not subject to this manual (or DGR).

6) Disease samples with low possibility of containing pathogenic bacteria must be transported in leakproof package with the label of “Exempt human specimen” or “Exempt animal specimen” on the package. These samples are not subject to the DGR of IATA. But the package must meet below requirements.

(1) The package must consist of three components: A leak-proof primary receptacles, a leak-proof secondary packaging, an outer packaging of adequate strength for its capacity, mass and intended use , and with at least one surface having minimum dimensions of 100mm×100mm;

(2) For liquids, absorbent material in sufficient quantity to absorb the entire contents must be placed between the primary receptacle(s) and the secondary packaging so that, during transport, any release or leak of a liquid substance will not reach the outer packaging and will not

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compromise the integrity of the cushioning material;

(3) When multiple fragile primary receptacles are placed in a single secondary packaging, they must be either individually wrapped or separated to prevent contact between them.

7) If refrigerated or frozen specimens are to be transported, the following conditions must be met.

(1) When dry ice or liquid nitrogen is used to keep specimens cold, then all applicable requirements of the IATA DGR must be met. When used, ice or dry ice must be placed between the secondary packaging and the outer packaging. Interior supports must be provided to secure the secondary packaging in the original position after the ice or dry ice has dissipated. If ice is used, the outside packaging must be leakproof. If dry ice is used, the packaging must be designed and constructed to permit the release of carbon dioxide gas to prevent the packaging being ruptured by pressure ;

(2) The primary receptacle and the secondary packaging must maintain their integrity at the temperature in using refrigerant or in the circumstance of losing refrigeration.

8) Medical devices or equipment potentially contaminated with or containing infectious substances transported for disinfection, cleaning, sterilization, repair, or equipment evaluation are not subject to the provisions of the IATA DGR when they are transported as cargo.

(1) Medical devices or equipment must be drained of water.

(2) They must be packed in a strong rigid outer packaging to prevent damage, puncture or leakage.

(3) Containing sufficient cushioning material to prevent movement within the outer packaging.

3.9.3.5 For transport standards for infectious substances, refer to the Standard for Transport of Infectious Substances (WS/T 852-2025) and the Guidelines for the Transport of Infectious Substances by Public Aviation.

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3.9.4 Transport Management Regulations of Genus or Samples of Highly Disease-Evocative Pathogen Micro-organism Bacteria(Toxins) Infective to Humans(See Appendix D for the Original Text)

3.9.4.1 As stipulated in the 45th order of Ministry of Health of the People's Republic of China *Transport Management Regulations of Genus or Samples of Highly Disease-Evocative Pathogen Micro-organism Bacteria (Toxins) Infective to Humans* came into force from Feb, 1, 2006. It aims to strengthen management of genus or samples of highly disease-evocative pathogen micro-organism bacteria (toxins) infective to humans and safeguard human health and public sanitation.

3.9.4.2 Genus or samples of highly disease-evocative pathogen micro-organism bacteria (toxins) infective to humans stated in this provision are genus or samples of pathogen micro-organism bacteria (toxins) of Class 1 or Class 2 as prescribed in *List of Pathogen Micro-organisms Infective to Humans.* Genus or samples of pathogen micro-organism bacteria (toxins) of Class 3 in the list which are assigned to Packing Group A and suspicious genus or samples of highly disease-evocative pathogen micro-organism bacteria (toxins) must be put under transport management in accordance with this provision. See Appendix E for *List of Pathogen Micro-organisms Infective to Humans.*

3.9.4.3 Genus or samples of Bacteria (toxins) stipulated in Transport Item 3 (hereinafter referred to as genus or samples of highly disease-evocative pathogen micro-organism bacteria (toxins)) must be approved by administrative health sector of or higher than the provincial level. Those without such approval are forbidden for transport.

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3.9.4.4 Containers or packing materials of genus or samples of highly disease-evocative pathogen micro-organism bacteria (toxins) must meet Packing Criteria A in *Technical Detailed Rules of Transporting Dangerous Articles Safely by Air*(Doc9284,Packing Instructions PI602), requirements of water-proof, dilapidation-proof, leakage proof, anti-high temperature, and anti-high pressure, and must be printed with organism danger labels, markings, transport registering table, warning words and prompts.

3.9.4.5 Genus or samples of highly disease-evocative pathogen micro-organism bacteria (toxins) must be accompanied by special personnel containing no less than two persons for transport. The application party must give the accompanying staff pertinent training about biological safety knowledge and adopt corresponding protective measures during the accompanying process.

3.9.4.6 The application party must conduct procedures in aviation department and others related by bringing forth *Transport Approval for Genus or Samples of Highly Disease-evocative Pathogen Micro-organism Bacteria (Toxins) Infective to Humans* issued and confirmed by administrative health sector of or higher than the provincial level, or China Disease Prevention and Control Center.

3.9.4.7 In accordance with requirements of *CAAC Management Provisions of Dangerous Goods Transport* (CCAR276R2)and *Technical Detailed Rules of Transporting Dangerous Articles Safely by Air*(Doc9284),the shipper should have those transported by air classified, packed, labeled and marked with correctness and submit the correctly filled documentation of dangerous goods air transport to the operator and airport sanctified by the competent civil aviation authorities to have the transport carried out. Those which need to be transported by unsatisfied aviation operator and airport must be sanctified by the competent civil aviation authorities.

3.9.4.8 Packing of highly disease-evocative pathogen micro-organism bacteria

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(toxins) before transport and opening of the packing after arrival must be performed in sites where provisions of biological safety are corresponded to.

3.9.4.9 Exit and entry of the territory of genus or samples of highly disease-evocative pathogen micro-organism bacteria (toxins) must be regulated in accordance with the relevant regulations of the National Health Commission (NHC) and the General Administration of Customs (GAC).

3.9.5 Transportation management regulations for animal bacteria virus seed samples and disease

3.9.5.1 When animal pathogens microorganism bacteria (virus) seed or sample and diseased animal (hereinafter referred to as "bacteria (virus) seed and sample and diseased animal") are transported by air as cargo, carrying on, check-in or mailing transporting are prohibited. Transporting of bacteria (virus) seed and sample and diseased animal should meet the requirements of *China Civil Aviation Dangerous Goods Transportation Management Regulation* and ICAO *Dangerous Goods Safe Transportation Rules*(ICAO Doc 9824)AN/905, hereinafter referred to as *Technical Rules*)

3.9.5.2 The shipper or agent of bacteria (virus) seed and sample and diseased animal must accept the dangerous goods air transportation training required by CCAR-276R2 and Technical Rules, and holds a valid certificate.

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3.9.5.3 The Shipping procedures of bacteria (virus) seed and sample and diseased animal must comply with the State Council "pathogenic microbiology laboratory bio-safety regulations"(State Council Decree No. 424), Ministry of Agriculture, "highly pathogenic animal pathogen laboratory biosafety regulatory approval approach "(Ministry of Agriculture Decree No. 52) and "Animal pathogens Category List" (Ministry of Agriculture Decree No. 53) requirements. The Shipper must hold an *"Animal pathogens microorganism bacteria (virus) seed or sample and diseased animal navicert"*(see figure 1 for sample) issued by Ministry of Agriculture when shipping animal pathogens microorganism bacteria (virus) seed or sample and diseased animal cross provinces, autonomous regions, municipalities or outside of China. The shipper must hold an *"Animal pathogens microorganism bacteria (virus) seed or sample and diseased animal navicert"* issued by the veterinary administrative department (see figure 2 for name list) of the origin province, autonomous region or municipalities people's government. For the entry and exit transportation of *Animal pathogens microorganism bacteria (virus) seed or sample and diseased animal navicert,* it has to be quarantined by the entry-exit inspection and quarantine authorities

3.9.5.4 The package of bacteria (virus) seed and sample and diseased animal must meets the requirements of ICAO *Technical Rules* and Ministry of Agriculture *Highly pathogenic strains of pathogenic microorganisms (viruses) or sample transportation packaging specification* and must meet the requirement of the national quality supervision Inspection and quarantine department or with the relevant proving documents of imported packaging materials in line with international standards.

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3.9.5.5 In case of an emergency during the transportation of bacteria (virus) seed and sample and diseased animal, prompt communication with the transportation application unit and the veterinary administrative department of the origin province, autonomous region or municipalities' people's government must be established in time. Airport emergency services, airlines dangerous goods transportation management department and the Civil Aviation Authority of the region's (including the supervision offices) dangerous goods air transport principle department should provide assistance actively.

3.9.5.6 See figure 3 for Classification of animal pathogens microorganism and UN numbers

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Figure1:Navicert for animal pathogens microorganism bacteria (virus) seed or sample and diseased animal

Bacteria (virus) seed or sample and disease	Name	Total amount	Volume of each package	Package amount	Sample status
Bacteria (virus) seed or sample and disease source					
Classification and UN number			Transport object		
Main container		Accessorial contianer		Filler	
Outer packaging			Name and number of refrigerant		
Disassemble and check notes					
Times and date of transport					
Transport starting point					
Transport endpoint					
Transport Applicant unit	Name				
	Add				
	Contact			Tel	
Receiving unit	Name				
	Add				
	Contact			Tel	
Transport way					
Approval unit	Stamp yy mm dd				

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Figure 2:A list of the veterinary administrative department of provinces, autonomous regions and municipalities

Unit	Address	Tel
Beijing Agriculture Bureau	No. 6Yumin middle Road, Xicheng District, Beijing,	010-82031966
Animal Husbandry and Veterinary Bureau of Tianjin	NO 423,the liberation of South Road, Hexi District, Tianjin	022-28301638
Animal Husbandry and Veterinary Bureau of Hebei Province	NO 385,zhaiying Nan Street, Shijiazhuang,	0311-85555027
Animal Husbandry and Veterinary Bureau of Shanxi Province	Yingze Avenue 312, Taiyuan	0351-4082318
Veterinary Authority of Inner Mongolia	NO32, xing an South Road, Hohehot	0471-6652104
Supervision administration Bureau of Animal Health of Liaoning Province	Taiyuan North Street 2,Heping District, Shenyang	024-23448289
Animal Husbandry Bureau in Jilin Province	No1486, Renmin Street, Changchun	0431-88906647
Animal Husbandry and Veterinary Bureau of Heilongjiang Province	NO 41, wenfu street, Xiangfang District, Harbin City	0451-82620312
Shanghai Animal Husbandry Office	Municipal Services Building , No. 100 Da Gu Road, Shanghai	021-23113094
Animal Husbandry and Veterinary Bureau of Jiangsu Province	Nonglin building, NO 8, moonlight square, caochang men avenue, Nanjing	025-86263904
Animal Husbandry and Veterinary Bureau of Zhejiang Province	No. 29,Feng Qi east Road, Hangzhou,	0571-86757963
Animal Husbandry and Veterinary Bureau of Anhui Province	No. l95, Huizhou Road, Hefei,	0551-2645961
Fujian Provincial Department of Agriculture Bureau of Animal Husbandry and Veterinary	No. 123 Hua Lin Road, Fuzhou	0591-87833808
Animal Husbandry and Veterinary Bureau of Jiangxi province	The provincial government compound, Nanchang	0791-6213853
Animal Husbandry and Veterinary Bureau of Shandong Province	NO 68, Huai Village Street, Jinan	0531-87198000

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Figure 3: Classification of animal pathogens microorganism and the UN code

NO	Name of animal pathogens microorganism	Classification of risk	UN code
1	Foot and mouth disease virus (cultures only)	CAT I	UN2900
2	Highly pathogenic avian influenza virus (cultures only)	CAT I	UN2814
3	Swine vesicular disease virus (cultures only)	CAT I	UN2900
4	African swine fever virus	CAT I	UN2900
5	African horse sickness virus	CAT I	UN2900
6	Rinderpest virus	CAT I	UN2900
7	PPR virus	CAT I	UN2900
8	Contagious bovine pleuropneumonia Mycoplasma mycoides	CAT I	UN2900
9	Bovine spongiform encephalopathy pathogen	CAT I	UN3373
10	Scrapie pathogen	CAT I	UN3373
11	Classical swine fever virus (cultures only)	CAT II	UN2900
12	Newcastle disease virus (cultures only)	CAT II	UN2900
13	Rabies virus (cultures only)	CAT II	UN2814
14	Sheep pox / goat pox virus (cultures only)	CAT II	UN2900
15	Bluetongue virus (cultures only)	CAT II	UN2900
16	Rabbit viral haemorrhagic virus (cultures only)	CAT II	UN2900
17	Bacillus anthracis (cultures only)	CAT II	UN2814
18	Brucellosis (cultures only)	CAT II	UN2814
19	Low pathogenic influenza viruses	CAT III	UN3373
20	Pseudorabies virus	CAT III	UN3373
21	Tetanus bacteria (cultures only)	CAT III	UN3373
22	Emphysema, gangrene Clostridium (cultures only)	CAT III	UN2900
23	Mycobacterium tuberculosis (cultures only)	CAT III	UN2814
24	Mycobacterium paratuberculosis	CAT III	UN3373
25	Escherichia coli (0157) (cultures only)	CAT III	UN2814
26	Salmonella (cultures only)	CAT III	UN3373
27	Pasteurella	CAT III	UN3373
28	Pathogenic streptococci (cultures only)	CAT III	UN2814
29	Listeria (cultures only)	CAT III	UN2814
30	Clostridium perfringens	CAT III	UN3373
31	Aeromonas hydrophila	CAT III	UN3373
32	Clostridium botulinum (cultures only)	CAT III	UN2814
33	Corruption and other pathogenic Clostridium Clostridium	CAT III	UN3373
34	Chlamydia psittaci	CAT III	UN2814

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35	Actinomycetes	CAT III	UN3373
36	Leptospirosis (cultures only)	CAT III	UN3373
37	Bovine malignant catarrhal fever virus	CAT III	UN3373
38	Bovine leukemia virus	CAT III	UN3373
39	Bovine ephemeral fever virus	CAT III	UN3373
40	Infectious bovine rhinotracheitis virus	CAT III	UN3373
41	Bovine virus diarrhea / mucosal disease virus	CAT III	UN3373
42	Bovine genital campylobacteriosis	CAT III	UN3373
43	Schistosoma japonicum (only parasite)	CAT III	UN3373
44	Caprine arthritis / encephalitis virus	CAT III	UN3373
45	Mehdi / Wei Sina disease virus	CAT III	UN3373
46	Contagious pustular dermatitis virus	CAT III	UN3373
47	Japanese encephalitis virus (cultures only)	CAT III	UN2814
48	Porcine reproductive and respiratory syndrome virus	CAT III	UN3373
49	PPV	CAT III	UN3373
50	PCV	CAT III	UN3373
51	Porcine epidemic diarrhea virus	CAT III	UN3373
52	Transmissible gastroenteritis virus	CAT III	UN3373
53	Erysipelas bacteria	CAT III	UN3373
54	Bordetella pig bronchus	CAT III	UN3373
55	Porcine Actinobacillus pleuritis	CAT III	UN3373
56	Haemophilus parasuis	CAT III	UN3373
57	Mycoplasma hyopneumoniae	CAT III	UN3373
58	Treponema pig	CAT III	UN3373
59	Equine infectious anemia virus	CAT III	UN3373
60	Equine arteritis virus	CAT III	UN3373
61	Abortion virus horse virus	CAT III	UN3373
62	Ma rhinitis virus	CAT III	UN3373
63	Burkholderia aeruginosa (cultures only)	CAT III	UN2814
64	Melioidosis aeruginosa (cultures only)	CAT III	UN2814
65	Imitation leather gangrene Histoplasma	CAT III	UN3373
66	Ulcerative lymphangitis Corynebacterium pseudo tuberculosis	CAT III	UN3373
67	DPV	CAT III	UN3373
68	Duck hepatitis virus	CAT III	UN3373
69	Gosling plague virus	CAT III	UN3373
70	Infectious bursal disease virus	CAT III	UN3373
71	Marek's disease virus	CAT III	UN3373
72	Avian Leukosis / sarcoma virus	CAT III	UN3373
73	Avian reticuloendotheliosis virus	CAT III	UN3373

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74	Chicken infectious anemia virus	CAT III	UN3373
75	Infectious laryngotracheitis virus	CAT III	UN3373
76	Avian infectious bronchitis virus	CAT III	UN3373
77	Egg Drop Syndrome Virus	CAT III	UN3373
78	Fowlpox virus	CAT III	UN3373
79	Chicken viral arthritis virus	CAT III	UN3373
80	Avian infectious encephalomyelitis virus	CAT III	UN3373
81	Haemophilus paragallinarum	CAT III	UN3373
82	Mycoplasma chicken diseases	CAT III	UN3373
83	Chicken coccidia	CAT III	UN3373
84	Mucus Liubing rabbit virus	CAT III	UN3373
85	Land of La tuberculosis hare	CAT III	UN3373
86	Bordetella bronchiseptica in rabbits	CAT III	UN3373
87	Rabbit coccidia	CAT III	UN3373
88	Hematopoietic necrosis virus epidemic	CAT III	UN3373
89	Infectious hematopoietic necrosis virus	CAT III	UN3373
90	Masu salmon virus	CAT III	UN3373
91	Viral hemorrhagic septicemia virus	CAT III	UN3373
92	Koi herpes virus	CAT III	UN3373
93	Channel Catfish Virus	CAT III	UN3373
94	HIV viral encephalopathy and retinopathy	CAT III	UN3373
95	Infectious pancreatic necrosis	CAT III	UN3373
96	Sea bream iridovirus	CAT III	UN3373
97	White sturgeon iridovirus	CAT III	UN3373
98	Baculovirus midgut gland necrosis	CAT III	UN3373
99	Infectious hypodermal and hematopoietic necrosis virus	CAT III	UN3373
100	Nuclear polyhedrosis baculovirus	CAT III	UN3373
101	Death syndrome virus in shrimp spawning	CAT III	UN3373
102	Turtle virus gill pancreatitis	CAT III	UN3373
103	Taura syndrome virus	CAT III	UN3373
104	White Spot Syndrome Virus	CAT III	UN3373
105	Yellow head virus	CAT III	UN3373
106	Grass carp hemorrhage virus	CAT III	UN3373
107	Spring viremia carp virus	CAT III	UN3373
108	Martin spherical virus	CAT III	UN3373
109	Infectious salmon anemia virus	CAT III	UN3373
110	Bacillus larvae larvae of the American rotten disease	CAT III	UN3373
111	European honey hive larvae rancid disease bacteria	CAT III	UN3373

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112	Cretaceous bee balloon disease bacteria	CAT III	UN3373
113	Bee Nosema	CAT III	UN3373
114	Tarsal gland mite	CAT III	UN3373
115	Jakob big bee mites	CAT III	UN3373
116	Canine distemper virus	CAT III	UN3373
117	Canine parvovirus	CAT III	UN3373
118	CAV	CAT III	UN3373
119	Canine Coronavirus	CAT III	UN3373
120	Canine parainfluenza virus	CAT III	UN3373
121	Syndrome virus in the cat pan leukopenia	CAT III	UN3373
122	Aleutian mink disease virus	CAT III	UN3373
123	Mink enteritis virus	CAT III	UN3373
124	Animal pathogens microorganism other than items of Section 1-123 of this list	CAT IV	UN3373
125	Diseased animals not diagnosed		UN3373

Note: If the figure does not indicate "cultures only", includes all materials related to the virus; for infectious substances indicated with "cultures only", the viral cultures should be packed by the packaging specified in the figure, the other specimens should be packed by UN3373 requirements.

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3.10 Class 7—Radioactive Material

3.10.1 In this manual, radioactive material means material containing radionuclides where both the activity concentration and the total activity in the consignment exceed the values specified in section 10.3.2 of IATA DGR. But the following items do not belong to Class 7:

3.10.1.1 Radioactive material implanted or incorporated into a person or live animal for diagnosis or treatment;

3.10.1.2 Passenger being transported for medical treatment due to accidental or deliberate intake, contamination of radioactive material, should only be transported after being approved by our company with prior preparation. Meanwhile, this passenger must adopt necessary radiological protection for the sack of other passengers and crew's safety.

3.10.1.3 Natural radioactive substances and ores containing radionuclides (which may have been processed) with the specific activity does not exceed 10 times of the values specified in Table 10.3.A of the DGR, or of the value that is calculated in accordance with 10.3.2.2(a) and 10.3.2.3 to 10.3.2.5. For natural radioactive substances and ores containing radionuclides that are not in state of equilibrium, the value of the specific activity is calculated according to section 10.3.2.4.

3.10.1.4 Non-radioactive solid objects with radiative substance present on any surfaces in quantities not in excess of the limit specified in the definition of contamination in Appendix A.

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3.11 Class 8—Corrosives

3.11.1 Definition

Substances which by chemical reaction can cause irreversible damage when in contact with skin or, in the case of leakage will materially damage or even destroy, other goods or the transportation tool.

Skin corrosion means taken irreversible damage to skin, after being exposed to substances or compound, corrosion penetrates the epidermis, deeps into the dermis, leads to noticeable necrotic phenomenon.

3.11.2 Packing Group Criteria

3.11.2.1 The packing grouping of corrosives has been on the basis of experience, taking into account such additional factors as inhalation risk and reactivity with water to cause the formation of hazardous decomposition products. New substances, including mixtures, can be assigned to packing groups on the basis of the length of time of contact necessary to produce full thickness destruction of human skin. Substances which are judged not to cause severe damage of human skin may still induce corrosion to certain metal surfaces. In packing grouping for such substances, account should be taken of human experience in accidental instances. In the absence of human experience, packing group must be assigned in accordance with the appointed testing results.

3.11.2.2 Substances or preparations meeting the criteria of Class 8 having an inhalation toxicity of dusts and mists in the range of Packing Group I but toxicity through oral ingestion or dermal contact only in the range of

3.11.2.3 Packing Group III or less must be allocated to Class 8.

If the in vitro test results show that the substance or mixture is corrosive

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and does not belong to packaging level I, but the test method does not allow the distinction between packaging level II and packaging level III, it must be regarded as packaging level II.If the test results indicate that the substance or mixture is corrosive, but the test method does not allow to distinguish the packaging grade, if no other test results indicate a different packaging grade, it must be classified as a packaging grade I

3.11.2.4 According to the testing results on animal skin, iron or steel, corrosives are assigned to the following packing groups :

I: high corrosivity

II: medium corrosivity

III: low corrosivity

3.11.2.5 Packing Group Test Criteria are :

1) I:Substances that cause full thickness destruction of intact skin tissue within an observation period of up to 60 minutes starting after an exposure time of 3 minutes or less.

2) II:Substances that cause full thickness destruction of intact skin tissue within an observation period of up to 14 days starting after an exposure time of more than 3 minutes but not more than 60 minutes.

3) III:Substances that cause full thickness destruction of intact skin tissue within an observation period of up to 14 days starting after an exposure time of more than 60 minutes but less than 4 hours; or Substances which are judged not to cause full thickness destruction of intact skin tissue but which exhibit a corrosion rate on steel or aluminum surfaces exceeding 6.25 mm within a year at a test temperature of 55°C.

3.11.2.6 Class 8—Packing Group Assignment based on Corrosivity

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Table 3-4 Class 8—Packing Group Assignment based on Corrosivity Test

Packing Group	Exposure Time	Observation Time	Corrosion rate on steel/aluminium
I	≤3min	≤ 60min	—
II	> 3min≤60min	≤14d	—
III	> 60min≤4h	≤14d	> 6.25 mm (¼ in) a year at a test temperature of 55°C (130°F)

3.11.3 Prohibited Substances

Class 8 with chemically unstable substance is prohibited to be transported, unless necessary protective action is put into place, to avoid decomposition or polymerization under normal transportation condition. For necessary protective action to avoid polymerization, refer to Special Requirement A209. Attention that makes sure there is no substance will cause such reaction in the package.

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3.12 Class 9—Miscellaneous Dangerous Goods

3.12.1 Definition

Miscellaneous dangerous goods refer to articles and substances which does not belong to any class (Class 1 through 8) of dangerous goods but can demonstrate hazards in air transport.

3.12.2 Criteria about Class 9

3.12.2.1 Aviation Regulated Solids or Liquids

- UN3334 Aviation Regulated Liquids, n.o.s.
- UN3335 Aviation Regulated Solids, n.o.s.

Any material, which has narcotic, noxious, irritating, or other properties such that could cause extreme annoyance or discomfort to crew members to prevent the correct performance of assigned duties. The materials included under this proper shipping name must not meet any of the definitions for Class 1 through 8.

3.12.2.2 Magnetized Materials

- UN2807 Magnetized Materials

1) For packaged magnetic material for the air transportation, if make the compass deflection more than 2 degrees 2.1 m from any point on the outer surface of the assembled package, it is considered as magnetic material. The magnetic field strength is 0.418A / m (0.00525 Gauss).

2) The compass to test the magnetic field strength should be able to detect 2 degrees, better 1 degree. Or use Gauss Meter which can detect magnetic field strength over 0.0005 Gauss, with ±5% differences. Or use other equivalent method.

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3) When using the compass, making sure it is not interfered by other magnetic, except the geomagnetic field. The compass and package to be tested should be placed heading east and west direction. The usage of Gauss Meter should follow manufacturer's instruction. Keeping a certain distance (PI 953 2.1 - 4.6 meter), the package to be tested rotates 360 degree along with horizontal direction. Shield can be used to lower the magnetic field strength of the package.

3.12.2.3 Elevated Temperature Substances

- UN3257 Elevated Temperature Liquids, n.o.s.
- UN3258 Elevated Temperature Solids, n.o.s.

Substances that are transported or offered for transport at temperatures equal to or above 100°C (212°F) but below its flash point in a liquid state or at temperatures equal or exceeding 240°C (464°F) in a solid state.

3.12.2.4 Environmentally Hazardous Substances

Substances or solution endangering the aquatic environment do not show the danger when covered by the material of other categories, but are classified as dangerous goods by the Carrier, must be classified as CAT III packaging:

1)

- UN3077, Environmentally hazardous substances of solids property; or
- UN3082, Environmentally hazardous substances of liquids property.

2) Environmentally hazardous (water environment) substances are those meet United Nations *Model Regulations Chapter 2.9.3*, or meet the definition from origin, transfer, destination country authority. For specific classification and standard of environmentally hazardous (water

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environment) substances, pls refer to United Nations *Model Regulations Chapter 2.9.3* and http://www.iata/org/whatwedo/cargo/dgr/Documerts/rev/PDF

3.12.2.5 Genetically modified micro-organisms (GMMOS) and Genetically modified organisms (GMOS)

- UN3245 GMMOS and GMOS

1) GMMOS and GMOS means intentionally change the micro-organisms and organisms through genetic engineering.

2) GMMOS and GMOS that not meeting the definition of infectious or toxic substances must be classified as UN3245.

3) If GMMOS and GMOS gets use approval from origin, transfer and destination country, it will not be regulated by DGR.

4) Genetically modified live animals must be transported under the relevant limitation and guidance of origin and destination country.

5) Pharmaceutical products,such as vaccines,that are packed in a form ready to be administered,including those in clinical trials,and that contain GMMOs or GMOs are not subject to these Regulations.

3.12.2.6 Lithium Batteries

- UN3090 Lithium Metal Battery
- UN3091 Lithium Metal Battery pre-set in devices or packed with device
- UN3480 Lithium-ion Battery
- UN3481 Lithium-ion Battery pre-set in devices or packed with device

Battery or battery cell with any form of lithium element or pre-set in devices or packed with device must be classified properly into UN3090,

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UN3091, UN3480, UN3481. Such batteries can be transported by air when below requirements are meet:

1) Each single battery or battery cell meets *United Nations Test and Standards Manual* Chapter 3 Section 38.3 requirement, meet *United Nations Testing Box Standard Manual*, Section 38.3 requirement, modification 3, amendment 1, or meet following modifications and testing date suitable for amendment are permitted to be transported, unless there is exception listed in DGR. Those battery or battery cell can only meet *United Nations Test and Standards Manual* Chapter 3 requirement is no longer valid, however, if they meet all other requirements, the ones produced before Jun-01, 2003 can be transported.

2) Venting device is installed on each battery cell or battery, or the battery design itself can avoid explosion when in normal transportation.

3) Anti-external short circuit method is installed on each battery cell or battery.

4) Assembled in an effective way to avoid dangerous reverse current (e.g. diode, fuse wire, etc.)

5) Each battery and battery cell must be manufactured under quality control:

(1) Company structure, job description of design staff and quality control staff.

(2) Relevant handbook of audit, test, quality control and commitment of quality assurance.

(3) Manufacture process control to avoid internal short circuit on each battery and battery cell.

(4) Quality control records, such as test report, testing result numbers, calibration data and certificate, must be kept well and reachable when

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government authority asks to review.

(5) Audit program, to make sure the quality control process is effectively working.

(6) Documentation control and modification procedure.

(7) Control program for the battery and battery cell that does not meet Clause A's requirement.

(8) Training program and audit program for relevant staff, and

(9) Program to make sure the battery and battery cell is perfectly manufactured as required.

6) Designed with no external recharge, contains one-time-use lithium metal battery cell and rechargeable lithium-ion battery cell (refer to Special Regulations A213), must meet below:

(1) Rechargeable lithium-ion battery cell can only get recharged by the one-time-use lithium metal battery cell.

(2) Designed to avoid over recharge over the rechargeable lithium-ion battery cell.

(3) This battery is to be tested as one-time-use lithium battery.

(4) The battery cell must meet *United Nations Test and Standards Manual* Chapter 3 Section 38.3 requirement.

7) For battery and battery cell that manufactured after Jun-30, 2003, a test summary must be provided as per requirement from *United Nations Test and Standards Manual* Chapter 3 Section 38.3, Clause 38.3.5 by manufacturer and distributor. Effective from January 1, 2020.

Note: The term "make available" means that manufacturers and subsequent distributors ensure that the test summary is accessible so that shipper or other persons in the supply chain can confirm

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compliance.

3.12.2.7 Sodium-Ion Batteries

UN3551 Sodium ion batteries

UN3552 Sodium ion batteries contained in equipment

UN3552 Sodium ion batteries packed with equipment.

Cells and batteries,cells and batteries contained in equipment,or ,cells and batteries packed with equipment containing sodium ion,which are a rechargeable electrochemical system where the positive and negative electrode are both intercalation or insertion compounds,constructed with no metallic sodium (or sodium alloy) in either electrode and with an organic non aqueous compound as electrolyte,must be assigned to UN 3551 or UN 3552 ,as appropriate.

Note:Intercalated sodium exists in an ionic or quasi-atomic form in the lattice of the electrode material.

They may be transported under these entries provided:

（1） Testing Compliance:Each cell or battery must pass the applicable tests in Section 38.3 of Part III of the UN Manual of Tests and Criteria.

Note: The battery type must meet these requirements regardless of whether its constituent cells were tested.

（2） Safety Venting or Design Integrity:Each cell/battery must have a safety vent or be designed to prevent rupture under normal transport conditions.

（3） External Short-Circuit Protection:Effective measures must be in place to prevent external short circuits.

（4） Reverse Current Protection:Batteries with cells in parallel must incorporate safeguards (e.g., diodes, fuses) to prevent hazardous reverse

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current.

（5） Quality Management System (QMS):Production must adhere to the QMS outlined in 3.12.2.6 E (a-i).

（6） Test Summary Accessibility:Manufacturers and subsequent distributors of cells or batteries make available the test summary as specified in the UN Manual of Tests and Criteria,Part III,subsection 38.3,paragraph 38.3.5.

Note: The term "make available" means that manufacturers and subsequent distributors ensure that the test summary is accessible so that shipper or other persons in the supply chain can confirm compliance.

3.12.2.8 Fine dust hazardous substances via inhalation

- UN2212 Asbestos, hornblende
- UN2590 Asbestos, chrysotile

3.12.2.9 Capacitor

- UN3499 Electric double-layer capacitor
- UN3508 Capacitor, asymmetric

3.12.2.10 Substances that produce flammable vapors

- UN2211 Polystyrene beads, expandable
- UN3314 Plastic compound

3.12.2.11 Life-saving Unit

- UN2990 Self-expansion life-saving Unit
- UN3072 Non-self-expansion life-saving Unit
- UN3268 Safety unit

3.12.2.12 Substances that may produce dioxins in case of fire

- UN2315 Polychlorinated biphenyls, liquids

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- UN3151 Polyhalogenated biphenyls, liquids or halogenated monomethyl diphenylmethane, liquids or polyhalogenated terphenyls, liquids
- UN3152 Polyhalogenated biphenyls, solids or halogenated monomethyl diphenylmethane, solids or polyhalogenated terphenyls, solids
- UN3432 Polychlorinated biphenyls, solids

3.12.2.13 Substances that are dangerous in transportation but do not meet the definition of miscellaneous dangerous goods

- UN1841 Acetaldehyde ammonia
- UN1845 Carbon dioxide, solids dry ice
- UN1931 Zinc hydrosulfite
- UN1941 Dibromodifluoromethane
- UN1990 Benzaldehyde
- UN2071 Ammonium nitrate fertilizers
- UN2216 Fish powder, stable or fish dregs, stable
- UN2969 Castor beans, castor bean slices, Castor bean powder
- UN3166 Vehicle, flammable gas powered or vehicle, flammable liquids powered or vehicle,fuel cell,flammable liquids powered
- UN3171 Device powered by battery or vehicle powered by battery.
- UN3316 Chemical box or first-aid kit
- UN3359 Fumigation cargo transportation device
- UN3363 Dangerous goods in instrument or in machine
- UN3509 Wasted package, empty, unclean
- UN3530 Internal combustion engines or machine

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- UN3556 Vehicles, lithium ion battery powered
- UN3557 Vehicles, lithium metal battery powered
- UN3558 Vehicles, sodium ion battery powered
- ID8000 Daily consumer goods

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3.13 Classification of Articles/Substances with Multiple Hazards

3.13.1 Precedence of Hazards Table

When a substance is not specifically listed in DGR of IATA but has double hazards, its primary hazard is not defined according to the following criteria. When the two hazards fall within Classes 3, 4 or 8 or Divisions 5.1 or 6.1, or classified as containing dangerous goods, Table 3-5 must be used to determine which of two hazards must be regarded as the primary hazard. The class or division, which appears at the intersection of the relevant line and column, is the primary hazard and the other class or division is the subsidiary hazard. The intersection also shows the correct package level.

3.13.2 Packing Group

The most stringent packing group based on the different hazards of a material must then be the packing group for the article or substance and this is shown next to the class and division number of the primary hazard at the intersection of the relevant line and column.

3.13.3 Proper Shipping Name

The proper shipping name of an article or substance, when determined in accordance with Table 3.13.A must be the most appropriate n.o.s. entry in Table 4.1.in List of Dangerous Goods in DGR of IATA for the class or division shown as the primary hazard.

3.13.4 Exceptions

Articles and substances, which meet among other hazards, the criteria for the following classes, divisions or particular types of hazards are not dealt with by Table 3.13.A since these classes, divisions or particular types of

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hazard always take precedence:

3.13.4.1 Classes 1, 2 and 7 (except see 3.13.5);

3.13.4.2 Divisions 5.2 and 6.2 (except see 3.13.7);

3.13.4.3 4self-reactive and related substances and solid desensitized explosives of Division 4.1;

3.13.4.4 pyrophoric substances of Division 4.2;

3.13.4.5 substances of Division 6.1 with a Packing Group I inhalation toxicity (Except substances or preparations meeting the criteria of Class 8 having an inhalation toxicity of dusts and mists (LC50) in the range of Packing Group I and having toxicity through oral ingestion or dermal contact only in the range of Packing Group III)

3.13.4.6 liquid desensitized explosives of Class 3.

3.13.5 Radioactive Material

Radioactive Materials having other hazardous properties must always be classified in Class 7 and the subsidiary risk must also be identified, other than for excepted packages of radioactive materials where the other hazardous properties take precedence. It is also necessary to take into account the possible formation of products having additional dangerous properties by interaction of the materials with the atmosphere or with water.

3.13.6 Magnetized Material

An article, which also meets the criterion for a magnetized material, must be identified in accordance with the provisions of this subsection and, in addition, as a magnetized material.

3.13.7 Infectious Material

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Infectious substances having other hazardous properties must always be classified in Division 6.2 and the greatest of the additional hazards must also be identified.

3.13.8 More than three hazards

In case that a certain article or substance possessing three or more hazards are not explicitly listed into neither IATA 4.12 List of Dangerous Goods nor 3.13 A , the competent authority of the state of origin must be insulted for instructions(exclusion of dangerous goods listed in IATA 4.1A).

3.13.9 See the following table for determination of hazard precedence and packing groups of Classes 3,4,8 and Division 5.1 and 6.1.

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Table 3-5

Class or Division	Packing Group	4.2	4.2	4.3	4.3	4.3	5.1	5.1	5.1	6.1 (d)	6.1 (o)	6.1	6.1	8 (l)	8 (s)	8 (l)	8 (s)	8 (l)	8 (s)
		II	III	I	II	III	I	II	III	I	I	II	III	I	I	II	II	III	III
3	I*			4.3,I	4.3,I	4.3,I	-	-	-	3,I	3,I	3,I	3,I	3,I	-	3,I	-	3,I	-
3	II*			4.3,I	4.3,II	4.3,II	-	-	-	3,I	3,I	3,II	3,II	8,I	-	3,II	-	3,II	-
3	III*			4.3,I	4.3,II	4.3, III	-	-	-	6.1,I	6.1,I	6.1,II	3,III**	8,I	-	8,II	-	3,III	-
4.1	II*	4.2,II	4.2,II	4.3,I	4.3,II	4.3,II	5.1,I	4.1,II	4.1,II	6.1,I	6.1,I	4.1,II	4.1,II	-	8,I	-	4.1,II	-	4.1,II
4.1	III*	4.2,II	4.2, III	4.3,I	4.3,II	4.3, III	5.1,I	4.1,II	4.1,III	6.1,I	6.1,I	6.1,II	4.1,III	-	8,I	-	8,II	-	4.1, III
4.2	II			4.3,I	4.3,II	4.3,II	5.1,I	4.2,II	4.2,II	6.1,I	6.1,I	4.2,II	4.2,II	8,I	8,I	4.2,II	4.2,II	4.2,II	4.2,II
4.2	III			4.3,I	4.3,II	4.3, III	5.1,I	5.1,II	4.2,III	6.1,I	6.1,I	6.1,II	4.2,III	8,I	8,I	8,II	8,II	4.2,III	4.2,III
4.3	I						5.1,I	4.3,I	4.3,I	6.1,I	4.3,I	4.3,I	4.3,I	4.3,I	4.3,I	4.3,I	4.3,I	4.3,I	4.3,I
4.3	II						5.1,I	4.3,II	4.3,II	6.1,I	4.3,I	4.3,II	4.3,II	8,I	8,I	4.3,II	4.3,II	4.3,II	4.3,II
4.3	III						5.1,I	5.1,II	4.3,III	6.1,I	6.1,I	6.1,II	4.3,III	8,I	8,I	8,II	8,II	4.3,III	4.3,III
5.1	I									5.1,I	5.1,I	5.1,I	5.1,I	5.1,I	5.1,I	5.1,I	5.1,I	5.1,I	5.1,I
5.1	II									6.1,I	5.1,I	5.1,II	5.1,II	8,I	8,I	5.1,II	5.1,II	5.1,II	5.1,II
5.1	III									6.1,I	6.1,I	6.1,II	5.1,III	8,I	8,I	8,II	8,II	5.1,III	5.1,III
6.1(d)	I													8,I	6.1,I	6.1,I	6.1,I	6.1,I	6.1,I
6.1(o)	I													8,I	6.1,I	6.1,I	6.1,I	6.1,I	6.1,I
6.1(I)	II													8,I	6.1,I	6.1,II	6.1,II	6.1,II	6.1,II
6.1(d)	II													8,I	6.1,I	8,II	6.1,II	6.1,II	6.1,II
6.1(o)	III													8,I	8,I	8,II	6.1,II	6.1,II	6.1,II
6.1	III													8,I	8,I	8,II	8,II	8,III	8,III
Class or Division	Packing Group	4.2	4.2	4.3	4.3	4.3	5.1	5.1	5.1	6.1 (d)	6.1 (o)	6.1	6.1	8 (l)	8 (s)	8 (l)	8 (s)	8 (l)	8 (s)

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(l)= liquid(s)

(s)= solid

(i)= inhalation

(d)= dermal

(o)= oral

—= an impossible combination

* Substances of Division 4.1 other than self-reactive substances, and solid desensitized explo other than liquid desensitized explosives.

** For pesticides only, the primary hazard must be Division 6.1.

Note: ***This table is based on the UN Precedence of Hazards Table.***

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4 Dangerous Good Identification

4.1 Selecting Proper Shipping Name

4.1.1 Dangerous goods must be assigned to one of the proper shipping names shown in the List of Dangerous Goods. The proper shipping name is used to identify the dangerous article or substance on air waybill and on the "Shipper's Declaration for Dangerous Goods" and the outside of the package. There are two kinds of the dangerous goods proper shipping names: 1.designated entry 2.general entry. The designated entry has the priority to be used by shipper.

4.1.2 If the proper shipping name has been listed in IATA DGR, go directly to the List of Dangerous Goods. If the UN or ID number is known, go to the Numerical/Cross-reference Index (Subsection 4.3) to find the List of Dangerous Goods.

4.1.3 When an article or substance is not listed by name in the List of Dangerous Goods in IATA DGR, the shipper must:

4.1.3.1 Determine that the article or substance is not forbidden by referring to the characteristics in Subsection 2.1 and the classification criteria described in Section 3 in IATA DGR;

4.1.3.2 If the item is not forbidden, classify it by comparing its properties with the classification criteria described in Section 3 in IATA DGR. If the item has more than one hazard, the shipper must refer to Subsection 3.13 to determine the primary hazard;

4.1.3.3 The IATA 4.1.A table lists all the hazardous items not otherwise specified in the table, which are grouped by category or category. When using a generic reference name (category entry name), The shipper must use the most accurate, broad, generic name or the name of the n.o.s (not otherwise specified) entry, The generic names (name of category items)

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and n.o.s (not otherwise specified) are divided into the following three categories, The first is the property (specific entries) name, Indicating a group of substances or articles of a particular chemical or technical property; The second is the name of pesticide treatment (pesticide entries) (for category 3 and item 6.1 only); The third is the name hazardous hazardous description (general entries), Indicates a set of substances or items that fit within one or more categories or items. The shipper must prefer the attribute name.

Sample 1: *Methyl-n-amyl carbinol, an alcohol with a flash point of 54°C (130°F), is not listed by name so it must be declared under the most accurately descriptive name which is Alcohol, n.o.s. (Methyl-n-amyl carbinol) rather than Flammable liquid, n.o.s.* ★.

Sample 2:*Ethyl cyclohexane, a hydrocarbon with a flash point of 35°C (95°F) is not listed by name so it must be declared under the most accurately descriptive name which is Hydrocarbons, liquid, n.o.s. Rather than Flammable liquid, n.o.s.* ★.

4.1.3.4 Generic or n.o.s. proper shipping names, indicated by the inclusion of the "★" symbol in Column B of the List of Dangerous Goods must immediately after be supplemented with the technical or chemical group names in brackets ( ) immediately following the proper shipping name. This requirement does not apply to controlled substances when their disclosure is prohibited by national law or international convention, For example:

Note: For a pesticide, only the ISO common name(s), or other name(s) listed in the *World Health Organization (WHO) Recommended Classification of Pesticides by Hazard and Guidelines to Classification*, or the name(s) of the active substance(s) must be used.

Sample3: The proper shipping name for a mixture of Freon® 14 and

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Freon® 23 is Refrigerant gas, n.o.s. (Tetrafluoromethane, Trifluoromethane). Freon® 14 and Freon® 23 is not acceptable because they are trade names.

Sample4: *A solid pesticide product contains Dimefox. It will be declared as Organophosphorus pesticide, solid, toxic (Dimefox), UN 2783.*

4.1.3.5 Hydrates may be included under the proper shipping name for the anhydrous substance.

4.1.3.6 Where there is any doubt as to whether dangerous goods are permitted for transport by air, or under what conditions, the shipper and/or operator must consult an organization designated by HNA for appraisal. The appraisal result must include academic entry and transportation entry, related physical and medical datum instructing the hazard, dangerous goods classification according to IATA DGR and signature of appraisal personnel who bears the law responsibly of the result.

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4.2 Mixtures and Solutions Containing Dangerous Goods

4.2.1 Mixtures and Solutions Containing One Dangerous Goods

For the mixture or solution not listed in dangerous goods, must determine the classification of mixture and solution and proper shipping name according to the following sequence.

4.2.1.1 Dangerous goods of a mixture or solution composed primarily of a substance with listed names, while containing one or more kinds of other substances not restricted by the IATA "DGR", and / or one or more of other types of listing substances with limited amount, must be named with shipping name shown in the dangerous goods table and must be added with "mixture " or "solution".

Sample 5:A solution of 80% methanol alcohol and 20% water is such that its flash point is 20°C and its boiling point is above 70°C, therefore it is in the same flammability range as methyl alcohol (UN 1230, Class 3, Packing Group II). Since neither hazard class nor the packing group has changed, this solution must be declared with the proper shipping name of "Methano1 Solution" or "Methanol".

4.2.1.2 The exceptions to this rule are when:

1) the mixture or solution is specifically identified by name in Subsection 4.2 – List of IATA Dangerous Goods;

2) the entry in the List of Dangerous Goods indicates that it applies only to the pure substance;

3) the hazard class or physical state (solid, liquid, gas) or packing group of the mixture or solution differs from that of the listed entry; or

4) There is a significant change in the measures to be taken in emergencies

In each of the above cases, the mixture or solution must be described by the most appropriate n.o.s. proper shipping name followed by the

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technical name of the substance in parentheses, unless it is a controlled substance and a national law or international convention prohibits its disclosure. Since qualifying words such as “containing”, “mixture”, “solution”, etc. are helpful; it is advisable to add them.

Sample 6:a *mixture, containing 2-Chloropropane (UN 2356, Class 3, Packing Group I) and a solvent which is not subject to these Regulations, has a flash point below 23°C (73°F) and a boiling point above 35°C (95°F); thus the mixture is in the flammability range for Packing Group II. Since the pacing group has changed, the mixture should be declared as Flammable liquid, n.o.s. (2-Chloropropane solution) or Flammable liquid, n.o.s. (2-Chloropropane mixture).*

4.2.2 Mixtures and Solutions Containing Two or more Dangerous Goods

4.2.2.1 Unless otherwise specified, the specific name of the listed substances of the dangerous goods in the dangerous goods name table containing minim or a small amount of one or more other risks, must specify UN number and shipping name, unless:

1) Mixture / solution specifically defined in the list of dangerous goods in DGR4.2;

2) Entry in the list of dangerous goods significantly marks that only applying to a pure compounds;

3) The hazard class / division, physical state, packaging level of mixture (solution) are different from the listed entries;

4) Emergency response measures taken in emergency situation have a significant change.

4.2.2.2 In addition to the above 1), a mixture or solution containing two or more dangerous goods, whether listed or not, must be described by the appropriate n.o.s. proper shipping name followed, in parentheses, by the

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technical names of not more than two of the constituents which most predominantly contribute to the hazard(s), unless it is a controlled substance and a national law or international convention prohibits its disclosure. If a subsidiary risk label is required, the technical names must include the component which requires the use of subsidiary label(s). Qualifying words such as “mixture”, “solution”, should be added where appropriate.

Sample 7: *Engine cleaning mixture is not listed by name in the List of Dangerous Goods. It is described as a mixture of gasoline and carbon tetrachloride having a flash point less than 23°C (73°F) and meeting the definition of Division 6.1 (oral toxicity). According to Table 3.10.A, the primary hazard is Class 3 with a subsidiary risk of Division 6.1. Therefore, the proper shipping name should be Flammable liquid, toxic, n.o.s. (Gasoline/Carbon tetrachloride mixture), or Flammable liquid, toxic, n.o.s. (Gasoline/Carbon tetrachloride solution).*

4.2.3 Mixtures or Solutions not subject to these Regulations

If a mixture or formulation has a name which appears in the List of Dangerous Goods but does not meet the definition for the appropriate class shown in the list or any other class because of the concentration, it is not subject to these Regulations.

A mixture or a solution containing one or more substances identified by name in the Regulations or classified under a n.o.s. entry and one or more substances not subject to these Regulations is not subject to these Regulations if the hazard characteristics of the mixture or solution are such that they do not meet the criteria (including human experience criteria) for any class. In either case, the words “Not Restricted” should then be included in the description on the Air Waybill to indicate that it has been checked.

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Sample 8:One kind of paint is such that the flash point is 68°C and the boiling point is above 234°C. *It is listed as UN1263, Paint. But its flash point 68*°C is above 60.5°C which is the flash point of Class3 dangerous goods, so it is not subject to DGR.

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4.3 Non-Restricted Articles

If an item or substance is suspected of contain hazardous chemicals but is not listed in the hazardous substances table and does not meet any classification criteria of the hazardous substances, and is stated in this manual 7.3.6 as "Not Restricted" (not restricted) in the name of the waybill to indicate that the goods have been inspected, then the item or substance may be transported in accordance with the restrictions.

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4.4 Limited Quantities of Dangerous Goods

4.4.1 Dangerous goods may be carried as “Limited Quantity” only if they comply with the restrictions provided in Subsection 2.7, 4.1.5.2 and 4.1.5.3, the List of Dangerous Goods and in Section 5. All requirements of these Regulations must be met unless otherwise provided for.

4.4.2 Items, permitted to be carried under the limited quantity provisions, are shown in the List of Dangerous Goods by the Limited Quantity Packing Instruction number. The Limited Quantity Packaging Instructions are identified with the prefix letter “Y”.

4.4.3 The gross weight of a “Limited Quantity” package must not exceed 30 kg (66 lb).

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4.5 Using the List of Dangerous Goods

The List of Dangerous Goods in IATA DGR is divided into 14 columns as follows. All the package instructions in the column refer to those in chapter 5 of IATA DGR.

4.5.1 A column:UN or ID (identification) number,UN or ID No.

Contains the serial number assigned to the article or substance under the United Nations classification system. When this number is used, it must be prefixed by the letters “UN”. If the substance has not been assigned a number in the UN classification system, a temporary identification number in the 8000 series has been assigned and is indicated where appropriate. Numbers in the 8000 series must be identified with the “ID” prefix.

4.5.2 B column:Proper Shipping Name/Description

This column contains an alphabetical listing of dangerous goods articles and substances identified by their proper shipping names together with qualifying descriptive text. The proper shipping name is shown in bold (dark) type whereas the descriptive text is shown in light type. Cross-references from other names by which a substance or article is commonly known to the correct proper shipping name are given. The following symbols appear against some of the entries in this column:

☆——Addition of technical name(s) required.

┼——Additional information can be found in Appendix A of IATA DGR.

Names are given in strict alphabetical order of the proper shipping name. However, the following components of the names have been ignored:

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•numerals;

•the single letters a-, b-, m-, N-, n-, O-, o-, p-;

•the prefixes alpha-, beta-, meta-, omega-, sec-, tert-;

•the term “n.o.s.”.

4.5.3 Column C: Primary and subsidiary class or Division

This column lists the class or division of dangerous goods or substance assigned according to classification standard in IATA DGR. If the goods or substance are Class 1 Explosives, the corresponding compatibility group is also shown. If with a subsidiary hazard, should list the class or division assigned according to classification standard in IATA DGR, and indicated in brackets after primary hazard. All subsidiary hazards should be arranged in numerical order.

4.5.4 Column D:Hazard Labe1(s)

This column lists the hazardous labels that should be attached outside the package or the composite package listed in column B. Primary hazards shall be listed first and secondary hazards shall be listed second. The applicable secondary hazard labels are not listed here for articles and substances using a generic name or a general name with more than one hazard. In this case, the use of secondary hazard labels must be consistent with IATA Rules 7.2.3.5,7.2.3.6 and 7.2.3.8. This column also lists operation labels such as "deeply cooled liquefied gas", "far from heat source", "magnetic substances" labels and "Environmental hazardous substances" labels corresponding to the applicable items and substances. Referring to IATA HazGoods Rules 7.2.4.

Note: the text “Toxic” or “Poison” are used to describe Toxic labels. The “Keep Away From Heat” handling label must be used on packages containing self-reactive substances in Division 4.1 and Division 5.2,

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Organic Peroxides (see Special Provision A20).

4.5.5 Column E: Packing Group

Contains the UN Packing Group, i.e. I, II or III, where assigned to the article or substance (see 3.0.3).

4.5.6 Column F: Excepted Quantity Code

This column lists excepted quantities code of goods or substance (see the following table).

Code	the maximum allowable number of Each inner packages	the maximum allowable number of Each outer packages
E0	Not allowed to transport as excepted quantities	
E1	30g/30ml	1kg/1L
E2	30g/30ml	500g/500ml
E3	30g/30ml	300g/300ml
E4	1g/1ml	500g/500ml
E5	1g/1ml	300g/300ml

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4.5.7 G column:Passenger and Cargo Aircraft Limited Quantity—packaging Instructions

This column lists packing instruction of dangerous goods restricted quantities of passenger aircraft or cargo aircraft (preceded by the letter "Y"). If the column indicates Forbidden, it means the dangerous goods cannot be transported according to restricted quantity regulation. For each package of restricted quantity, the gross weight cannot exceed 30 kilograms.

4.5.8 H column:Passenger and Cargo Aircraft Limited Quantity--Maximum Net Quantity Per Package

This column lists the maximum net quantity (weight or volume) of each dangerous goods package on passenger or cargo aircraft. The listed weight is the net weight, unless otherwise indicated by a letter *G*, which refers to the gross weight. When transport explosive articles and matches, the net weight is the weight of the finished article excluding packaging. If the word *Forbidden* is shown in the column, it means that the dangerous goods cannot be transported according to restricted quantity regulation.

Notes: *Where the maximum quantity per package is shown as "No Limit" or has a packaging instruction reference in Column H the net quantity of the hazard contained or the gross weight of the article or substance per package must be shown on the Shipper's Declaration.*

4.5.9 I column: Passenger and Cargo Aircraft—packaging Instructions

Refers to the relevant packaging instructions for transport of the article or substance on a passenger or cargo aircraft.

Note: Where an article or substance is packed according to the packaging instruction in Columns G or I and is within the maximum net quantity shown in Columns H or J it may also be carried on a cargo aircraft. In such circumstances, the package must not bear the "Cargo Aircraft Only" label.

4.5.10 J column:Passenger and Cargo Aircraft--Maximum Net Quantity Per Package

This column lists the allowed maximum net quantity (weight or volume) of each package, when transport goods or articles on cargo aircraft. The listed weight is the net weight, unless otherwise indicated by a letter *G*, which refers to the gross weight. When transport explosive articles and matches, the net weight is the weight of the finished article excluding packaging. If receiving the approval of countries of origin and the competent authority of the operator's state, may exceed the net weight

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limit per package. If the word *Forbidden* is shown, the article cannot be carried on a passenger aircraft.

Notes: Where the maximum quantity per package is shown as "No Limit" or has a packaging instruction reference in Column J the net quantity of the hazard contained or the gross weight of the article or substance per package must be shown on the Shipper's Declaration.

4.5.11 K Column:Cargo Aircraft On1y--packaging Instructions

Refers to the relevant packaging instructions for transport of the article or substance on a cargo aircraft only.

4.5.12 L Column: Cargo Aircraft Only-- Maximum Net Quantity Per package

This column lists the allowed maximum net quantity (weight or volume) of each package, when transport goods or articles only on cargo aircraft. The listed weight is the net weight, unless otherwise indicated by a letter *G*, which refers to the gross weight. When transport explosive articles and matches, the net weight is the weight of the finished article excluding packaging. If receiving the approval of countries of origin and the competent authority of the operator's state, may exceed the net weight limit per package. If the word *Forbidden* is shown, the article cannot be carried on a passenger aircraft.

Notes 1: The quantity limitations in Columns H, J and L apply only to the amount contained in one package, not in one consignment or aircraft.

Note2: Where the maximum quantity per package is shown as "No Limit" or has a packaging instruction reference in Column L, the net quantity of the hazard contained or the gross weight of the article or substance per package must be shown on the Shippers Declaration.

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4.5.13 M Column:Special Provisions,For S.P. see IATA DGR sect ion 4.4

With one, two, or three Arabic numerals coupled with the letter "A", to indicate the corresponding dangerous goods special provisions. Special attention must be paid to the special provisions "A1," "A2" and "A109," which are in fact "approved" by the national authorities for the chartered transport of dangerous goods on passenger planes, or on passenger planes and cargo planes. These "approvals" are not under the "national exemptions" described in IATA HazGoods Rules 1.2.6.1. However, whether to receive the dangerous goods approved by the state is determined by the carrier. Prior arrangement and approval must be given to the carrier under "A1", "A 1", "A2" or "A109".

4.5.14 N column:ERG Code

Emergency Response Drill Code as found in the International Civil Aviation Organization (ICAO) document *"The Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods"* (Red cover book), see table 4-1

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Table 4-1 Aircraft emergency response operation method

1、 Complete the related aircraft emergency reaction procedures **2、 Land the aircraft as soon as possible**						
Disposition scenario and code	**Inherent Danger**	**Hazard to the Airplane**	**Hazard to the Flight Crew**	**Disposition Procedures if Leakage or Seepage**	**Fire Distinguishing Procedures**	**Other Considerations**
1	Explosion may cause structure damage	Fire and/or explosion	The hazard pointed by operational letter	Use 100% oxygen; no smoking	Use all available fire distinguishing agent; use standard fire distinguishing procedures	May lose pressurization abruptly
2	Gas, inflammable material, pressure may cause danger in the fire	minimum	The hazard pointed by operational letter	Use 100% oxygen; The maximum ventilation should be established and maintained for the articles with operational letter “A”“I” and “P”	Use all available fire distinguishing agent, use standard fire distinguishing procedures	May lose pressurization abruptly
3	Flammable liquid or solid	Fire and/or explosion	Smoke, mist and high temperature, and The hazard pointed by operational letter	Use 100% oxygen; The maximum ventilation should be established and maintained; no smoking; use electronic devices as less as possible	Use all effective ways; Do not use water for “W” disposition scenario.	May lose pressurization abruptly

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4	When exposed to the air, it may get on fire automatically	Fire and/or explosion	Smoke, mist and high temperature, and The hazard pointed by operational letter	Use 100% oxygen; The maximum ventilation should be established and maintained	Use all available fire distinguishing agent; do not use water for the articles with operational letter “W”	May lose pressurization abruptly. Use electronical equipments as less as possible if the operational letter is “F” or “H”
5	Oxidant may ignite other material, and may explode in the high temperature of fire	Fire and/or explosion, possible	Stimulate eyes, nose and throat, contact will cause skin injured.	Use 100% oxygen; The maximum ventilation should be established and maintained	Use all available fire distinguishing agent; do not use water for the articles with operational letter “W”	May lose pressurization abruptly
6	Toxic, in case of inhaled, consumed or assimilated, it may cause death	Contaminated by toxic liquid or solid	Acute toxicity may cause death	Use 100% oxygen; The maximum ventilation should be established and maintained. No contact without gloves	Use all available fire distinguishing agent; do not use water for the articles with operational letter “W”	May lose pressurization abruptly. Use electronical equipments as less as possible if the operational letter is “F”or “H”
7	Radiation from broken or unprotected package	Contaminated by leaked radioactive material	Exposed to radiation and it will cause contamination to people	Do not move package; avoid contacting	Use all available fire distinguishing agent	Invite a qualified person to meet the airplane

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8	Corrosive, smoke; if inhaled or contacted by skin, it may cause deformity	May cause corrosive damage	Stimulate eyes, nose and throat, contact will cause skin injured.	Use 100% oxygen; The maximum ventilation should be established and maintained	Use all available fire distinguishing agent; do not use water for the articles with operational letter "W"	May lose pressurization abruptly. Use electronical equipments as less as possible if the operational letter is "F"or "H"
9	Without common potential hazard	The hazard pointed by operational letter	The hazard pointed by operational letter	Use 100% oxygen; The maximum ventilation should be established and maintained for the articles with operational letter "A"	Use all available fire distinguishing agent; do not use water for the articles with operational letter "W"	Nil
10	Gas, flammable, if there is any fire source, it is easy to get fire	Fire and/or explode	Smoke, mist and high temperature; and The hazard pointed by operational letter	Use 100% oxygen; The maximum ventilation should be established and maintained; no smoking; use electronic devices as less as possible	Use all available fire distinguishing agent	May lose pressurization abruptly.
11	Infectious material, if accessed by mucosa or exposed cut, inhaled, consumed or absorbed, it may cause influence on man and animals	Contaminated by infectious material	Delayed infection for human beings or animals	No contact. Keep the recycling and ventilation as low as possible in the affected area	Use all available fire distinguishing agent; do not use water for the articles with operational letter "Y"	Invite a qualified person to meet the airplane

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12	Fire, high heat, smoke, toxic and flammable steam	Fire and/or explode	Smoke, mist and high temperature	Use 100% oxygen; The maximum ventilation should be established and maintained;	Use all available fire distinguishing agent. Water is permitted to use in this case	May lose pressurization abruptly. Land the aircraft asap.

Operational letter	Extra hazard	Operational letter	Extra hazard
A	narcotism	P	(TOXIC)*(POISON)
C	corrosive	S	Self-ignition or fire
E	explosive	W	If wet, release toxic or flammable gas
F	flammable	X	Oxidant
H	highly flammable	Y	Determined by the types of infectious material, US government may need people to separate animal, cargo and aircraft
I	stimulative/lachrymator		
L	other hazards are low or nil		
M	magnetic	Z	The aircraft fire distinguishing system may not be able to put out the fire or suppress the fire. Land the aircraft asap.
N	hazardous		

* TOXIC has the same meaning as POISON

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5 Packing

Available Scope

The regulations of this chapter is applicable to non radioactive material

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5.1 Shipper's Responsibility

5.1.1 General responsibility

The shipper is responsible for all aspects of the packing of dangerous goods in compliance with IATA DGR. For the international cargo transportation starting out from China, *Exit cargo transportation packing performance testing result form* and *Exit dangerous goods transportation packing using result identification form* from PCR Exit and Entry Inspection and Quarantine Bureau should be presented except the other items regulated by IATA DGR.

5.1.2 Specific responsibilities

When preparing each package of dangerous goods, the shipper must:

5.1.2.1 comply with the set of packing requirements appropriate to the type of packaging to be used;

5.1.2.2 use only the packaging permitted by the applicable packing instruction specified in Columns G, I and K of the List of Dangerous Goods;

5.1.2.3 For all packagings, the gross mass limit per package shall be the more restrictive of the quantity limits specified in Column H, J, or L of the List of Dangerous Goods and the design limits of the package. Additionally, for combination packagings, the quantity limit per inner packaging must not exceed the limits specified in the applicable packing instruction.

5.1.2.4 Assemble and secure all components of the packaging strictly as intended.

5.1.2.5 Any pollution on outer package must be cleaned.

5.1.2.6 Ensure that his responsibilities for packing are completely fulfilled when the package is presented to the operator for shipment.

5.1.3 Use of Freight Containers and Unit Load Devices(ULD)

The shipper must ensure that no dangerous goods are loaded in container or ULD except for the following circumstances:

5.1.3.1 Special container for radioactive material(see DGR appendix A);

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5.1.3.2 ULD or pallet prepared according to the Packing Instruction 963 for containing consumer commodities ID8000;

5.1.3.3 ULD or pallet prepared according to the Packing Instruction 954 for containing Carbon dioxide, solid (dry ice) , UN1845, as refrigerant.

5.1.3.4 UN2807, magnetic substances

5.1.3.5 UN3373, Biological substances of category B packed with PI650.

5.1.3.6 UN3245, Transgenosis microorganism and transgenic organism packed with PI959.

5.1.3.7 Lithium ion, lithium metal, or sodium ion cells and batteries must comply with Packing Instructions (PI) 966, 967, 969, 970, 977, 978 Section Ⅱ.

5.1.3.8 UN3164, Hydraulic products or barometric products packed with the PI 208 (a).

5.1.3.9 Dangerous goods of Exceptional quantity prepared according to subsection 2.6.8 of the IATA DGR.

5.1.3.10 Package of radioactive material-quantities permitted that jis prepared according to subsection 10.5.8 of the IATA DGR. "

5.1.4 Overpack

An enclosure used by a single shipper to contain one or more packages and to form one handling unit for convenience of handling and stowage. Overpack may be closure type, for example one or more than one package in a firm outer packing. This firm outer package may be fiberboard, wood, metal or plywood (see illustration 5-1). Overpack may be open type as well, for example the packages bound together on a wood tray or directly bound together (see illustration 5-2).

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Illustration 5-1 Closure Type Overpack

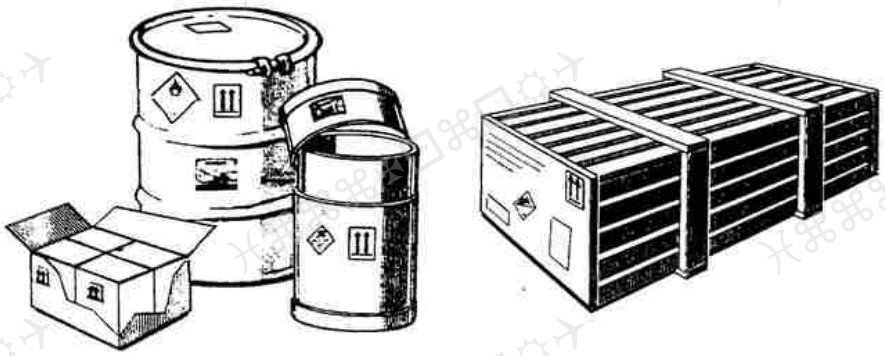
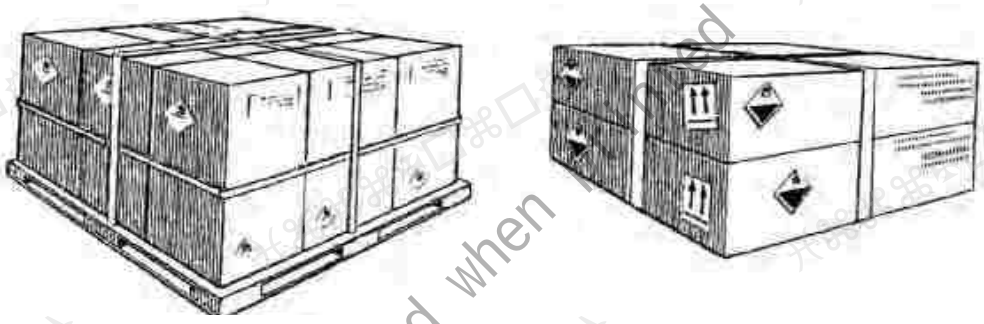


Illustration 5-2 Open overpack



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The shipper must ensure that where an overpack is used to enclose packages of dangerous goods, the following requirements must be met:

5.1.4.1 Packagings containing different substances which may react dangerously with each other, or dangerous goods packagings which require segregation according to Table 9.3.A of the IATA Dangerous Goods Regulations (DGR), must not be assembled into an overpack. Furthermore, packages of UN 3090 Lithium metal batteries prepared according to PI 968 Section IA or IB, packages of UN 3480 Lithium ion batteries prepared according to PI 965 Section IA or IB, and packages of UN 3551 Sodium ion batteries prepared according to PI 976 must not be assembled into an overpack with packages of Class 1 (except Division 1.4S), Division 2.1, Class 3, Division 4.1, or Division 5.1 dangerous goods.

5.1.4.2 Each package contained within an overpack must be properly packed, marked, labeled and be free of any indication of damage or leakage.

5.1.4.3 The overpack must not contain packages bearing the “Cargo Aircraft Only” label except where:

1) only one package is contained in the overpack, or

2) two or more packages are contained in the overpack and the packages are assembled in such a way that clear visibility and easy access to them is possible, or

3) the packages contain substances of:

(1) Class 3, Packing Group III, without a subsidiary risk,

(2) Class 6,

(3) Class 7,

(4) Class 9.

(5) The overpack includes those unrestricted packages.

Note: For cooling purposes, an overpack may contain carbon dioxide, solid (dry ice), provided that the overpack meets the requirements of Packing Instruction 954.

5.1.5 Packing for Explosives, Self-reactive Substances and Organic Peroxides

Unless specific provisions to the contrary are made in these Regulations, the packing used for goods of Class 1, self-reactive substances of Division 4.1 and organic peroxides of Division 5.2 should comply with the provision for the medium danger (Packing Group II) category.

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5.2 Identification of UN packing

5.2.1 Requirement

According to the UN specification packing standards for air transport, the dangerous goods packing can be given different specification number according to its type. For the outer packing not complying with IATA DGR proper packaging specification, the specification of the outer packaging should not be marked.

5.2.2 Codes Used to Designate Types of UN Packaging

5.2.2.1 Outer/Single Packaging

Outer packaging number consists of Arabic numerals and Latin characters. The first Arabic number indicates the packaging type or more detailed packaging classification and the second Latin letter indicates the material type of the packaging. If necessary, the ending has Arabic number, which can indicates the form of this packaging. For example: 1A2

1) The following numerals must be used for the kinds of packaging:

1 — metal Drum

3 — Jerrican

4 — Box

5 — Bag

6 — Composite packaging

2) following capital letters must be used for the types of material:

A—Steel (all types and surface treatments)

B — Aluminum

C — Natural wood

D — Plywood

F — Reconstituted wood

G— Fibreboard

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H—Plastic material

L — Textile

M — Paper, multi-wall

N — Metal (other than steel or aluminum)

P — Glass, porcelain or stoneware

Note: Plastics include polymer materials such as rubber.

5.2.2.2 Inner Packaging

The capital letters "IP" in Latin characters indicating "Inner Packaging"; followed by a numeral indicating the kind of inner packaging; and, where appropriate, a capital letter in Latin characters indicates the category within the kind.

5.2.2.3 Composite Packaging

Two capital Latin letters may indicate the material, and the first letter indicates the inner material. The second letter indicates outer material

5.2.2.4 Table 5-1 is the dangerous goods UN specification packaging list for aviation transportation, and it lists packaging type and classification and UN standard specification code.

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Table 5-1 UN packing list

Packaging type	Size number or code
Inner package	
Earthenware, Glass or Wax	IP1
Plastic	IP2
Metal Cans, Tins or Tubes (Other Than Aluminum)	IP3
Metal Cans, Tins or Tubes (Aluminum)	IP3A
Multi-wall Paper Bags	IP4
Plastic Bags	IP5
Fiber Cans or Boxes	IP6
Metal container(Aerosols),disposable	IP7
Metal container(Aerosols),disposable	IP7A
Metal container(Aerosol),Disposable	IP7B
Glass ampoule bottle(Glass tube)Glass Ampoules	IP8
Metal or Plastic Flexible Tubes	IP9
Bags, Paper with Plastic/Aluminum	IP10

Outer and Single Packaging Steel Drums non-removable head steel drums; Removable head steel drums.	 1A1 1A2
Aluminum Drums non-removable head aluminum drums removable head aluminum drums	 1B1 1B2
Plywood Drums	1D
Fiber drums.	1G
Steel non-removable head steel jerricans; removable head steel jerricans;	 3A1 3A2
Aluminum Jerri cans non-removable head aluminum jerricans; Removable head aluminum jerricans.	 3B1 3B2
Plastic Drums and Jerricans non-removable head plastic drums; removable head plastic drums; non-removable head plastic jerricans; Removable head plastic jerricans.	 1H1 1H2 3H1 3H2
Metal Drums (Other than Aluminum or Steel) non-removable head drum; removable head drum.c	 1N1 1N2
Boxes of Natural Wood or Wooden Box ordinary boxes of natural wood; Sift-proof walled boxes of natural wood.	 4C1 4C2
Plywood Boxes	4D
Reconstituted wood boxes.	4F
fibreboard boxes.	4G
Plastic Boxes expanded plastic boxes; Solid plastic boxes.	 4H1 4H2
Textile Bags sift-proof textile bags water resistant textile bags	 5L2 5L3
Woven Plastic Bags **without inner lining or coating** sift-proof textile woven plastic bags water resistant textile bags woven plastic bags	 5H1 5H2 5H3
Plastic Film Bags	5H4
Steel or Aluminum Boxes steel boxes aluminum boxes	 4A 4B

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Composite Packaging	
plastic receptacle with outer steel drum	6HA1
plastic receptacle with outer steel crate*/or box	6HA2
plastic receptacle with outer aluminum drum	6HB1
plastic receptacle with outer aluminum crate*/or box	6HB2
plastic receptacle with outer wooden box	6HC
plastic receptacle with outer plywood drum	6HD1
plastic receptacle with outer plywood box	6HD2
plastic receptacle with outer fibre drum	6HG1
plastic receptacle with outer fibreboard box	6HG2
plastic receptacle with outer plastic drum	6HH1
plastic receptacle with outer solid plastic box	6HH2
Paper Bags	
multi-wall	5M1
multi-wall, water resistant paper bags	5M2

5.2.2.5 Packaging Qualifying Codes

Some packagings may show a code following the packaging code. These codes have the following meaning:

"V"—— This signifies a "Special Packaging" conforming to the requirements in 6.3.1.2.

"U"—— This signifies a "Special Packaging" for infectious substances conforming to the requirements in 6.5.2.

"W"—— This signifies that the packaging, although of the same type indicated by the code, is manufactured to a specification different from that in Subsection 6.2 .The transport of such packagings by air is subject to the written approval of the State of origin.

"T"——This signifies a "Salvage Packaging" conforming to the requirements of 5.0.1.6, 6.0.7 and Subsection 6.7

5.2.2.6 Packaging design type photo

Illustration 5-3

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5.2.3 Marking of UN Specification Packaging

5.2.3.1 General regulations

1) The marking indicates that the packaging which bears it corresponds to a successfully tested design type and that it complies with related regulations which are related to the manufacture, but not to the use, of the packaging. In itself, therefore, the mark does not necessarily confirm that the packaging may be used for any particular substance.

2) The UN package marking is intended to be of assistance to packaging manufacturers, recondition, packaging users, operators and appropriate authorities. In relation to the use of a new packaging, the original marking is a means for its manufacturer(s) to identify the type and to indicate those performance tests that have been met.

3) The marking does not always provide full details of the test levels, etc., and these may need to be taken further into account, e.g. by reference to a test certificate, test reports or register of successfully tested packaging.

For example, a packaging having an X or Y marking may be used for substances to which a packing group having a lesser degree of danger has been assigned with the relevant maximum permissible value of the relative density (specific gravity), determined by taking into account the factor 1.5 or 2.25 indicated in the test requirements for packaging in Subsection 6.3, as appropriate. A Packing Group I packaging tested for products with a relative density of 1.2 could be used as a Packing Group II packaging for products with a relative density of 1.8, or a Packing Group III packaging of relative density 2.7 provided of course that all the performance criteria can still be met with the higher relative density.

4) Inner packaging is not required to be marked.

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5.2.3.2 Applicability

Except for some packaging intended for gases of Class 2, radioactive materials of Class 7 and some packaging used for Class 9 items, all single packaging and all outer packaging of combination packages and of composite packages which have been manufactured and tested in accordance with the UN specifications and tests must bear markings which are durable, legible and placed in a location and of such size relative to the package as to be readily visible. For packages with a gross weight exceeding 30 kg the markings, or a duplicate thereof, must appear on the top or on the side of the package. Letters, numbers and symbols must be at least 12 mm high, packages with a capacity of 30 liters or a maximum net weight of less than or equal to 30 kg. The height of the marking letter must be greater than or equal to 6 mm. For packages of 5 L or 5 kg or less the letters, numbers and symbols must be of an appropriate size.

Note: In order to ensure the mark is effective, non-direct printed or molded mark on the package can be checked by airline for additional details. In this case, in order to avoid goods delay, encourage shippers to provide detailed contact information so that the mark effectiveness can be confirmed. Handwritten specification mark is not acceptable.

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5.2.4 Format of UN Marking

The marking must consist of:

5.2.4.1 UN Packaging Symbol: 5.3.

This must not be used for any purpose other than certifying that a packaging complies with the relevant requirements of UN package. For embossed metal packaging the capital letters “UN” may be applied as the symbol;

5.2.4.2 Package type code, see 5.2.B, UN package marking:

5.2.4.3 The letter X, Y, or Z, designating the packing group(s) for which the design type has been successfully tested:

1) X for Packing Group I (these packaging may be used for Packing Group I, II and III articles and substances); or

2) Y for Packing Group II (these packaging may be used for Packing Group II and III articles and substances); or

3) Z for Packing Group III (these packaging may be used for Packing Group III articles and substances only);

5.2.4.4 For single packaging intended to contain liquids, a number indicating the relative density, rounded off to the first decimal, for which the design type has been tested; this may be omitted when the relative density does not exceed 1.2; or for packaging intended to contain solids or inner packaging, a number corresponding to the maximum gross weight, in kilograms, at which the design type has been tested;

5.2.4.5 For packaging intended to contain solids or inner packaging, the number after letter indicates the maximum gross weight,(unit: kilogram) which indicate that the packaging design type with maximum gross weight has passed test, and followed by letter “S”

5.2.4.6 Followed by the last two digits of the year during which the packaging was manufactured. Packaging of types 1H1, 1H2, 3H1 and 3H2 must also be appropriately marked with the month of manufacture; this may be marked on the packaging in a different place from the remainder of the marking.

5.2.4.7 Nationality identification marking regulated by state director department;

5.2.4.8 Followed by the name of the manufacturer or other identification of the packaging specified by the appropriate national authority.

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5.2.4.9 Letter “V ” after packaging code indicates this packaging is “special packaging”, i.e. it is not necessary to test this packaging, no matter substances or solid or liquid inner packaging has been placed in.

5.2.5 Examples of UN Specification Markings, see table 5-2

Table 5-2 UN Specification Packaging Marking Sample

包装	UN 符号 (a)	类型代码 (b)	包装等级 (c)	毛重 (e)	固体或内包装 (g)	密度 (d)	试验压力 f	生产年份 (h)	国家 h	生产厂商 (j)	完整代码
瓦楞纸箱	UN	4G	Y	145	S			99	NL	VL823	UN 4G/Y145/S/99 NL/VL823
瓦楞纸箱	UN	4G	X, Y, Z	20, 30, 45	S			99	NL	ABC1234	UN 4G/X20 – Y30 – Z45/S/99 NL/ABC1234
盛装液体的钢桶	UN	1A1	Y			1.4	150	99	NL	VL824	UN 1A1/Y1.4 /150/99 NL/VL824
盛装固体或内包装的钢桶	UN	1A2	Y	150	S			99	NL	VL825	UN 1A2/Y150/S/99 NL/VL825
等效规格塑料箱	UN	4HW	Y	136	S			99	NL	VL826	UN 4HW/Y136/S/99 NL/VL826

5.2.6 Example of UN Specification Markings

Table5-4

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5.2.7 Markings on Packaging for Infectious Substances

Packaging for infectious substances, which meet the requirements of Packing Instruction 620 and Subsection 6.5 must be marked with a packaging marking, which includes:

5.2.7.1 UN specification packaging symbol;

5.2.7.2 Appointed packaging type code according to this manual 5.2.2;

5.2.7.3 “CLASS6.2” type face;

5.2.7.4 Last 2 numbers of packaging production year;

5.2.7.5 VRI CODE(International vehicles registration code)Nationality identification marking regulated by state-owned principal department;

5.2.7.6 Name of producer or other packaging identification symbol regulated by state-owned principal authority.

5.2.7.7 UN Marking sample——infectious substance

UN 符号 (a)	型号代码 (b)	试验 (c)	年份 (d)	国家 (e)	生产厂 (f)	完整代码
UN	4G	CLASS6.2	98	DK	SP - 9989 - ERIKSSON	UN 4G/CLASS 6.2/98 DK/SP - 9989 - ERIKSSON

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5.3 General Packing Requirements

5.3.1 Packaging types and ways

5.3.1.1 Two main types of packaging:

1) COMBINATION PACKAGINGS: Is combination of packaging consisting of one or more inner packaging made by metal, plastic, glass or pottery secured in an outer packaging made by wood, fiber, metal or plastic. For different purpose, packaging can fill absorbent or liner materials.

2) SINGLE PACKAGINGS:Are packaging which do not require any inner packaging in order to perform their containment function during transport. Normally made by steel, aluminum, plastic or other approved materials.

5.3.1.2 Depending on the package types and the consignment of the package , there are around 3 kinds of packaging ways:

1) Packaging in Excepted quantity(Aim at thimbleful cargo);

2) Packaging in limited quantity(Aim at thimbleful cargo);

3) UN specification package (Aim at normal quantity cargo)

5.3.2 Packing Groups

5.3.2.1 Packing Group numbers I, II or III are assigned to dangerous goods in Classes 3, 4, 5, 6, 8 and 9 according to the relative degree of danger presented by the article or substance:

Group I——Substances presenting high danger.

GroupII——Substances presenting medium danger.

Group III——Substances presenting low danger.

Some substances in Class 9 and liquids in Division 5.1 have been assigned to packing groups by experience rather than through the application of any technical criteria and these are shown in the List of Dangerous Goods in Subsection 4.2.

5.3.2.2 The general packing requirements of this Subsection are not applicable to

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Radioactive Materials.

5.3.3 Packaging Quality

Dangerous goods must be packed in good quality packaging which must be strong enough to withstand the shocks, removal and loadings normally encountered in transport. Packages must be constructed and closed as to prevent any loss of contents when prepared for transport which might be caused under normal conditions of transport, by vibration or by changes in temperature, humidity or pressure (resulting from altitude, for example). Packages (including inner packaging and receptacles) must be closed in accordance with the information provided by the manufacturer. No dangerous residue must adhere to the outside of packages during transport. These provisions apply, as appropriate, to new, reconditioned or remanufactured packaging.

Note: It is recommended that single steel or aluminum packaging (1A1, 1A2, 1B1, 1B2, 3A1, 3A2, 3B1, 3B2) when transported in narrow-bodied aircraft and not otherwise protected by, should be provided additional protection against abrasive effects experienced in loading the aircraft through overpacking, palletization or another means protecting the bottom head and chime. Also small single packaging, with a capacity of 2 L or less, should be overpacked to facilitate handling and to permit adequate securing of the dangerous goods aboard the aircraft.

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5.3.4 Packaging Test Requirements

New, remanufactured, reused, or reconditioned packaging must meet the applicable requirements of Section 6 of DGR. Such packaging must be manufactured and tested under a quality assurance program, which satisfies the appropriate national authority, in order to ensure

that such packaging meets those applicable requirements. If the packaging

conforms to one or more successfully tested design types, it can be marked with multiple UN specifications. Where packaging are required to be tested in accordance with Section 6 of DGR, their subsequent use must be as specified in the applicable test report and conform in all respects with the design type which was tested, including the method of packing and size and type of any inner packaging.

Before being filled and handed over for transportation, each packaging must be inspected to ensure that it is free from corrosion, contamination or other damage. Any packaging which shows signs of reduced strength as compared with the approved design type must no longer be used or must be so reconditioned until it is able to withstand the design type tests.

5.3.5 Requirements for material

5.3.5.1 Packaging (including sealing cover) and packaging materials in direct contact with the dangerous goods shall have the ability of resisting the chemical reactions or other effects against the dangerous goods. The packing material shall not contain dangerous substances that react with the inner contents or obviously weaken the packing. Materials (such as some plastics), which react with the contents or with the use of refrigerant, and become soft, brittle or more permeable, shall not be used. Although some packaging is indicated in the specific packaging instructions, the shipper still has the responsibility to ensure that the packaging does not interact with the internal items, especially to pay attention to the corrosion and penetration of the contents on the packaging, and the effects of softening, embrittlement and early aging.

5.3.5.2 When wood is used as a packaging composition material, international quarantine standards No.15 (ISPM15) and European Commission Directive 2004 / 102 / EC must be met whenever applicable.

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5.3.6 Requirements for receptacle

5.3.6.1 The body and the closure of any packaging must be so constructed as to be able to adequately resist the effects of temperature and vibration occurring in normal conditions of transport. Stoppers, corks or other such friction-type closures must be held in place, securely, tightly and effectively, by positive means (for example by the use of adhesive tape, friction sleeves, welding or soldering, positive locking wires). The closure device must be so designed that it is unlikely that it can be incorrectly or incompletely closed, and must be such that it may be checked easily to determine that it is completely closed.

5.3.6.2 When filling packaging for liquids, sufficient ullage (outage) must be left to ensure that neither leakage nor permanent distortion of the packaging will occur as a result of an expansion of the liquid caused by temperatures likely to prevail during transport. Liquids must not completely fill a packaging at a temperature of 55°C (130°F).

5.3.6.3 Packaging, for which retention of liquid is a basic function, must be capable of withstanding, without leakage, an internal pressure which produces a pressure differential of not less than 95 kPa (not less than 75 kPa for liquids in Packing Group III of Class 3 or Division 6.1), or a pressure related to the vapor pressure of the liquid to be conveyed, whichever is the greater. The pressure related to the vapor pressure must be determined by one of the methods described in 5.0.2.9.1 to 5.0.2.9.3.

Note: Notwithstanding the foregoing, dangerous goods may be contained in an inner packaging, which does not itself meet the pressure requirement, provided that the inner packaging is packed within a supplementary packaging, which does meet the pressure requirement, and all the other requirements in Subsection 5.3 of this manual.

5.3.6.4 Packaging used for solids, which may become liquid at temperatures likely to be encountered during air transport, must also be capable of containing

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that substance in the liquid state.

Note:

Packaging for solids (both inner and single), which may be permitted by the applicable packing instruction, should not be used if they are unsuitable for containing liquids e.g. paper or plastic bags as inner packaging unlined fiber drums as single packaging, should not be used.

标记试验压力的范例

UN 编号	名称	类或项	包装类别	Vp^{55} (kPa)	Vp^{55}×1.5 (kPa)	$(Vp^{50}-1.5)/10$ 0 (kPa)	由 6.3.5.3 方法 C 取得的最小试验压力（表压）（kPa）	根据 6.3.5.3 在包装上标记的最小试验压力（表压）（kPa）
2056	四氢呋喃	3	II	70	105	5	100	100
2247	正癸烷	3	III	1.4	2.1	-97.9	100	100
1593	二氯甲烷	6.1	III	164	246	146	146	150
1155	乙醚	3	I	199	299	199	199	250

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5.3.6.5 For the reuse of packaging receptacle, check if it is corrosive or damaged. It can be used after the confirmation of no corrosion or damage, and make sure the consignment is clear of contamination.

5.3.6.6 Inner package containing liquid must have secondary closure to maintain cover. Must use this form to ensure liquid closure strong and effective. For example: tape, sealing tape, welding, metal wire, locking ring, thermoplastic or a child resistant cover.

The design of closure must be able to prevent the wrong operation, if the inner package containing the liquid cannot have secondary closure; the inner package must be sealed securely and put into the lining preventing leakage, then put in the outer package.

5.3.7 An outer packaging may contain more than one item of dangerous goods or other goods provided that:

5.3.7.1 Several dangerous goods do not react with each other or with other substances and cause below:

1) Combustion and/or evolution of considerable heat

2) Evolution of flammable, toxic or asphyxiant gases,

3) the formation of corrosive substances or

4) the formation of unstable substances

5.3.7.2 The dangerous goods do not require segregation according to Table 9.3.A, except as otherwise provided for in these Regulations;

5.3.7.3 An outer packaging containing Division 6.2 Infectious Substances can only contain material as provided in Packing Instruction 620;

5.3.7.4 The inner packaging used for each item of dangerous goods and the quantity contained therein complies with the relevant part of the packing instruction applicable to that item;

5.3.7.5 The outer packaging used are permitted by all the packing instructions applicable to each item of dangerous goods;

5.3.7.6 The package as prepared for shipment meets the specification performance tests for the most restrictive packing group of a substance or article contained in the package;

5.3.7.7 The quantities of different dangerous goods contained in one outer packaging must be such that "Q" does not exceed the value of 1, where "Q" is calculated using the formula:

$$Q = \frac{n_1}{M_1} + \frac{n_2}{M_2} + \frac{n_3}{M_3} \cdots\cdots$$

where n1, n2, etc. are the net quantities per package of the different dangerous goods and M1, M2, etc. are the maximum net quantities per package for these different dangerous goods according to the List of Dangerous Goods in 4.2 of DGR., for passenger or cargo aircraft, as applicable;

5.3.7.8 The following dangerous goods do not need to calculate the "Q" value:

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- UN1845; Carbon dioxide, solid (dry ice) UN 1845;
- Those where Columns H, J and L of the List of Dangerous Goods indicate “No limit”;
- Those with the same UN number, packing group, physical status (such as solid or liquid) and same total net quantity in Column J or L in the List of Dangerous Goods in 4.2 of DGR, provided they are the only dangerous goods in the package and the total net quantity does not exceed the maximum net quantity shown in the List of Dangerous Goods in 4.2 of DGR.

Note: The calculated “Q” value must be rounded up to the first decimal place and entered on the Shipper’s Declaration

5.3.7.9 When different dangerous goods are in a outer package, if some of the dangerous goods have “G” in quantity limit column of figure 4.2, the gross weight of the whole package shall not exceed the minimum gross weight limit.

5.3.8 Requirements for Inner Liner

The package, fix up or liner of the inner packaging must be protected from breakage and leakage from the outer package during normal conditions of transport. Liner material must not react dangerously with the liquid. If there is leakage of the contents, the liner must be available.

5.3.9 Requirements for absorbent material

5.3.9.1 Unless otherwise provided in the packing instructions, liquids in Classes 3, 4, 5 or 8, or Division 6.1, that are packaged in glass, earthenware, plastic or metal inner packaging must be packaged using absorbent material in accordance with Table 5-3. Absorbent material must not react dangerously with the liquid. Absorbent material is not required if the inner packaging are so protected that breakage of them and leakage of their contents from the outer package will not occur during normal

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conditions of transport. If an outer package is not liquid tight, a means of containing the liquid in the event of a leakage must be provided in the form of a leak-proof liner, plastic bag or other equally efficient means of containment. Requirements for absorbent material are as follows:

Table 5-3 requirements for absorbent material

	Passenger Aircraft	Cargo Aircraft Only
GroupI	A	B
GroupII	B	B
GroupIII	C	C

Note:

A refers to Sufficient absorbent material to absorb the contents of all inner packaging.

B refers to Sufficient absorbent material to absorb the contents of any one inner packaging; and where the inner packaging vary in size, enough to absorb the contents of the inner packaging containing the greatest quantity of liquid.

C refers to No absorbent material required but, in the case of an outer packaging which is not leak-tight, a means of containing the liquid in the event of leakage must be provided in the form of a leak-proof liner, plastic bag or other equally efficient means of containment.

5.3.9.2 Unless otherwise provided for in the packing instructions, all liquids in Class 3, 4, 5 or 8, or in Division 6.1, when packed in an outer package which is not leak-tight, must be provided with a means of containing the liquid in the event of leakage. This may be achieved with the use of a leak-proof liner, plastic bag or other equally efficient means of containment.

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5.3.10 The nature and the thickness of the outer packaging must be such that friction during transport does not generate any heat likely to alter dangerously the chemical stability of the contents.

5.3.11 Venting of packaging to reduce internal pressure, which may develop by the evolution of gas from the contents, is not permitted for air transport, except as otherwise specified in these Regulations.

5.3.12 Combination packaging containing liquid dangerous goods(except inner packagings containing flammable liquids not exceeding 120 mL or inner packagings in which infectious substances in primary receptacles not exceeding 50 mL) must be packed so that the closures on the inner packaging are upward and the upright position of the package must be indicated on it by the “Package Orientation” label or “This Side Up” or “This End Up” label on the top cover of the package.

5.3.13 A package must be of such size that there is adequate space to affix all required markings and labels.

5.3.14 Empty Packaging

Empty packaging that has contained dangerous goods must be treated in the same manner as is required by these Regulations for a package filled with that substance unless adequate measures have been taken to nullify any hazard. Packages filled with class 7 radioactive materials must be handled according to regulations in chapter 8 of this manual.

5.3.15 Unless regulated, the UN specification packaging described in packaging instruction must comply with performance testing requirements related to packaging group in column F of Dangerous Goods Name List. See the regulations in IATA DGR Section 6 for related packaging performance test.

5.3.16 Packaging for Liquids

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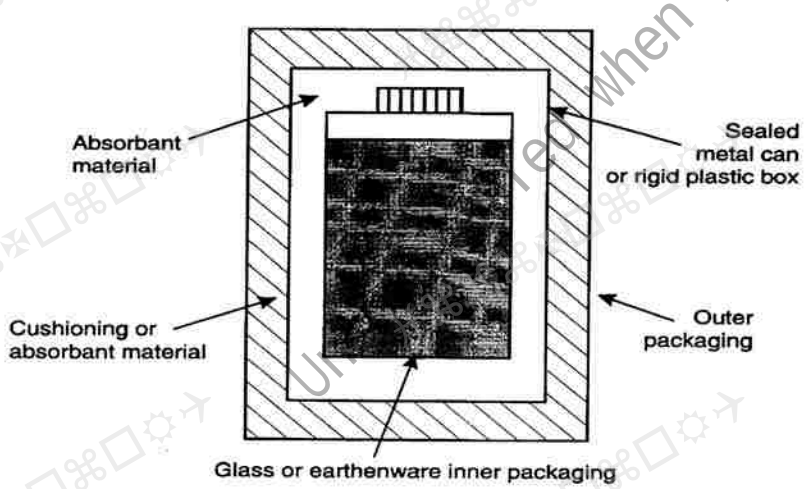
5.3.16.1 Every packaging intended to contain liquids must successfully undergo a suitable leak-proofness test and be capable of meeting the appropriate test level.

5.3.16.2 Package with hydraulic pressure markings can only fill vapor pressure liquid meeting the requirements of 5.0.2.14.2 of DGR. If the total gauge pressure in the packaging(i.e. the vapor pressure of the filling substance plus the partial pressure of air or other inert gases, less 100 kPa) at 55°C (130°F), determined on the basis of a maximum degree of filling in accordance with 5.3.6 2) and a filling temperature of 15°C (59°F), will not exceed two-thirds of the marked test pressure, must be 100 kPa (80 kPa or more for liquids in Packing Group III of Class 3 or Division 6.1).

图 5-5



5.3.17 All the package surfaces should be clean and clear of contamination with no attached things, especially for dangerous goods.

5.3.18 Packaging test

See the regulations in the Section 6 of DGR.

5.3.19 Plastic, cubic barrel

Unless otherwise specified by the national authorities, rigid plastic IBC and band shall be used for plastic drums and square drums.The use period

of composite IBCs in plastic inner containers for the transport of dangerous goods shall not exceed 5 years,From the date of manufacture, unless a shorter period of use is specified because of the nature of the substance being transported.

Note: The useful life of composite IBCs refers to the manufacturing date of the inner container.

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5.4 Packaging requirements for Limited Quantities

5.4.1 Dangerous goods being shipped under the provisions for Limited Quantities must be packed in accordance with 5.1 and 5.3 of this chapter, as well as 5.0.3 of DGR.

5.4.2 limits for different dangerous goods packed together in one outer package:

5.4.2.1 for classes other than Classes 2 and 9, the total net quantity per package does not exceed the value of 1, where "Q" is calculated using the formula:

$$Q = \frac{n_1}{M_1} + \frac{n_2}{M_2} + \frac{n_3}{M_3} \cdots\cdots$$

where n_1, n_2, etc. are the net quantities per package of the different dangerous goods and M_1, M_2, etc. are the maximum net quantities per package for these different dangerous goods according to Subsection 4.2– List of Dangerous Goods, for the relevant "Y" Packing Instructions;

5.4.2.2 Class 2 and Class 9:

1) when packed together without goods of other classes, the gross weight of the package must not exceed 30 kg;

2) when packed together with goods of other classes, the gross weight of the package must not exceed 30 kg and the total net quantity in the package of goods other than in Class 2 or 9 does not exceed the value of 1 when calculated according to the "Q" formula above;

5.4.2.3 For different dangerous goods in one outer packaging consisting only those with the same UN number, packing group and physical state (i.e. solid or liquid), the calculation of the "Q" value is not required. However, the total net quantity in the package must not exceed the maximum net quantity according to Column H of Subsection 4.2 – List of Dangerous Goods.

5.4.3 Packaging Method

Dangerous goods in Limited Quantities must be packed in accordance with the applicable Limited Quantity Packing Instruction in Column G of Subsection 4.2 – List of Dangerous Goods of DGR.

5.4.4 Packaging must comply with the construction criteria of Subsections 6.1 and 6.2 and the test criteria in 6.6. These packaging are not required to meet the marking requirements of 6.0.4 nor the testing requirements of

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Subsection 6.3.

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5.5 Conditions Normal to Air Transport

5.5.1 Temperature

For the information of users of these Regulations, the extremes of temperature which may be encountered in international transportation are in the order of -40°C and 55°C (-40°F and 130°F). Since receptacles or packaging may be filled at low temperatures and then exposed in transit in tropical areas, the increase in temperature may tend to cause discharge of liquid contents or bursting of the receptacles or packaging during transit, unless a suitable ullage (outage) has been provided and the receptacles or packaging meet the pressure requirements of 5.0.2.9 in DGR.

5.5.2 Pressure

Due to altitude, pressure reductions will be encountered under flight conditions which may in extreme conditions, be of the order of 68 kPa (0.68 bars, 10 lb/in^2). Since receptacles and packaging will generally be filled at normal atmospheric pressure of approximately 100 kPa (1 bar, 14.7 lb/in^2), these pressure reductions will tend to cause discharge of liquid contents or bursting of the receptacles or packaging during flight, unless each receptacle or packaging and its closures meet the packaging test requirements.

5.5.3 Vibrations

Vibrations in commercial aircraft to which packaging may be exposed range from 5mm amplitude at 7Hz (corresponding to 1g acceleration) to 0.05mm amplitude at 200Hz (corresponding to 8g acceleration).

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5.6 Packing Instructions

5.6.1 General instruction

5.6.1.1 The packing instructions in this section appear in class number sequence from 1 to 9, refer to 5.0.6 of DGR for details.

5.6.1.2 Each packing instruction shows the acceptable single and combination packaging. For combination packaging, tables show the acceptable outer packaging and associated inner packaging together with the maximum quantity permitted in each inner packaging. The maximum quantity per inner packaging may be further limited by the maximum quantity per package specified in. If a commodity is identified in the table applicable to inner packaging of combination packaging but not in the table applicable to single packaging, it means that the particular commodity is not permitted in single packaging. Particular packing requirements are shown in some packing instructions. These may be applicable to specific articles and substances identified by their UN numbers, or to all articles and substances referred to the packing instruction concerned.

Note: As inner and intermediate packaging for explosives are usually specifically designed for the particular explosives concerned, no inner and intermediate packaging specification numbers are shown in the Explosive Packing Instructions.

5.6.1.3 Where the packing instructions in this section authorize the use of a particular type of packaging, packaging bearing the same packaging identification code followed by the letter “V” marked in accordance with the requirements of 6.3.1.2.8, may also be used under the same conditions and limitations applicable to the use of that type of packaging according to the relevant packing instruction. For example, packaging code “4GV” may be used whenever a packaging marked “4G” is authorized.

5.6.2 Packing Instructions—Class 1—Explosives

5.6.2.1 The General Packing Requirements of 5.0.2 of IATA DGR must also be

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met.

5.6.2.2 Packaging must meet the requirements for Packing Group II, However, packaging, other than metal packaging, meeting the test criteria of Packing Group I may be used.

5.6.2.3 All packaging for Class 1 explosives must be so designed and constructed that:

1) Protect the explosives, prevent them from escaping and cause no increase in the risk of unintended ignition or initiation when subjected to normal conditions of transport including foreseeable changes in temperature, humidity and pressure;

2) The complete package can be handled safely in normal conditions of transport;

3) The packages will withstand any loading imposed on them by foreseeable stacking to which they will be subject during transport so that they do not add to the risk presented by the explosives, the containment function of the packaging is not harmed, and they are not distorted in a way or to an extent which will reduce their strength or cause instability of a stack.

5.6.2.4 Class 1—Explosives ——General Packing Provisions

1) The general provisions for Class 1—Explosives detailed below are in addition to those in 5.0.2:

2) The closure device of packaging containing liquid explosives must ensure a double protection against leakage.

3) .Packaging for water-soluble substances must be water resistant.

4) When the packaging includes a double envelope filled with water which may freeze during transport, a sufficient quantity of an anti-freeze agent must be added to the water to prevent freezing. Anti-freeze that could create a fire hazard because of its inherent flammability must not be used.

5) Nails, staples and other closure devices made of metal without protective

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covering must not penetrate to the inside of the outer packaging unless the inner packaging adequately protects the explosives against contact with the metal.

6) Inner packaging, fittings and cushioning materials and the placing of explosive articles or substances in packages must be accomplished in a manner which prevents the explosive articles or substances from becoming loose in the outer packaging under normal conditions of transport. Metallic components of articles must be prevented from making contact with metal packaging. Articles containing explosive substances not enclosed in an outer casing must be separated from each other in order to prevent friction and impact. Padding, trays, partitioning in the inner or outer packaging, moldings or receptacles may be used for this purpose.

7) Packaging must be made of materials compatible with and impermeable to, the explosives contained in the package, so that neither interaction between the explosives and the packaging materials, nor leakage, causes the explosive to become unsafe to transport, or the hazard division or compatibility group to change.

8) The closure device of metal drums must include a suitable gasket; if a closure device includes a screw-thread, the ingress of explosive substances into the screw-thread must be prevented.

9) Plastic packaging must not be liable to generate or accumulate sufficient static electricity so that a discharge could cause the packaged explosive articles or substances to initiate, ignite or function.

10) Explosive substances must not be packed in inner or outer packaging where the differences in internal and external pressures, due to thermal or other effects, could cause an explosion or rupture of the package.

11) Whenever loose explosive substances or the explosive substance of an uncased or partly cased article may come into contact with the inner surface of metal packaging(1A2, 1B2, 4A, 4B and metal receptacles), the metal packaging must be provided with an inner liner or coating.

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12) Packing Instruction 101 must be approved by an appropriate national authority regardless of whether the packaging complies with a packing instruction assignment in List of Dangerous Goods of IATA DGR.

13) Electro-explosive devices must be adequately protected against electro-magnetic radiation and stray currents.

14) Large and robust explosive articles, normally intended for military use, with their means of initiation or without their means of initiation containing at least two effective protective features, may be carried unpackaged.

Note: The following terms used in the explosives Packing Instructions 101 to 143,

RECEPTACLE refers to Inner and intermediate packaging including boxes, bottles, cans, drums, jars and tubes, including any means of closure.

REELS refers to devices made of plastics, wood, fibreboard, metal or other suitable material comprising a central spindle with, or without, side walls at each end of the spindle. Articles and substances can be wound onto the spindle and may be retained by side walls.

TRAYS refers to Sheets of metal, plastics, wood, fibreboard or other suitable material which is placed in the Inner, Intermediate or Outer packaging and achieves a close-fit in such packaging. The surface of the tray may be shaped so that packaging or articles can be inserted, held secure and separated from each other.

5.6.3 *General requirements for Package Instructions of dangerous goods of other categories or divisions.*

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6 Marking and Labeling

6.1 General Regulations

6.1.1 In compliance with the requirements of the Section 7 of IATA *Dangerous Goods Regulations*, the shipper is responsible for all necessary marking and labeling of each package of dangerous goods or each Overpack containing dangerous goods. Each package must be of a size that there is adequate space to affix all required markings and labels.

6.1.2 All DG labels and handling labels shall be always correctly and properly affixed on the cargo package during all handling sections, like acceptance, storage, build-up and loading, etc.

6.1.3 After the shipment of dangerous goods, in the event of loss, loss, or unidentification, the operator shall accurately replace the labels and marks according to the declaration or other transport documents, such as waybill, if applicable.

6.1.4 If the DG labels are found missing or unreadable to read during acceptance, the DG shipment must be rejected.

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6.2 Marking

6.2.1 Shipper's Specific Responsibilities

6.2.1.1 Check that any relevant marking on the package or overpack already on the package is in the correct location and meets the quality and specification requirements of the Regulations;

6.2.1.2 Remove or obliterate any irrelevant marking already on the package or overpack;

6.2.1.3 Ensure that each outer or single package used for dangerous goods, for which specification package is required in Section 5, bears the specification markings;

6.2.1.4 Apply any appropriate new marking in the correct location, and ensure that it is of durable quality and correct specification;

6.2.1.5 Ensure that his responsibilities for marking are completely fulfilled when the package or overpack is presented to the operator for shipment.

6.2.2 Types of Marking

Markings for packages are of two types and must meet the following requirements:

6.2.2.1 Packaging specification markings

Packaging specification markings are normally applied by the packaging manufacturer and shown on the outer surface, but are still ultimately the responsibility of the shipper. Packaging specification markings are not required for Limited Quantity packagings.

6.2.2.2 Packaging identification markings

Markings, which identify the use of a particular packaging for a particular shipment, e.g. indication of contents (proper shipping name, UN/ID code), consignor, consignee, etc. The application of these markings is solely the responsibility of the shipper.

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6.2.3 Quality and Specification of Markings

6.2.3.1 General principles

All markings or label must not be covered or obscured by any part of or attachment to the packaging or any other label or marking. If use label(s) as the marking, the label(s) must not be bended, and one label must not be placed in the intersection of multi-sides of the package. The required markings must not be placed with other package markings that could substantially reduce their effectiveness.

6.2.3.2 All markings must be:

1) Durable and printed or otherwise marked on, or affixed to the external surface of the package or overpack;

2) Readily visible and legible;

3) Able to withstand open weather exposure without a substantial reduction in effectiveness; and

4) Displayed on a background of contrasting color.

6.2.3.3 Language

During international transportation, for marking of language, in addition to use English should also use Chinese or language required by the State of origin.

6.2.3.4 Dimension

The height of the UN or ID number and the letter "UN/ID" tag must be at least 12mm. Otherwise, for packages with a capacity of 30L or a maximum net weight of 30kg and for cylinders with a water capacity of 60L, the mark must be at least 6mm; for a capacity of 5L or a maximum net weight of 5kg

6.2.4 Markings for Overpacks

An enclosure used by a single shipper to contain one or more packages and to form one handling unit for convenience of shipping, handling and stowage.

6.2.4.1 Unless all markings representative of all dangerous goods in the overpack are clearly visible, the overpack must be marked with the word "Overpack",

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"limited quantity", "Salvage" (when applicable). For an overpack containing packages of radioactive material, the external package must be marked with Limited Quantities.

Note: For Packages marked with "OVERPACK","SALVAGE",all letters of these marks shall be 12mm high at least. Except for packages under 30L or 30kg, marked at a height of at least 6mm.

6.2.4.2 Packaging specification markings need not be reproduced on the overpack. The overpack marking is an indication that packages contained within comply with prescribed specifications.

6.2.4.3 When a consignment consists of more than one overpack, to facilitate identification, loading and notification, the operator requires each overpack to show an identification mark (which may be in any alpha-numeric format) and the total quantity of dangerous goods, as indicated on the Shipper's Declaration.

6.2.4.4 For UN 1845 solid carbon dioxide (dry ice), the total net weight of dry ice contained in the Overpack should be indicated.

6.2.4.5 If the Overpack contains a limited number of packages, a limited number of labels must be used.

6.2.4.6 All detailed operating instructions on the inside of the Overpack are displayed on the outside of the Overpack.

6.2.5 Packaging Use Marking (Packages and Salvages)

6.2.5.1 Unless otherwise specified in these Regulations, each package and overpack containing dangerous goods must be marked durably and legibly on the outside of the package with each of the following:

1) The PROPER SHIPPING NAME(S) of the contents (supplemented with the technical name(s) if appropriate) and the corresponding UN NUMBER(S) or ID NUMBER(S) preceded by the letters "UN" or "ID" as applicable, as listed in List of Dangerous Goods. In the case of unpackaged articles, these markings must be displayed on the article, on its cradle or on its handling, storage or

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launching device.

When solid material turns into molten, the proper shipping name should be supplemented with *"Molten"*;

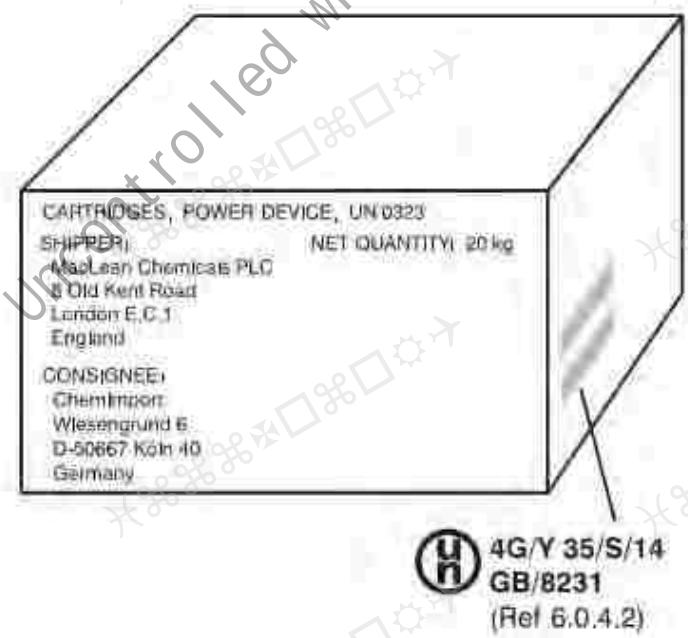
For Class 1, Explosives, the Proper Shipping Name may be supplemented by additional descriptive text to indicate commercial or military names;

Example of Proper Shipping Name and UN Number marking:

CORROSIVE LIQUID,ACIDIC ORGANIC,N.O.S.(CAPRYLYL CHLORIDE)UN3265.

Note: Additional descriptive text in Column B of the List of the IATA *Dangerous Goods Regulations is not part of the Proper Shipping Name but may be used in addition to the Proper Shipping Name.*

2) *The full NAME AND ADDRESS of the shipper and the consignee.*



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3) Except for ID8000 and Class 7, the NET QUANTITY of dangerous goods contained in each package or overpack must be shown on the external package. Where the maximum quantity shown in Column H in IATA DGR Subsection 4.2 is a gross weight, the GROSS WEIGHT of the package must be shown with the letter "G" following the unit of measure. The quantity must be marked adjacent to the UN number and Proper Shipping Name.

4) UN1845,—Carbon Dioxide, solid (dry ice) the NET QUANTITY of Carbon Dioxide, solid (dry ice) contained in each package must be shown.

5) For Division 6.2, Infectious Substances: Except for the UN3373. the NAME, ADDRESS AND TELEPHONE NUMBER OF A RESPONSIBLE PERSON must be shown on the surface of this package, and this person must be capable of dealing with the emergencies caused by this substance.

6) For Class 2, Refrigerated Liquefied Gases, (referenced to Packing Instruction 202 in the IATA *DGR*) the upright position of each package must be indicated prominently by arrows or by using the "Package Orientation" label. The wording "KEEP UPRIGHT" must be placed at 120° intervals around the package or on each side. The package must also be clearly marked "DO NOT DROP—HANDLE WITH CARE". Packages must bear handling instructions in the event of an emergency, delay en route or if the consignment is unclaimed at destination.

7) For Packages containing UN3373: "BIOLOGICAL SUBSTANCE,CATEGORY B".as well as the diamond-shaped mark as shown in Packing Instruction 650.

Note: marking of net weight for Diagnostic Specimen is no need to show on package, however, if there is dry ice inside the package for temperature control purposes, the net weight of dry ice must be shown on package.

8) The PBE installed with chemical oxygen generator transported according to A144: should be marked with "Air Crew Protective Breathing Equipment (smoke hood) in accordance with Special Provision A144" (PBE transported

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according to A144)

6.2.5.2 Environmentally hazardous substances

1) Packages containing environmentally hazardous substance or mixtures meeting the criteria of 3.9.2.4(UN 3077 and UN 3082), must be durably marked with the environmentally hazardous substance mark. In addition, all packages containing environmentally hazardous substance must bear a Class 9 hazard label.

Environmentally Hazardous Substance Mark

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Note 1: The environmentally hazardous substance mark may also appear on packages containing substance other than UN 3077 and UN 3082 when required by other international or national transport regulations.

Note 2: Single packaging and combination packaging being transported according to special provision A197 in Dangerous Goods Regulations of IATA, the Environmentally Hazardous Substance Mark may not be on the external package. But if the shipper prefers to transport the cargo by the standards of environmentally hazardous substance (UN 3077 and UN 3082), then all applicable regulations must be followed.

2) The environmentally hazardous substance mark must be located adjacent to the basic markings.

3) The Environmentally hazardous substance mark must be in the form of a square set at an angle of 45°. The minimum dimensions of the mark must be 100mm ×100mm.

3) Intermediate Bulk Containers (IBCs) for UN 3077 Only

Intermediate Bulk Containers must comply with the marking requirements applicable to other packages. Besides, intermediate bulk containers of more than 450L capacity must be marked with the proper shipping name and UN number, as required by basic markings, and the environmentally hazardous mark on two opposite sides.

4) Limited Quantities

The package of dangerous goods shipped according to limited quantities regulation in section 2.7.2 of IAIA *DGR* must be pasted with limited quantities mark, as shown below:

Limited Quantities Mark

Dimension:100mm×100mm

6.2.5.5 Salvage packaging

Any salvage packaging must be marked with "SALVAGE" in its package.

6.2.5.6 Empty Packagings

1) Other than Class 7, a packaging which previously contained dangerous goods must be marked as required for those dangerous goods unless steps such as cleaning, purging of vapours or refilling with non-dangerous goods are taken to nullify any hazard.

2) Before an empty packaging which had previously contained infectious substance is returned to the shipper, or sent elsewhere, it must be thoroughly disinfected or sterilized and any marks indicating that it had contained an infectious substance must be removed or obliterated.

6.2.5.7 All Packed in One

When two or more different dangerous goods are packed within the same outer

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packaging, the package must be marked as required for each substance.

6.2.6 Additional Marks

6.2.6.1 Package orientation

When a "Package Orientation" (This Way Up) label is affixed to a package or overpack, the words "THIS END UP" or "THIS SIDE UP" may be marked on the top of the package or overpack (see 5.0.2.13.3).

6.2.6.2 Additional Handling and StorageMarks

Additional marks or symbols indicating precautions to be taken in handling or storing a package, e.g. a symbol representing an umbrella indicating that a package should be kept dry, may be displayed on a package as appropriate. It is preferable to use the symbols recommended by the International Organization for Standardization (ISO).

6.2.7 Prohibited Marking

6.2.7.1 Unless for indicating package orientation, Arrows must not be displayed on package containing liquid dangerous goods.

6.2.7.2 For container which is not in compliance with this manual or the IATA DGR, no packaging specification is allowed to mark on its external package.

6.2.8 Lithium Batteries or Sodium Ion Batteries

6.2.8.1 Name: battery label

Regular size: 100mm x 100 mm Small size: 100mm x 70 mm

Color: label border must be red twill shadow The length must be at least 5mm, text and symbol in black, with white background.

*Put "UN Number(s)" at least 12 mm height. **put "telephone number for additional information"

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Old mark New mark

The old mark may continue to be used until 31 December 2026.

6.2.8.2 Packages containing lithium cells or batteries or sodium ion cells or batteries prepared in accordance with Section ll of Packing Instructions 966, 967, 969, 970,977 or 978 and Section IB of Packing Instructions 965 and 968 must be marked as shown in Figure above.

6.2.8.3 The battery mark must indicate:

1) the appropriate UN number preceded by the letters"UN". Where a package contains cells or batteries assigned to different UN numbers, all applicable UN.numbers must be indicated on one or more marks. However, where equipment contains one or more button cells in addition to cells or batteries, there is no requirement for the UN number indicating the button cell or cells to be included on the mark.

2) the UN number(s)indicated on the mark should be at least 12 mm high.

6.2.8.4 When both the battery mark and labels in accordance with label specifications other than the Class 9 label for lithium batteries or sodium ion batteries are required. the battery mark must he located on the same surface as the labels if the package dimensions are adequate.

6.2.8.5 Packages containing lithium batteries that meet the requirements of Section IB of Packing Instructions 965 and 968 must bear both the battery mark and the

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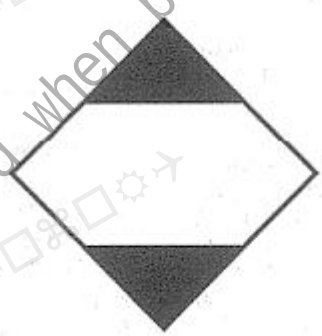
lithium battery or sodium ion battery Class 9hazard label.

6.2.9 Marks of Other Regulations

Marks required by other international or national transport regulations are permitted in addition to marks required by these Regulations, provided that they cannot be confused with or conflict with, any marks prescribed by these Regulations, because of their colour, design or shape.

Packages marked with the limited quantity marks for road, rail, and sea transport (as shown in the figure below) are acceptable for air transport, provided that the dangerous goods and their packaging fully comply with the DGR and that the packages meet the applicable mark and label requirements of the DGR.

Surface Limited Quantities Mark (7.1.5.6)



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6.3 Labeling

6.3.1 Shipper's Responsibilities

For each package and overpack requiring labeling, the shipper must:

6.3.1.1 Remove or obliterate any irrelevant labeling on the package or overpack;

6.3.1.2 Only use labels with durable quality and correct specification;

6.3.1.3 Inscribe on each label, in a durable manner, any required additional information;

6.3.1.4 Affix the appropriate label(s) in the correct location(s) and in a secure manner;

6.3.1.5 Ensure that the responsibilities for labeling are completely fulfilled when the package or overpack is presented to the carrier for shipment.

6.3.2 Quality and Specification of Labels

6.3.2.1 Requirements

The material of label, printing and adhesive thereon, must be sufficiently durable to withstand normal transport conditions including exposure of sun and rain without obvious reduction in effectiveness.

6.3.2.2 Types of labels

1) Hazard labels (set at an angle of 45°, Square shaped) includes primary hazard label and secondary hazard label which are required for most dangerous goods in all classes, and

2) Handling labels which are required, either alone or in addition to hazard labels, for some dangerous goods.

6.3.2.3 Label specifications

1) All labels (hazard labels and handling labels) used on packages or overpacks containing dangerous goods, must conform to, in shape, color, format, symbol and text, the subsection 7.3 and subsection 7.4 of the IATA *DGR*, and no variation is permitted unless it is stipulated by this manual.

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The dimensions for handling labels shown in Figure 7.4.A to Figure 7.4.G are the minimum dimensions. Hazard and handling labels with dimensions not smaller than the half of those labels shown in Figure 7.3.F, Figure 7.3.O, 7.3.V and Figure 7.4.B to Figure 7.4.E may be used on packages containing infectious substances with small dimensions bearing only small labels.

2) The symbols, text and numbers must be shown per below:

(1) The label must be configured as same as Picture 6-3, in square shape. The minimum dimensions for hazard label should be 100 × 100 mm (4 × 4 in), with an angle of 45° (diamond shape). The labels have a line of the same color as the symbol, 5 mm inside the edge and running parallel to it. For the position without specific dimension requirement, all elements should match well with the sample label. Dimension for label on Cylinder must meet the requirements shown in b part;

(2) With consideration of cylinder's shape, direction when in transportation and required setting, similar label as shown in Picture 6-3 can be placed on Class 2 cylinder. It can be placed off the cylinder body area (for example shoulder area), with ISO 7225:2005 "cylinder-warning label" requirement. In any circumstances, the label and letter, number, and symbol in the label to show the primary danger must be visible clear and readable;

Note: if the size of the cylinder is too small, the label can be placed at the cylinder body.

(3) Except Divisions 1.4, 1.5, 1.6, the upper half part of the label shows the symbol, the bottom half part shows applicable Class and specific Divisions in Class 5. However, for Class 9-Lithium batteries or Sodium Ion batteries, the upper half part only needs to show 7 vertical bars, and the bottom half part must show a symbol of a set of battery and Class number.

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(4) Except Division 1.4, 1.5, 1.6, the bottom half part of the label in Class 1 should also show the Division and PG on top of the Class 1 number. Label for Division 1.4, 1.5, 1.6 should show 1.4 or 1.5 or 1.6 in the upper half part, show Division and PG in the bottom half part.

(5) All symbol, letter, number must be shown in black color, except per below:

- Letter and Class number of the Class 8 label must appear in white color.
- White color may be used on the labels that has background color as green, red or blue.
- Division 5.2 label, the symbol may use white color.
- For Division 2.1 label placed on cylinder or liquefied petroleum gas cylinder, should the color contrast be strong enough, it can be placed directly over existing characters on the cylinder.

6.3.2.4 Label text

Unless otherwise specified, text indicating the hazardous nature of shipment can be placed in the bottom half part of the hazard label(s) with the Class or Division number and Packaging group. This text should be in English, unless otherwise required by the State of origin to use the original language, which an English translation should also be provided. Two languages should be given equal prominence. This regulation also applies to handling labels. The trademark and manufacturer's name can be printed on the label but should be within 10-point type from the label edge line.

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6.3.3 Use of Hazard Labels

6.3.3.1 General regulations

All hazard labels for packages and overpacks of dangerous goods are listed, using abbreviations, in the List of *Dangerous Goods* in IATA *DGR* (see appendix B.2.2.1). A primary hazard label is specified for each listed article and substance. A secondary hazard label or labels must also be applied for each article and substance having subsidiary risks. According to the specifications in Subsection 4.4 of *DGR*, for some situations, secondary hazard label also need to be used.

6.3.3.2 Labels identifying the primary and subsidiary hazards of the dangerous goods must bear the Class or Division number at its bottom angle.

6.3.3.3 For Class 1 materials (Explosives), it must be noted that:

1) Packages requiring labels for Explosives in Divisions 1.1, 1.2, 1.3, 1.4F, 1.5 and 1.6 are (with a few exceptions) normally forbidden for air carriage; and

2) Class, Division and Compatibility Group numbers or letters must be inscribed on the label.

6.3.3.4 For Class 2 materials (Gases), there are three different labels:

1) A red label for Division 2.1 flammable gas (see IATA DGR Figure 7.3.E);

2) A green label for Division 2.2 non-flammable, non-toxic gas (see IATA *DGR* Figure 7.3.F);

3) A white label for Division 2.3 toxic gas (see IATA *DGR* Figure 7.3.G).

Note: For the labeling of aerosols, see the appropriate entry under UN 1950, Aerosol ... , in the List of Dangerous Goods and the corresponding entry in Column E.

6.3.3.5 Substances of Division 4.2 need not show a label for the Division 4.1 sub risk if the substance is also a flammable solid.

6.3.3.6 Class 5 (Oxidizing Substances and Organic Peroxides)

1) A label for Division 5.1 or 5.2, which must have the division number *"5.1"*or *"5.2"* in the bottom corner; and

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2) Packages containing organic peroxides which meet the criteria for Class 8 Packing Group I or II must be labeled with a corrosive subsidiary risk label;

Note: Many liquid organic peroxide formulations are flammable. However, no flammable liquid label is required because the organic peroxide label itself is considered to imply that the product may be flammable.

6.3.3.7 For substances whose primary or subsidiary risk is Division 6.1 (Toxic Substances), Toxic Substance labels inscribed with the text *"Toxic"* or *"Poison"* may be used.

6.3.3.8 Packages containing substances of Class 8 need not show a subsidiary risk label for Division 6.1 if the toxicity arises solely from the destructive effect on tissue.

6.3.3.9 Packages containing Class 9 substances must bear the Class 9 "Miscellaneous Dangerous Goods" label or the "Lithium Battery" or "Sodium Ion Battery" label (for lithium or sodium ion batteries) as specified in the IATA DGR List of Dangerous Goods. When the package contains magnetized material, a "MAGNETIZED MATERIAL" label must be affixed instead of the miscellaneous dangerous goods label.

6.3.3.10 When two or more dangerous goods are packed within the same outer packaging, the package must be labeled as required for each substance. Labels need not be applied for a subsidiary risk if the hazard is already represented by a primary risk label.

6.3.4 Handling Labels

The handling labels to be used, either alone or in addition to hazard labels, as appropriate, are indicated as follows.

6.3.4.1 The *"Magnetized Material"* label must be used on packages and overpacks containing magnetized material.

6.3.4.2 The *"Cargo Aircraft Only"* label must be used on packages containing dangerous goods that are permitted only on cargo aircraft. However, where the Packing Instruction number and the permitted quantity per package are identical

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for passenger and cargo aircraft, the "Cargo Aircraft Only" label should not be used. The "Cargo Aircraft Only" label must not be used for packages packed according to Passenger Aircraft limitations even when included on a Shipper's Declaration marked "Cargo Aircraft Only" because of other packages in the shipment.

6.3.4.3 The "Cryogenic Liquids" handling label must be used in addition to the Non-flammable gas (Division 2.2) hazard label on packages and overpacks containing cryogenic liquids.

6.3.4.4 Either "Package Orientation" (This Way Up) labels or pre-printed package orientation labels (meeting the same specifications in ISO Standard 780:1985) must be used on combination packagings and overpacks containing liquid dangerous goods. Excluded from this rule are:

•Flammable liquids in inner packagings is up to 120 ml (4 Fl.oz);

•Infectious substances in primary receptacles is up to 50 ml (1.7 Fl.oz);

•Packages containing radioactive material.

The words "Dangerous Goods" may be inserted on the label below the line. The labels must be affixed or pre-printed on at least two opposite sides to show the proper package orientation for the closure(s) to be in the upright position. When a package orientation label is affixed on a package or overpack, the words "THIS END UP" or "THIS SIDE UP" may also be displayed on the top of the package or overpack.

6.3.4.5 "Keep Away From Heat" handling labels must be placed in addition to the applicable hazard label on packages and overpacks containing self-reactive substances in Division 4.1 and Division 5.2, Organic Peroxides. This handling label must be placed next to hazard label on the same side of the package.

6.3.4.6 The Excepted Package for radioactive material must be affixed to excepted

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packages label of radioactive material.

6.3.5 Prohibited Labeling

1) For cylindrical packages and other slim packages, must be of such peripheral dimension that a label cannot overlap itself.

2) Arrows for purposes other than indicating proper package orientation must not be displayed on a package containing liquid dangerous goods.

6.3.6 Affixing of Labels

6.3.6.1 General regulations

1) All labels or marking must be securely affixed or printed on the packaging so that they are readily visible and legible and are not obscured by any part of or attachment to the packaging or by any other label or marking;

2) Each label must be affixed or printed on a background of contrasting color or must have a dotted or solid line outer boundary;

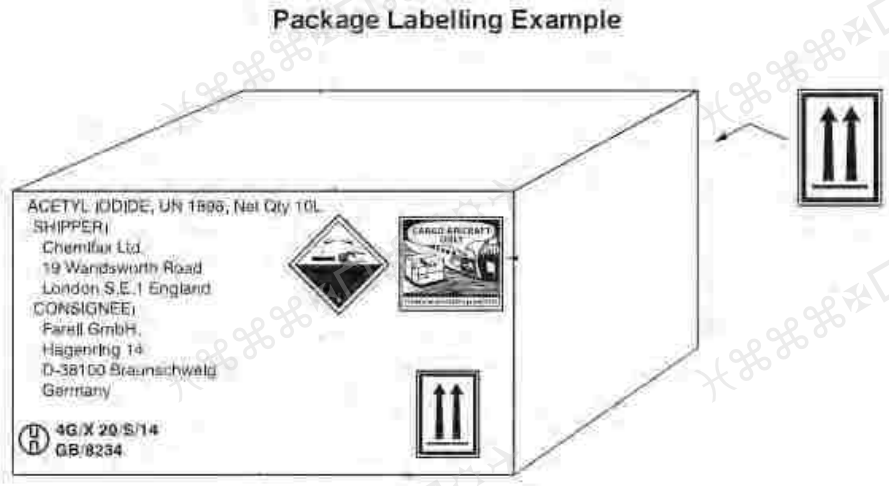
3) Labels must not be folded or affixed in such a manner that parts of the same label appear on different faces of the package;

4) If the package is of such an irregular shape that a label cannot be attached or printed on a surface, it is acceptable to attach the label(s) to the package by means of strong tag(s);

5) The package must be of such a size that there is adequate space to affix all required labels.

6.3.6.2 Package Labeling Example

FIGURE 6-1



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1) When the package dimensions are adequate, labels must be located on the same surface of the package near the Proper Shipping Name marking.

2) Labels should be affixed adjacent to the shipper's or the consignee's address appearing on the package.

3) When labels identifying the primary and subsidiary risk are required, they must be affixed adjacent to each other.

4) When a "Cargo Aircraft Only" label is required, it must be affixed on the same surface of the package near the hazard label(s).

5) When package orientation "This Way Up" labels are required, at least two of these labels must be used. One label must be affixed to each of two opposite sides of the package with the arrows pointing in the upright direction. See 6-1

6.3.7 Other Requirements

6.3.7.1 Labels required on packages within an overpack must be clearly visible. or else be reproduced on the outside of the overpack.

6.3.7.2 Besides using labels required by the IATA *DGR*, it is acceptable to use labels required by other international or national transport regulations, provided that they cannot be confused with or conflict with

requirements of the color, design or shape prescribed by the IATA *Dangerous Goods Regulations*.

6.3.7.3 Additional handling and storage markings

Additional markings or symbols printed on labels indicating precautions to be taken in handling or storing a package, e.g. a symbol representing

an umbrella indicating that a package should be kept dry, may be displayed on a package as appropriate. It is preferable to use the symbols recommended by the International Organization for Standardization (ISO).

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6.4 Label Specifications

6.4.1 Class 1—Explosive (Divisions1.1, 1.2, 1.3, see Figure 6-3)

**Fill the division and compatibility group number in , e.g.”1.1C”

Name: Explosive

Cargo IMP Code: REX, RCX, RGX, as applicable

Minimum dimensions: 100 × 100 mm

Symbol (exploding bomb): Black

Background: Orange (Pantone Color No. 151U)

Note: Packages with label marked Division 1.1 or 1.2 are normally forbidden for air transport.

6.4.2 Class 1—Explosive (Division 1.4) including Compatibility Group S (See Figure 6-3)

***Fill the compatibility group number in

“1.4” printed on the label, 30mm height at least, 5mm width

Name: Explosive

Cargo IMP Code: RXB, RXC, RXD, RXE, RXG, RXS, as applicable

Minimum dimensions: 100 × 100 mm

Figures: Black

Background: Orange (Pantone Color No. 151U)

6.4.3 Class 1—Explosive (Division 1.5)(See Figure 6-3)

***Fill compatibility group number in

“1.5” printed on the label, 30mm height at least, 5mm width

Name: Explosive

Cargo IMP Code: REX

Minimum dimensions: 100 × 100 mm

Figures: Black

Background: Orange (Pantone Color No. 151U)

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Note: Packages with this label are normally forbidden for air transport.

6.4.4 Class 1—Explosive (Division 1.6)(See Figure 6-3)

***Fill Compatibility Group number in

"1.6" printed on the label, 30mm height at least, 5mm width

Name: Explosive

Cargo IMP Code: REX

Minimum dimensions: 100 × 100 mm

Figures: Black

Background: Orange (Pantone Color No. 151U)

Note: Packages with this label are normally forbidden for air transport.

6.4.5 Class 2—Gases: Flammable (Division 2.1)(See Figure 6-3)

Name: Flammable Gas

Cargo IMP Code: RFG

Minimum dimensions: 100 × 100 mm

Symbol (flame): Black or White

Background: Red (Pantone Color No. 186U)

Note: This label may also be printed on red background with symbol (flame), text, numbers and borderline shown in black on red background.

6.4.6 Class 2—Gases: Non-flammable, non-toxic (Division 2.2) (See Figure 6-3)

Name: Non-flammable, non-toxic Gas

Cargo IMP Code: RNG or RCL, as applicable

Minimum dimensions: 100 × 100 mm

Symbol (gas cylinder): Black or White

Background: Green (Pantone Color No. 335U)

Note: This label may also be printed with symbol (gas cylinder), text, numbers and borderline shown in black on green background.

6.4.7 Class 2—Gases: Toxic (Division 2.3)(See Figure 6-3)

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Name: Toxic Gas

Cargo IMP Code: RPG

Minimum dimensions: 100 × 100 mm

Symbol (skull and crossbones): Black

Background: White

Note: Toxic Substances labels inscribed with the text "Toxic Gas" or "Poison Gas" are acceptable.

6.4.8 Class 3—Flammable Liquids(See Figure 6-3)

For the labels marked secondary hazards, class number should not be shown or the class number must be obliterated.

Name: Flammable Liquids

Cargo IMP Code: RFL

Minimum dimensions: 100 × 100 mm

Symbol (flame): Black or White

Background: Red (Pantone Color No. 186U)

Note: This label may also be printed with symbol (flame), text, numbers and borderline shown in black on red background.

6.4.9 Class 4—Flammable Solids (Division 4.1) (See Figure 6-3)

Name: Flammable Solid

Cargo IMP Code: RFS

Minimum dimensions: 100 × 100 mm

Symbol (flame): Black

Background: White with seven vertical red stripes (Pantone Color No. 186U)

6.4.10 Class 4—Substances Liable to Spontaneous Combustion (Division 4.2) (See Figure 6-3)

Name: Spontaneously Combustible

Cargo IMP Code: RSC

Uncontrolled when printed

Minimum dimensions: 100 × 100 mm

Symbol (flame): Black

Background: Upper half White, Lower half Red (Pantone Color No. 186U)

6.4.11 Class 4—Substances which, in Contact with Water, emit Flammable Gases (Division 4.3) (See Figure 6-3)

For the labels with secondary hazards, class number should not be shown or the classification number must be obliterated.

Name: Dangerous When Wet

Cargo IMP Code: RFW

Minimum dimensions: 100 × 100 mm

Symbol (flame): Black or White

Background: Blue (Pantone Color No. 285U)

Note: This label may also be printed with symbol (flame), text, numbers and border-line shown in black on blue background.

6.4.12 Class 5—Oxidizing Substances (Division 5.1)(See Figure 6-4)

Name: Oxidizer

Cargo IMP Code: ROX

Minimum dimensions: 100 × 100 mm

Symbol (flame over circle): Black

Background: Yellow

6.4.13 Class 5—Organic Peroxides (Division 5.2) (See Figure 6-4)

Name: Organic Peroxides

Cargo IMP Code: ROP

Minimum dimensions: 100 × 100 mm

Symbol (flame over circle): Black

Background: Yellow (Pantone Color No. 109U)

Note: The design of Division 5.2 Hazard label is changed into: if the

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color of the fire in the label is white, the line on the upper half must be white.

6.4.14 Class 6—Toxic Substances (Division 6.1)(See Figure 6-4)

Name: Toxic

Cargo IMP Code: RPB

Minimum dimensions: 100 × 100 mm

Symbol (skull and crossbones): Black

Background: White

Note: Toxic Substances labels inscribed with the text "Toxic" or "Poison" are acceptable.

6.4.15 Class 6—Infectious Substances (Division 6.2)(See Figure 6-4)

Illustration should be in the lower part of the label:

(INFECTIOUS SUBSTANCE)

In Case of Damage or Leakage

Immediately Notify

Public Health Authority

Name: Infectious Substance

Cargo IMP Code: RIS

Minimum dimensions: 100 × 100 mm

For small packages the dimensions may be 50 × 50 mm

Symbol (three crescents superimposed on a circle) and inscription: Black

Background: White

6.4.16 Class 7—Radioactive Material (Category I)(See Figure 6-4)

Name: Radioactive

Cargo IMP Code: RRW

Minimum dimensions: 100 × 100 mm

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Symbol (trefoil): Black

Background: White

6.4.17 Class 7—Radioactive material (CategoryII)(See Figure 6-4)

Name: Radioactive

Cargo IMP Code: RRY

Minimum dimensions: 100 × 100 mm

Symbol (trefoil): Black

Background: Top half Yellow with White border, bottom half White

6.4.18 Class 7—Radioactive material (Category III)(See Figure 6-4)

Name: Radioactive

Cargo IMP Code: RRY

Minimum dimensions: 100 × 100 mm

Symbol (trefoil): Black

Background: Top half Yellow with White border, bottom half White.

6.4.19 Class 7—*"Criticality Safety Index Label"* (See Figure 6-4)

Minimum dimensions: 100 × 100 mm

Text (mandatory): "FISSILE" in black on white in upper half of label

6.4.20 Placard for Class 7—Radioactive Materials (See Figure 6-4)

This placard is to be used for large freight containers as per 10.7.5.

Dimensions: The dimensions shown are minimums, where larger dimensions are used, the proportions must be maintained. The figure "7" must be 25 mm or larger.

Note: The word "Radioactive" in the bottom half of the placard is optional.

6.4.21 Class 8—Corrosives Material (See Figure 6-4)

Name: Corrosive

Cargo IMP Code: RCM

Minimum dimensions: 100 × 100 mm

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Symbol (liquids spilling from two glass vessels and attacking a hand and a metal): Black

Background: Upper half White, lower half Black with White border

6.4.22 Class 9—Miscellaneous Dangerous Goods(See Figure 6-4)

Name: Miscellaneous

ICE, RMD, RSB (polymeric beads and plastics moulding compound subject to Packing instruction 957),RVF,RVH,RVO,as applicable

Minimum dimensions: 100 × 100 mm

Symbol (seven vertical stripes in upper half): Black

Background: White

6.4.23 Class 9 — Lithium Batteries or Sodium Ion Batteries (See Fig 6-4)

Name: Lithium Batteries or Sodium Ion Batteries

Cargo IMP Code: RBI, RBM, RLI, RLM and RVB

Minimum Dimensions: 100 x 100mm

Symbol (Seven vertical black stripes in upper half ; battery group,one broken and emitting flame in lower half): Black.

Background: White.

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6.5 Handling Labels

6.5.1 Class 9—Magnetized Material (See Figure 6-4)

Name: Magnetized Material

Cargo IMP Code: MAG

Minimum dimensions: 110 × 90 mm

Color: Blue (Pantone Color No. 285U) on White

6.5.2 Cargo Aircraft Only (See Figure 6-4)

Name: Cargo Aircraft Only

Cargo IMP Code: CAO

Minimum dimensions: 120 × 110 mm

For small packages of infectious substances (Class 6, Division. 6.2), dimensions may be halved.

Color: Black on Orange (Pantone Color No. 151U)

6.5.3 Cryogenic Liquids (See Figure 6-4)

Name: Cryogenic Liquid

Cargo IMP Code: RCL

Minimum dimensions: 75 × 105 mm

Color: White on Green (Pantone Color No. 335U)

Note: The words "Caution— may cause cold burn injuries if spilled or leaked" are optional and may be included.

6.5.4 Package Orientation (See figure 6-4)

Name: Package Orientation (This Way Up)

Minimum dimensions: 74 × 105 mm

Color: Red (Pantone Color No.186U) or Black on a contrasting background

6.5.5 Keep Away From Heat (See Figure 6-4)

Name: Keep Away From Heat

Minimum dimensions: 74 × 105 mm

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Color: Red and Black on a White background or alternative colors.

6.5.6 Radioactive Material —Excepted Package

Name: Radioactive Material - Excepted Package

Cargo IMP Code: RRE

Color: The border of the label must have red diagonal hatchings (Pantone Color No. 186U). The label may be printed in black and red on white paper or it may be printed in red only on white paper

Minimum dimensions: 74 × 105mm

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Note: The text "The information for this package need not appear on the Notification to Captain (NOTOC)" is optional and does not have to appear on the label.

6.5.7 Figure with labels

Figure 6-3

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Figure 6-4

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7 Documentation

7.1 General

7.1.1 Required Documentation

1) The necessary documentations include: Shipper's Declaration for Dangerous Goods, Air Waybill, Acceptance Checklist and Special Load Notification to Captain and so on.

2) Shipper's Declaration for Dangerous Goods should be filled in by shippers; air waybill, acceptance checklist and special load notification to captain should be filled in by operators.

3) The basic information for these documentations consists of:

(1) UN code;

(2) proper shipping name;

(3) Main class and division;

(4) Sub-risk class and division;

(5) Packing group;

4) The marketing department is responsible for provide working documents to the agent which transport dangerous goods. When the agent transport dangerous goods for its first time , Cargo Section of Sales & Maeketing department which lelongs to the marketing department must provide working documents to the agent in the first months ,and the agent can also use their own operation document, but the document content must be consistent with oue company text, or must be the latest version of IATA "DGR" provisions of the current valid version.

7.1.2 Shipper's Responsibility

The shipper is responsible for the completion of a prescribed declaration form "Shipper's Declaration for Dangerous Goods" for each and every shipment containing dangerous goods so defined or classified in these Regulations unless it is stated that a Shipper's Declaration is not required. For each shipment containing dangerous goods the shipper must:

1) Use only the correct form in the correct manner;

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2) Ensure that the information on the form is accurate, easy to identify, legible and durable;

3) Ensure that the form is properly signed when the shipment is presented to the operator for shipment;

4) Ensure the consignment fully in accordance with regulations in IATA *DGR* and this manual.

7.1.3 Language Requirements for Declaration Form

English shall be used to fill dangerous goods documents, accurate translation in language of the originating country can be attached.

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7.2 Shipper's Declaration for Dangerous Goods

When consigning dangerous goods, the shipper should enter the Shipper's Declaration for Dangerous Goods to ensure the person who signs the declaration has accepted dangerous goods training and guarantee all preparations for shipment are in accordance with related regulations set forth by the government or operators. Unless the shipper and the carrier make related agreement to allow the shipper use electronic data to transmit information required by "dangerous goods declaration" to replace paper documents, or the shipper must use the paper version of "dangerous goods declaration" for consignments.

7.2.1 Format of Shipper's Declaration for Dangerous Goods

1) The declaration form may be printed in black and red on white paper or it may be printed in red only on white paper. The diagonal hatchings printed vertically in the left and right margins must be printed in red. The declaration form must be printed on ISO paper sizes A3 or A4.

2) ISO standard sizes are:

A3:297×420mm(11.75× 16.5in)

A4:297 × 210mm(11.75× 8.25in)

7.2.2 The Use and Retention of the Declaration Form

When consigning dangerous goods, the shipper should enter the Shipper's Declaration for Dangerous Goods correctly and truthfully. Ensure the person who signs the declaration has accepted dangerous goods training and guarantee all preparations for shipment are in

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accordance with related regulations formulated by the government or operators. The use and retention are as follows:

1) According to the DGR requirements, all items should be filled in English. Chinese can be attached for convenience.

2) Two copies of the declaration form must be completed. One signed copy must be retained by the accepting operator. The other signed copy must be forwarded with the shipment to its destination.

3) The retention term of declaration is 24 months.

7.2.3 Requirements for Completion of Declaration Form

1) Items like “Air Waybill Number”, the “Airport of Departure” and the “Airport of Destination” in the declaration can be completed by shippers or completed or amended by the cargo agent or the operator, but other items must be completed by shippers.

2) The declaration form must be completed in the English language. The wording in English may be accompanied by an accurate translation in another language. For domestic shipment, only item “proper shipping name” must be written in both English and Chinese accurately, all other items can be filled in Chinese.

3) The declaration can be finished by handwriting, typewriter or be printed, but it must be clear and easy to identify, and all the information on the declaration must be accurate and legal.

4) The declaration form must be signed and dated by the shipper. The signature must be full name and can be written form or stamped. A typewritten signature is not acceptable and the signature must stamped by cachet of shipper’s unit.

5) The alteration (except “Air Waybill Number”, the “Airport of Departure”

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and the "Airport of Destination") to the declaration must be signed by the shipper with the same signature used to sign the document.

6) Where multiple Shippers' Declaration Forms are used, the aircraft limitation and shipment type must be the same for all pages.

7) Either different handwritten amendments, typewritten amendments or both existing in one column are considered as invalid amendments.

7.2.4 Instructions for Common Items

1) Shipper:Enter the full name, address and phone number of the shipper. The name and address of the shipper which appears on the Shipper's Declaration for Dangerous Goods may differ from that on the Air Waybill.

2) Consignee:Enter the full name, address and phone number of the consignee. The name and address of the consignee which appear on the Shipper's Declaration for Dangerous Goods may differ from that on the Air Waybill.

When shipping infectious materials, the shipper should enter also the name and phone number of a responsible person for contact in any emergency.

3) Air Waybill Number: Enter the number of the Air Waybill for the shipment of dangerous goods.

4) Page of Pages:Enter the page number and total number of pages or "Page 1 of 1 page" if there is no extension list.

5) Aircraft Limitations:Delete either "passenger and Cargo Aircraft" or "Cargo Aircraft Only" to indicate whether the shipment is packed to comply with the limitations prescribed for passenger and cargo aircraft or the limitations for cargo aircraft only.

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6) Aircraft of Departure:Enter the full name of the airport or city of departure.

7) Airport of Destination:Enter the full name of the airport or city of destination.

8) Shipment Type:Enter whether the dangerous goods are radioactive material or not. Delete “Radioactive” to indicate the shipment does not contain radioactive material.

7.2.5 Nature and Quantity of Dangerous Goods. Non-radioactive material requirements are as follows:

1) Identification

A UN or ID No.:Enter international or IATA code of dangerous goods which is preceded by the prefix “UN” or “ID”.

B Proper Shipping Name:Proper shipping names must be supplemented with their technical name when needed. Except that “molten” is included in proper shipping name, the letter “molten” must be included in proper shipping name when solid substance becomes liquid state during transportation.

C Class or Division (Subsidiary Risk):Enter dangerous goods class or division. If there is sub-risk, the code of Subsidiary Risk “Class” or “Division” must be included. For explosive goods Class 1, compatibility should be marked. A subsidiary risk may also have to be entered where a subsidiary hazard label is required by a Special Provision or may be required for self-reactive substances of Division 4.1 and Division 5.2 according to annex C.

D Packing Group:Enter packing group. For chemical kits containing several kinds of chemical medicines or first-aid kits, the packing group assigned

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is the most stringent.

2) Quantity and Type of Packing:Enter the quantity and type of the packages containing dangerous goods.

A Number of packages (of same type and content), their type of packaging e.g. “Fiberboard box”, “Box, fiberboard” etc. the packing description on the declaration can not use code or abbreviation (for example: 4G).

B When the maximum allowable amount of each package is marked with "No Limit " or has packaging instructions reference in H, J or L column of dangerous goods list, must indicate the net amount or volume of substance (for example, UN2964, UN3291) in the amount column. For manufactured goods (such as UN2794, UN2800, UN2990 and UN3166) must use the gross weight, and followed by the letter "G". In addition, for Class 1 explosives, required to indicate the net explosive mass in addition to the net quantity.

C For chemical kits containing several kinds of chemical articles, the total net quantity or net volume (by volume or weight as appropriate) of dangerous goods must be shown. The net weight of liquids within the kits is to be calculated on a 1 to 1 basis of their volume, i.e. 1L equal to 1kg.

D For “dangerous goods in machinery or apparatus, the individual total quantities of dangerous goods in solid, liquid or gaseous state contained in the article must be shown;

E When two or more different items of dangerous goods are packed in the same outer packaging, the words “All Packed in One (description of package type)” must immediately follow the relevant entries. If the shipment contains more than one package, each containing the same assortment and quantities of compatible commodities, then the statement immediately following the relevant entries must read: “All Packed in One (insert description of package type) x ....” (Insert the actual number of

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packages.); meanwhile, Q value should be shown.

F When an overpack is used, the wording "Overpack Used" must be inserted on the declaration form immediately after all the relevant entries relating to the packages within each overpack. In such cases, packages within overpacks must be listed first. Multiple overpacks with identical contents shall be identified as follows: "Overpack Used ×(number of identical overpacks)". Or to be listed individually Multiple overpacks with different contents shall be identified by listing them separately,

For example:

2 Fiberboard boxes×10kg

4 Plywood boxes×15kg

Overpack used

It means two fiberboard boxes (the net quantity of each box is 10 kilograms) and four plywood boxes (the net quantity of each box is 15 kilograms) are packed in one outer packing.

G For dangerous goods transported in Salvage Packagings, an estimate of the remaining quantity must be entered and the words "Estimated SALVAGE" must be included.

Note:*For shipments of explosives to/from Europe, in addition to the net quantity of explosives, it is recommended that the "Net Explosive Quantity" in kilograms (kg) per package should be shown. The net explosive quantity refers only to the quantity of* explosive substances.

3) Packing Instructions:Packing instructions and limited packing instructions. Mark packing instructions and limited packing instructions code and their pre-affix "Y".

4) Authorizations:Enter the approval or permission of principal authorities.

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A The Special Provision number must be shown if the special provision is A1, A2, A4, A5, A51, A81, A88, A99, A130, A176, A190, A191, A201, A202, A211, A212, A224, A225, A331or A334.

B A statement that the approval or exemption is attached to the declaration form if the consignment is being shipped under any governmental authorization(s) such as under A1 or A2. The authorization(s) must include: the quantity limit, packing requirements; aircraft type (if applicable); any other relevant information.

C When dangerous goods are shipped in portable tanks, they must be accompanied by a copy of the document(s) of competent authority approval.

D When dangerous goods are shipped in packaging as authorized under 5.0.6.4, they must be accompanied by a copy of the document(s) of competent authority approval.

E For explosive substances, where Packing Instruction 101 has been adopted by an appropriate national authority, the distinguishing sign for motor vehicles in international traffic of the State for which the authority acts (as indicated in Appendix E.1) must be marked on the Shipper's Declaration for Dangerous Goods as follows: "Packaging authorized by the competent authority of ...".

F When organic peroxides and self-reactive substances are approved, the documentations approved by the competent authority must be attached with the declaration form. The documents of permission, approval or exemption also must be attached.

G If there is subsidiary risk get tested out, upon approval from origin country, "Classified in accordance with 3.0.1.6 of the DGR" and approval

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number should be written in DGR, along with the approval certificate.

7.2.6 Additional Handling Information:Enter all Related Special Handling Information

1) For self-reactive substances of Division 4.1 or other substances having similar characteristics (properties) and organic peroxides of Division 5.2 with Special Provision A20, shippers shall indicate “THE PACKAGES CONTAINING SUCH SUBSTANCES MUST BE PROTECTED FROM DIRECT SUNLIGHT AND STORED IN A COOL AND WELL-VENTILATED AREA AWAY FROM ALL SOURCES OF HEAT.”

2) When a sample of organic peroxide or a self-reactive substance is transported, a statement to this effect must be included in the “Additional Handling Information” box of the Shipper’s Declaration.

3) When chemical oxygen generators contained in Protective Breathing Equipment (PBE) are being transported under Special Provision A144, the statement “Air Crew Protective Breathing Equipment (smoke hood) in accordance with Special Provision A144” must be included in the “Additional Handling Information” box of the Shipper’s Declaration.

4) For dangerous goods having special requirements for the government and operator in Subsection 2.9 of DGR, 24-hour emergency phone number should be shown according to special regulations.

5) For air transport the following additional statement is required: “I declare that all of the applicable air transport requirements have been met.”

6) Viscous liquid, like paint, varnish, enamel, lacquer, adhesive, and polish, which has a flash point below 23℃ can be classified into packing group III as regulated in subsection 32.3 in section III in the United Nations

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Recommendations on the Transport of Dangerous Goods with the following factors in consideration. But it must be declared as UNXXXX 3.3.3.1.1, in which the XXXX means the UN number of the liquid. Such information can be filled in the additional handing information blank.

7.2.7 Name/Title of Signatory:Shipper's name is mandatory in the declaration form. It could be either printed or stamped with red cachet. Title is not mandatory.

7.2.8 Place and Date:Enter the place and date of signing the declaration.

7.2.9 Signature: Signed only by hand.

7.2.10 Radioactive Material

See Section 8 of this manual for the completion of Shipper's Dangerous Goods Declaration for radioactive material.

7.2.11 Examples of Completed Declaration Forms

Examples of completion of the Shipper's Declaration for Dangerous Goods see Figure7-1.

Real examples of completion of the Shipper's Declaration for Dangerous Goods see Figure7-2.

When two or more different items of dangerous goods are packed in the same outer packaging in accordance with 7.2.5 of this manual, the "Q" value should be marked.

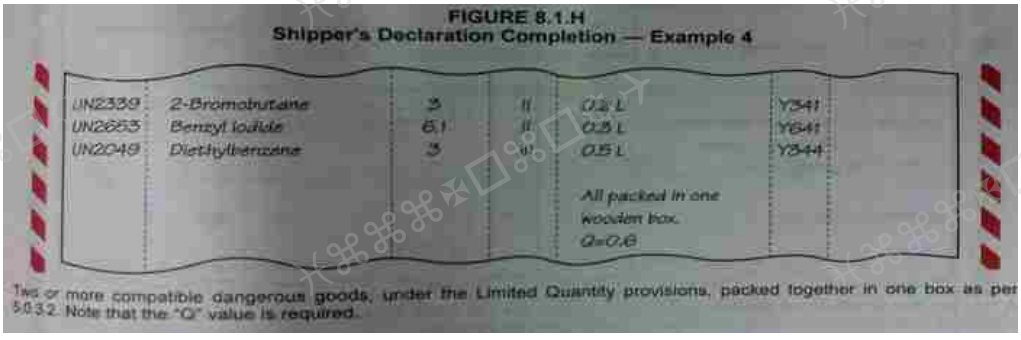

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Figure 7-1
SHIPPER'S DECLARATION FOR DANGEROUS GOODS

<table>
<tr><td colspan="2">Shipper</td><td colspan="3">Air waybill no.
Page of Pages
Shipper's Reference no.
(optional)</td></tr>
<tr><td colspan="2">Consignee</td><td colspan="3"> </td></tr>
<tr><td colspan="2">Two completed and signed copies of this Declaration must be handed to the operator</td><td colspan="3" rowspan="2">WARNING
Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties.</td></tr>
<tr><td colspan="2">TRANSPORT DETAILS</td></tr>
<tr><td>This shipment is within the limitations prescribed for:
(delete non-applicable)
Passenger And Cargo Aircraft | Cargo Aircraft Only</td><td>Airport of Departure</td><td colspan="3"></td></tr>
<tr><td colspan="2">Airport of Destination</td><td colspan="3">Shipment type(delete non-applicable)
Non-Rradioactive | Radioactive</td></tr>
<tr><td colspan="5">NATURE AND QUANTITY OF DANGEROUS GOODS</td></tr>
<tr><td colspan="3">Dangerous Goods Identification</td><td rowspan="2">Quantity and type of packing</td><td rowspan="2">Packing inst.</td><td rowspan="2">Authorization</td></tr>
<tr><td>UN or ID No.</td><td>Proper Shipping Name</td><td>Class or Division (Subsidiary Risk)</td><td>Packing Group</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">Additional Handing Information</td></tr>
<tr><td colspan="5">I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I declare all of the applicable air transport requirements have been met.

Name/ Title of Signatory Place and Date Signature (See warning above)</td></tr>
</table>

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Figure7-2

SHIPPER'S DECLARATION FOR DANGEROUS GOODS

IATA

Shipper
ABC Company
1000 High Street
Youngville, Ontario
Canada

Air Waybill No. 800 1234 5686

Page 1 of 1 Pages

Shipper's Reference No. (optional)

Consignee
CSA Ltd
5070 Rue de la Paix
Paris 75006
France

WARNING

Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties.

TRANSPORT DETAILS

Airport of Departure (optional): Youngville

Airport of Destination (optional): Paris, Charles de Gaulle

Shipment type: (delete non-applicable)

NON-RADIOACTIVE | RADIOACTIVE

NATURE AND QUANTITY OF DANGEROUS GOODS

Dangerous Goods Identification						
UN or ID No.	Proper Shipping Name	Class or Division (subsidiary hazard)	Packing Group	Quantity and Type of Packing	Packing Inst.	Authorization
UN 1816	Propyltrichlorosilane	8	I	3 Plastic Drum x 30 L	676	
UN 3220	Self-reactive solid type D (Benzenesulfonyl hydrazide)	4.1		1 Fibreboard box x 10 kg	455	
UN 1263	Paint	3	II	2 Fibreboard boxes x 4 L	353	
UN 1263	Paint	3	II	1 Fibreboard box x 30 L	366	
UN 3166	Vehicle, flammable liquid powered	9		1 Automobile 1367 kg	957	
UN 3076	Chemical kit	3	I	1 Fibreboard box 3 kg	460	
UN 2794	Batteries, wet, filled with acid	8		1 Volume box 90 kg	670	

Additional Handling Information

Repackages containing UN3222 must be protected from direct sunlight and all transport of heat and be placed in adequately ventilated areas.
24-hour Number: +1 805 123 4567

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I declare that all of the applicable air transport requirements have been met.

Name of Expediter: S. Smith

Date: 1 January 2019

Signature (Not necessary if shown): S. Smith

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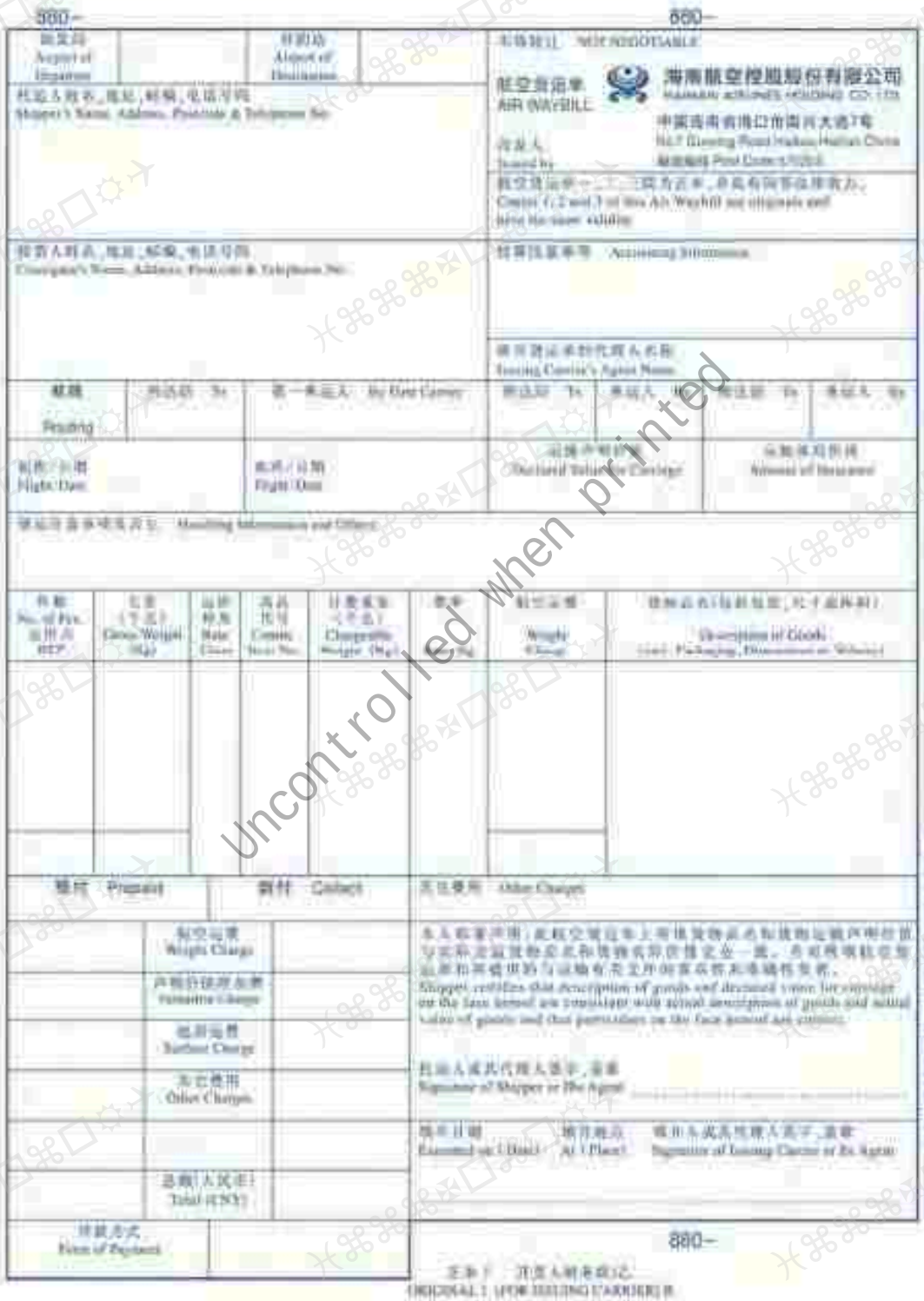
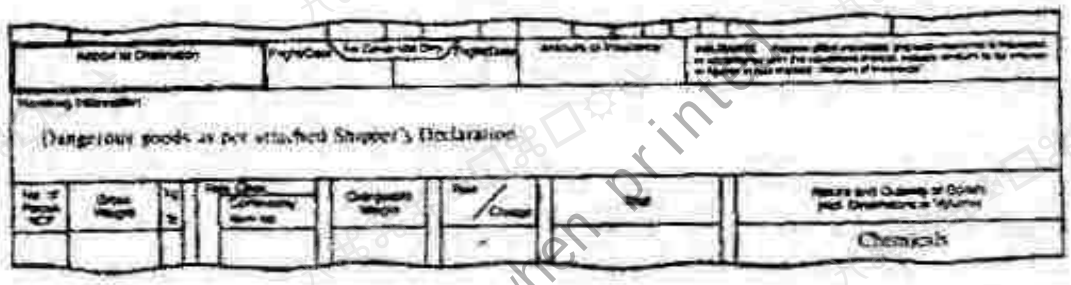
7.3 Air waybill Format



7.3.1 If the information on the air waybill is about the dangerous goods being declared, the following information must be indicated in the "Handling Information" colon in the air waybill.

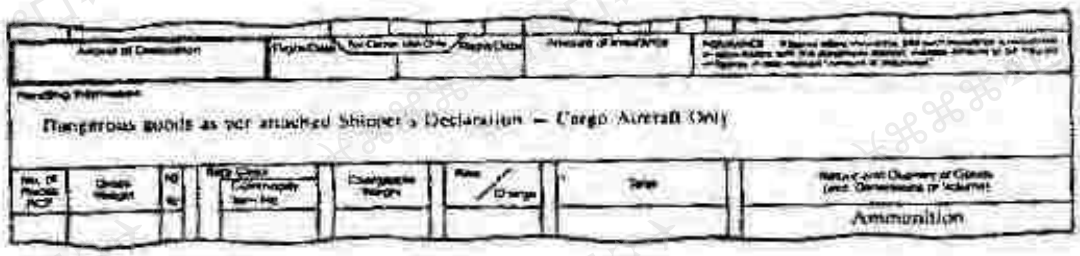
1) For dangerous goods transported by passenger and cargo aircraft, indicate "Dangerous Goods as per associated Shipper's Declaration" or "Dangerous Goods as per associated DGD", see Figure 7-3.

Figure7-3



2) For dangerous goods only transported by cargo aircraft, indicate "Cargo Aircraft Only " or "CAO", see Figure7-4.

Figure7-4



3) For empty dangerous goods packing shipment, "Empty" should be indicated in "Nature and Quantity of Goods" box on air waybill. For example: dry ice.

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7.3.2 Mixed Shipment (Cargo)

An Air Waybill containing both dangerous goods and non-dangerous goods must indicate in the "Handling Information" box of the Air Waybill, the number of pieces of dangerous goods either before or after the statement "Dangerous Goods as per associated Shipper's Declaration" or "Dangerous Goods as per attached DGD".

7.3.3 Shipper's Declaration Not Required

If "Dangerous Goods-Shipper's Declaration not required or "Dangerous Goods-DGD not required", the "Nature and Quantity of Goods" box of the Air Waybill Or in the appropriate place for other transportation documents should show in sequence: see Figure7-5.

•UN or ID number;(Magnetic material is not required);

•Proper shipping name;

•Number of packages (except only one in the consignment); and

Net quantity per package (UN1845 is required); or

any other mandatory statement set out in the regulations (i.e.section ll of packing instructions 966 etc).

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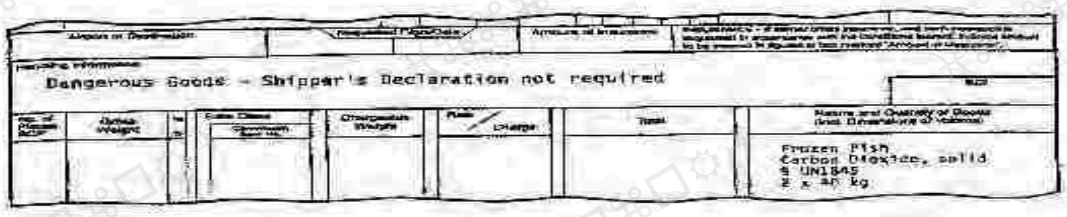
Figure 7-5



Note 1: *When a solid carbon dioxide (dry ice) UN1845 is a non-limiting material or item used as a refrigerant, 7.3.3 is not applicable if described in the shipper's declaration*

Note 2: For UN 3373, it is only necessary to show the text "DIAGNOSTIC SPECIMEN", "CLINICAL SPECIMEN" or "BIOLOGICAL SUBSTANCE, CATEGORY B" and "UN 3373".

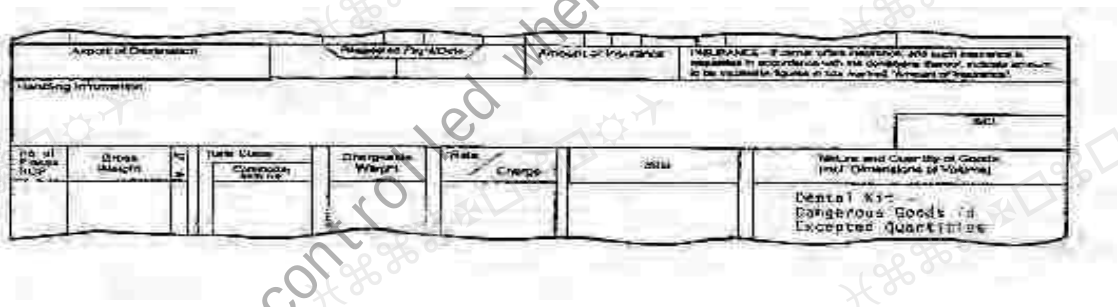
7.3.4 Dry Ice as Refrigerant for Dangerous Goods

The details of the dry ice must be shown on the Shipper's Declaration, but not shown on air waybill.

7.3.5 Excepted Quantities

For excepted quantities of dangerous goods which meet the requirements in Subsection 2.7 of *DGR*, the endorsement "Dangerous Goods in Excepted Quantities" is required in the "Nature and Quantity of Goods" box of the Air Waybill. See Figure 7-6.

Figure 7-6



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7.3.6 Not Dangerous Goods

If an article or substance contains a chemical, which could be suspected of being dangerous but does not meet the criteria for any of the hazard classes or divisions, it may be offered for transport as not restricted if the words "Not Restricted" are included in the description of the article or substance on the Air Waybill to indicate that it has been checked. Where an article fulfils the prerequisites of a Special Provision as being not subject to the Regulations, the statement "Not restricted, as per Special Provision Axx" must be included in the description of the article on the Air Waybill to indicate that the applicable Special Provision applies.

7.4 Acceptance Checklist

7.4.1 Requirement

When accepting dangerous goods, in order to check Shipper's Declaration for dangerous goods, air waybill or packing are in accordance with requirements or not, operators must use dangerous goods acceptance checklist and check the goods according to items on the checklist.

7.4.2 Acceptance Checklist Consists of Three Types:

One for checking non-radioactive material

One for checking radioactive material

One for checking dry ice shipments

7.4.3 Instructions

7.4.3.1 Dangerous goods acceptance checklist should be finished by acceptance staff with two copies and become valid after signed by acceptance staff. If dangerous goods acceptance checklist is not completed or not signed by acceptance staff, operator will not consign dangerous goods.

7.4.3.2 Dangerous goods can be consigned only after all items in dangerous goods acceptance checklist completed.

7.4.3.3 After checking, dangerous goods can be consigned if all items in dangerous goods acceptance checklist are qualified.

7.4.3.4 After checking, dangerous goods cannot be consigned if one or more items in dangerous goods acceptance checklist are negative.

7.4.4 Disposal for Problems being found

7.4.4.1 If there are some problems in dangerous goods declaration, items except "Air Waybill Number", the "Airport of Departure" and the "Airport of Destination" must be amended with shipper's signature.

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7.4.4.2 If the dangerous goods packaging is damaged, the packaging method is incorrect, the labeling label is incorrect, the waybill, the identification or classification of dangerous goods, the carrier should refuse to collect and transport the dangerous goods. Listed on the reasons for excluding the collection and transportation on the inspection list, one copy shall be kept by the collection and transportation department and the other copy to the shipper of the goods, while charging the dangerous goods inspection fee from the shipper.

Note: Minor variations in the appearance of documents, marks, and labels, as well as minor non-compliances that do not affect safety, should not be grounds for rejecting the goods.

7.4.5 Transport and Retention

The original copy of dangerous goods acceptance checklist, shipper's dangerous goods declaration and air waybill should be shipped with goods. Their copies should be kept by the departure station.

7.4.6 Dangerous Goods Acceptance Checklist

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Figure7-7 Dangerous goods checklist for a non-radioactive shipment

DANGEROUS GOODS CHECKLIST FOR A NON-RADIOACTIVE SHIPMENT
非放射性危险品收运检查单

The recommended checklist appearing on the following pages is intended to verify shipments of origin. Copies of the checklist can be obtained from:
/Website: http://www.iata.org/whatwedo/cargo/dgr/Pages/dgr-onlinetool.aspx

Never accept or refuse a shipment before all items have been checked. Is the following information correct for each entry?
下列检查表的内容用于验证始发地货物。检查每项后可从下列网址获得:
网址: http://www.iata.org/whatwedo/cargo/dgr/Pages/dgr-onlinetool.aspx
在所有项目检查之前不得接受或拒绝危险货物。下列信息对每项都正确?

SHIPPER'S DECLARATION FOR DANGEROUS GOODS (DGD)
托运人危险品申报单(DGD)

AirWaybill No.: 航空运单号:	Origin: 始发地:	Destination: 目的地:

	YES 是	NO* 否	N/A 不适用
1. Two copies in English and in the IATA format including the air certification statement. This question may be indicated as not applicable "N/A" only when the Shipper's Declaration data is submitted electronically [8.0.2.1, 8.1.1, 8.1.2, 8.1.6.12]	☐	☐	☐
英文申报单一式两份按 IATA 格式填写并包括空运认证声明。只有当托运人申报单以电子方式提交时,此问题可以指示为不适用 (N/A)。[8.0.2.1、8.1.1、8.1.2、8.1.6.12]			
2. Full name and address of Shipper and Consignee [8.1.6.1,8.1.6.2]	☐	☐	
托运人和收货人姓名及地址全部[8.1.6.1、8.1.6.2]			
3. If the Air Waybill number is not shown, enter it. [8.1.6.3]	☐		☐
如无航空货运单号,填上[8.1.6.3]			
4. The number of pages shown. This question may be indicated as not applicable "N/A" only when the Shipper's Declaration data is submitted electronically [8.1.6.4]	☐	☐	☐
页数。只有当托运人申报单以电子方式提交时,此问题可以指示为不适用 (N/A) [8.1.6.4]			
5. The non-applicable Aircraft Type deleted or not shown [8.1.2.3.2, 8.1.6.5]	☐	☐	
删除或不显示不适用的飞机机型[8.1.2.3.2,8.1.6.5]			
6. If full name of Airport or City of Departure or Destination is not shown, enter it. [8.1.6.6 and 8.1.6.7]	☐		
如无起飞/目的地机场或所在城市的全称,填上[8.1.6.6 和 8.1.6.7]			
7. The word "Radioactive" deleted or not shown [8.1.2.3.2, 8.1.6.8]	☐	☐	
删除或不显示"放射性"字样[8.1.2.3.2、8.1.6.8]			
Identification			
识别			
8. UN or ID number(s), preceded by prefix [8.1.6.9.1, Step 9]	☐	☐	
UN 或 ID 编号,编号前冠以 UN 或 ID 字样[8.1.6.9.1、步骤 9]			
9. Proper Shipping Name and the technical name in brackets (or entries with ✱ [8.1.6.9.1, Step 9]	☐	☐	
运输专用名称及括号✱内的有技术名称[8.1.6.9.1、步骤 9]			
10. Class or Division and for Class 1, the Compatibility Group. [8.1.6.9.1, Step 9]	☐	☐	
类别或项别,对于第 1 类,配装组[8.1.6.9.1、步骤 9]			
11. Subsidiary hazard, in brackets, immediately following Class or Division [8.1.6.9.1, Step 9]	☐	☐	☐
次要危险性,紧接于类别或项别后括号内[8.1.6.9.1、步骤 9]			
12. Packing Group [8.1.6.9.1, Step 9]	☐	☐	☐
包装等级[8.1.6.9.1、步骤 9]			
Quantity and Type of Packing			
包装数量及类型			
13. Number and Type of Packages [8.1.6.9.2, Step 9]	☐	☐	
包装件的数量及类型[8.1.6.9.2、步骤 9]			
14. Quantity and unit of measure (net, or gross where applicable) within one package [8.1.6.9.2, Step 9]	☐	☐	
每一包装件的数量及计量单位(净重或适用时的毛重)[8.1.6.9.2、步骤 9]			
15. For Class 1 (explosives), the net quantity supplemented with the net explosive mass followed by unit of measurement [8.1.6.9.2, Step 9]	☐	☐	☐
对于第 1 类(爆炸品),净数量后可加爆炸物净质量且跟计量单位[8.1.6.9.2、步骤 9]			
16. When different dangerous goods are packed in one outer packaging, the following rules are complied with:			
当不同的危险品包装在同一外包装中时,符合以下规定:			
16.1—Compatible according to Table 9.3.A	☐	☐	☐
—表 9.3.A 是相容的			
16.2—Conditions met for UN packages containing Division 6.2 [5.0.2.11 (c)]	☐	☐	☐
—满足装有 6.2 项感染物的 UN 包装件的条件[5.0.2.11(c)]			
16.3—Wording "All packed in one (type of packaging)" [8.1.6.9.2, Step9 (h)]	☐	☐	☐
—"All packed in one(type of packaging)"字样[8.1.6.9.2、步骤 9(h)]			
16.4—Calculation of "G" value which must not exceed 1 [5.0.2.11 (g), 5.0.6; 8.1.6.9.2, Step9 (g)]	☐	☐	☐
—计算的 "G" 值不得超过 1 [5.0.2.11 (g)、5.0.6; 8.1.6.9.2、步骤 9(g)]			

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	YES 是	NO* 否	N/A 不适用
17. Overpack Overpack			
17.1—Compatible according to Table 8.3.A	☐	☐	☐
—根据表 8.3.A 兼性原则的包装			
17.2—Marking "Overpack Used" [8.10.6.2.3(a)]	☐	☐	☐
—"Overpack Used" 字样[8.10.6.2.3(a)]			
17.3—If more than one overpack is used, identification marks shown and total quantity of dangerous goods [8.10.6.2.3(b)]	☐	☐	☐
—当使用 1 个以上 Overpack 时，应注明标记及总数量[8.10.6.2.3(b)]			
Packing instructions			
包装说明			
18. Packing Instruction Number [8.1.6.5.3, Step4]	☐	☐	
包装说明编号[8.1.6.5.3，步骤 4]			
19. For lithium batteries in compliance with Section IA, "X" follows the packing instruction [8.1.6.5.3, Step5]	☐	☐	☐
对于符合 IA 部分的锂电池，"X" 跟随包装说明后面[8.1.6.5.3,步骤 5]			
Authorizations			
批准			
20. Check all certificate special provisions. The Special Provision Number 31, A2, A4, A5, A51, A61, A66, A69, A130,A179, A180, A191, A201, A203,A211, A212,A214,A331, A334 if used [8.1.6.5.4, Step6]	☐	☐	☐
检查所有可确认的特别规定。特定编号 A1, A2, A4, A5, A51, A61, A66, A69, A130,A179, A180,A191, A201, A203, A211, A212,A214,A225,A331,A334 [8.1.6.5.4，步骤 6]			
21. Indication that governmental authorization is attached, including a copy in English and additional approvals for other items under [8.1.6.5.4, Step9]	☐	☐	☐
政府批准的证明和证书，包括英文副本以及根据下列相关规定[8.1.6.5.4，步骤 9]			
Additional Handling Information			
附加操作信息			
22. Addition of handling information where for self-reactive and related substances of Division 4.1 and organic peroxides of Division 5.2, in complex thereof, PIH, infectious and lyophilized substances, fireworks (UN0335 & UN0337) and certain flammable liquids [8.1.6.5.11]	☐	☐	☐
对于 4.1 项中的自反应活性物质、5.2 项有机过氧化物、混合物品、PIH、感染性物质及烟花爆竹（UN0335 和 UN0337）以及某些易燃液体的附加操作信息[8.1.6.5.11]			
23. Name of Signatory and Date indicated and Signature of Shipper [8.1.6.5.13, 8.1.6.5.14 and 8.1.6.5.15]	☐	☐	
签署者姓名、日期，和托运人签字[8.1.6.5.13，8.1.6.5.14 和 8.1.6.5.15]			
24. Amendment or alteration signed by Shipper [8.1.2.4]	☐	☐	☐
更改或修订时托运人签字[8.1.2.4]			
AIR WAYBILL (AIRBILL) INFORMATION			
航空货运单——提示信息			
25. The statement: "Dangerous goods as per associated Shipper's Declaration" or "Dangerous Goods as per associated DGD" [8.2.1(a)]	☐	☐	☐
声明 "Dangerous Goods as per associated Shipper's Declaration" 或 "Dangerous Goods as per associated DGD"[8.2.1(a)]			
26. "Cargo Aircraft Only" or "CAO", if applicable [8.2.1(b)]	☐	☐	☐
"Cargo Aircraft Only" 或 "CAO" 字样，如适用[8.2.1(b)]			
27. Where non-dangerous goods are included, the number of packages of dangerous goods shown [8.2.2]	☐	☐	☐
包含非危险品时，危险货物的件数[8.2.2]			
PACKAGE(S) AND OVERPACKS			
包装件和 Overpack			
28. Packaging free from damage and leakage [8.1.3(a)]	☐	☐	
包装无破损和泄漏[8.1.3(a)]			
29. Packaging conforms with packing instruction	☐	☐	☐
包装符合包装说明			
30. Same number and type of packagings and overpacks delivered as shown on DGD [8.1.3]	☐	☐	
交付的包装件及 Overpack 的数量及类型与托运人申报单中所注明的相符[8.1.3]			
Marks			
标记			
31. UN Specification Packaging, marked according to 8.2.4 and 8.2.5:			
UN 规格包装，按 8.2.4 和 8.2.5 的要求做标记：			
31.1—Symbol and Specification Code [8.2.4.2.1(a), (d)]	☐	☐	☐
—符号和规格代号[8.2.4.2.1(a)，(d)]			
31.2—X, Y or Z mark or asterisk, Packing Group / Packing Instruction requirements [8.2.4.2.1 (c)]	☐	☐	☐
—X、Y、Z，满足相应包装要求组合的星标或要求[8.2.4.2.1(c)]			
31.3—Gross Weight within limits (Solids, Inner Packagings or IBCs [SP A179, 8.2.4.2.1(d)]	☐	☐	☐
—不超过下述限制的总重（固体、内包装或 IBCs [SP A179, 8.2.4.2.1(d)]）			
31.4—Plastic drums, jerricans and IBCs within permitted period of use [8.2.2.1]	☐	☐	☐
—塑料桶、方形桶及 IBCs 在使用期限内[8.2.2.1]			
31.5—Infectious substance package mark [8.2.3.1]	☐	☐	☐
—感染性物质包装标记[8.2.3.1]			

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	YES 是	NO* 否	N/A 不适用
32. UN or ID number(s), prepared by prefix [7.1.4.1(a)]	☐	☐	
UN/ID 编号[7.1.4.1(a)]			
33. The Proper Shipping Name(s) including technical name where required [7.1.4.1(b)]	☐	☐	
正确的用机关性质的名称的技术名称[7.1.4.1(b)]			
34. The full name and address of Shipper and Consignee [7.1.4.1(b)]	☐	☐	
托运人及收货人的姓名和地址全称[7.1.4.1(b)]			
35. For consignments of more than one package of all classes (except Kl 8000 and Class 7) the net quantity, or gross weight followed by "G", as applicable, unless contents are identical, marked on the packages [7.1.4.1(b)]	☐	☐	☐
所有关用的货物（除 Kl 8000 和第 7 类），在多于一个包装中时，包装时上标注净数量或必要时后跟"G"的毛重，除非内部物品同样[7.1.4.1(b)]			
36. Carbon Dioxide, Solid (Dry Ice), the net weight marked on the packages [7.1.4.1(b)]	☐	☐	☐
固体二氧化碳干冰，包装上标注净重[7.1.4.1(b)]			
37. The Name and Telephone Number of a responsible person for Division 6.2 Infectious Substances shipment [7.1.4.1(e)]	☐	☐	☐
对 6.2 项目的责任人的姓名和电话[7.1.4.1(e)]			
38. The Special Marking requirements shown for Packing Instruction 202 [7.1.4.1(f)]	☐	☐	☐
包装说明 202 所需的特殊标记[7.1.4.1(f)]			
39. Limited Quantities mark [7.1.4.2]	☐	☐	☐
有限数量包装的标记[7.1.4.2]			
40. Environmentally Hazardous Substance mark [7.1.5.3]	☐	☐	☐
环境危害物质标记[7.1.5.3]			
41. Battery mark for section IB [7.1.5.5]	☐	☐	☐
对于 IB 部分有效标记[7.1.5.5]			
Labelling			
标题			
42. The label(s) identifying the Primary hazard as per 4.2, Column D property affixed [7.2.3.1; 7.2.5]	☐	☐	
正确标明主要危险性标题，依据 4.2 节 D 栏[7.2.3.1; 7.2.5]			
43. The label(s) identifying the Subsidiary hazard, as per 4.2, Column D property affixed [7.2.3.1; 7.2.6.2.3]	☐	☐	☐
正确标明次要危险性标题，依据 4.2 节 D 栏[7.2.3.1; 7.2.6.2.3]			
44. "Cargo Aircraft Only" label [7.2.4.2; 7.2.6.3]	☐	☐	☐
仅限货机标题[7.2.4.2; 7.2.6.3]			
45. "Orientation" labels on two opposite sides, if applicable [7.2.4.4]	☐	☐	☐
"方向"标题，如适用标题在相对的两个侧面上[7.2.4.4]			
46. "Cryogenic Liquid" label, if applicable as per 4.2, Column D [7.2.4.5]	☐	☐	☐
"冷冻液体"标题，如适用依据 4.2 节 D 栏[7.2.4.5]			
47. "Keep Away From Heat" label, if applicable as per 4.2, Column D [7.2.4.6]	☐	☐	☐
"远离热源"标题，如适用依据 4.2 节 D 栏[7.2.4.6]			
48. Any Hindrant marks and labels removed or obliterated [7.1.1; 7.2.1]	☐	☐	☐
除去或遮盖无关的标记及标题[7.1.1; 7.2.1]			
For Overpacks			
关于 Overpack			
49. Packaging use marks and hazard and handling labels, as required must be clearly visible or reproduced on the outside of the overpack [7.1.7.1; 7.1.7.2; 7.2.7]	☐	☐	☐
包装使用标记，危险性与搬运操作标题必须有可见，否则需复制在 Overpack 的外表面[7.1.7.1；7.1.7.2；7.2.7]			
50. The word "Overpack" marked if marks and labels are not visible on packages within the overpack [7.1.7.1]	☐	☐	☐
如果 Overpack 内的包装件的标记，标题不可见，标题"Overpack"字样[7.1.7.1]			
51. If more than one overpack is used, identification marks shown and total quantity of dangerous goods [7.1.7.3]	☐	☐	☐
当安装的 Overpack 超过一个时，可能标记和危险品的总量[7.1.7.3]			
GENERAL			
一般情况			
52. State and Operator variations complied with [2.8]	☐	☐	☐
国家及承运人差异的符合[2.8]			
53. Cargo Aircraft Only shipments, a cargo aircraft operates on all sectors	☐	☐	☐
仅限货机的货物，所有航段均由货机运输			

Comments 意见: _____

_____

Checked by 检查人: _____

Place 地点: _____ Signature 签字: _____

Date 日期: _____ Time 时间: _____

*IF ANY BOX IS CHECKED "NO", DO NOT ACCEPT THE SHIPMENT AND GIVE A DUPLICATE COPY OF THIS COMPLETED FORM TO THE SHIPPER

"如果任何一项检查为"否"，则不得接受该货物，并将一份填写好的检查表的副本交给托运人。

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Figure 7-8:Dangerous goods checklist for radioactive shipment

DANGEROUS GOODS CHECKLIST FOR A RADIOACTIVE SHIPMENT

☢ 放射性货物收运检查单

The recommended checklist appearing on the following pages is intended to verify shipments at origin. Copies of the checklist can be obtained from: Website: http://www.iata.org/ps/publications/publ.htm?type=publications

To be used prior to/for a shipment before all items have been checked. In the following information cannot be each entry?

下列检查表的设计意图用于验证始发地货物。检查前请在所有项目都已检查。在下列检查表中，每个条目都必须填写信息。

网址：http://www.iata.org/ps/publications/publ.htm?type=publications

在所有项目检查之前不得收运或装载货运货物。下列检查表的设计意图用于验证

SHIPPER'S DECLARATION FOR DANGEROUS GOODS (SGD)

托运人危险品申报单(SGD)

Air Waybill No.: 航空运单号:	Origin: 始发地:	Destination: 目的地:

	YES 是	NO 否	N/A 不适用
1. Text applies in English and in the IATA format including the air certification statement. This question may be indicated as non-applicable "N/A" only when the Shipper's Declaration data is submitted electronically [10.8.1.2, 10.8.1.4, 8.1.1, 10.8.3.12.2]	☐	☐	☐
文本按英文和IATA格式填写并包括空运证书声明。只有当托运人申报单以电子方式提交时，此问题可以指示为不适用"N/A"。[10.8.1.2, 10.8.1.4，8.1.1，10.8.3.12.2]			
2. Full name and address of Shipper and Consignee [10.8.3.1, 10.8.3.2]	☐	☐	
托运人及收货人姓名和地址全称[10.8.3.1，10.8.3.2]			
3. If the Air Waybill number is not shown, enter N. [10.8.3.3]	☐		☐
如未显示运单号，填上[10.8.3.3]			
4. The number of pages shown. This question may be indicated as not applicable "N/A" only when the Shipper's Declaration data is submitted electronically [10.8.3.4]	☐	☐	☐
页数，只有当托运人申报单以电子方式提交时，此问题可以指示为不适用"N/A"。[10.8.3.4]			
5. The non-applicable Aircraft Type deleted or not shown [10.8.1.6.2, 10.8.3.5]	☐	☐	
删除或不显示不适用的机型[10.8.1.6.2, 10.8.3.5]			
6. Full name of Airport or City of Departure or Destination is not shown, enter X. [10.8.3.6 and Table 10.8.3.7]	☐		
如无起飞/目的地机场或城市全称，填上[10.8.3.6 和 10.8.3.7]			
7. The word "Non-Radioactive" deleted or not shown [10.8.1.6.2, 10.8.3.8]	☐	☐	
删除或不显示"非放射性"字样[10.8.1.6.1，10.8.3.8]			
Identification			
鉴别			
8. UN number preceded by prefix "UN" [10.8.3.9.1, Step 1]	☐	☐	
UN编号，编号前应加以 UN 字样[10.8.3.9.1，步骤 1]			
9. Proper Shipping Name and, where Special Provision A34 applies, the supplementary information in brackets [10.8.3.9.1, Step 2]	☐	☐	
运输专用名称并当适用时，在括号中加入特别规定 A34 要求的补充信息。[10.8.3.9.1，步骤 2]			
10. Class 7 [10.8.3.9.1, Step 3]	☐	☐	
第 7 类[10.8.3.9.1，步骤 3]			
11. Subsidiary hazard, in brackets, immediately following Class [10.8.3.9.1, Steps] and Packing Group if required for Subsidiary hazard [10.8.3.9.1, Step 3]	☐	☐	☐
次要危险性在括号内紧跟于类别[10.8.3.9.1，步骤 4]，当次要危险性时包装等级，如适用[10.8.3.9.1，步骤 3]			
Quantity and Type of Packing			
包装数量及类型			
12. Name or Symbol of Radionuclide(s) [10.8.3.9.2, Step 9 (a)]	☐	☐	
放射性核素名称或符号[10.8.3.9.2，步骤 9(a)]			
13. A description of the physical and chemical form if in other form [10.8.3.9.2, Step 9 (b)]	☐	☐	☐
对于其他形式，物理和化学形态描述[10.8.3.9.2，步骤 9(b)]			
14. "Special Form" (not required for UN 3332 or UN 3333) or low dispersible material [10.8.3.9.2, Step 9 (c)]	☐	☐	☐
"Special Form" (UN 3332 或 UN 3333 不需要) 或 "Low dispersible material" 字样 [10.8.3.9.2，步骤 9 (c)]			
15. The number and type of packages and the activity in becquerel or multiples thereof in each package. For fissile material the total weight in grams or kilograms of fissile material may be shown in place of activity [10.8.3.9.2, Step 7]	☐	☐	
包装件数量和类型，及每个包装件的活度值，以 Bq 或其倍数表示。对于裂变物质，可以以克或 kg 或 kg 代替活度值 [10.8.3.9.2，步骤 7]			
16. For different radioactive radionuclides, the activity of each radionuclide and the word "All" inserted in one [type of package] [10.8.3.9.2, Step 7]	☐	☐	☐
不同的放射性核素，注明每一核素的活度和应插入及 "All packed in one [type of package]" 的字样 [10.8.3.9.2，步骤 7]			

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	YES 是	NO* 否	N/A 不适用
17. Activity within limits for Type A packages [Table 10.2.A], Type B, or Type C (see attached competent authority certificate)	☐	☐	☐
A 型包装件 [表 10.3.A]，B 型或 C 型包装件（请见主管当局证书）活动是否在允许的限值内			
18. Words "Overpack Used" shown on the DGD [10.8.3.5.2, Step 8]	☐	☐	☐
DGD 中注明 "Overpack Used" 字样 [10.8.3.5.2，步骤 8]			
Packing instructions			
包装说明			
19. Category of package(s) and overpack if applicable [10.5.15.1 (a), 10.8.3.5.3, Step 9 (a) and Table 10.3.C]	☐	☐	
包装件或 Overpack 的运输类别（如适用）[10.5.15.1 (a)，10.8.3.5.3，步骤 9 (a) 和表 10.3.C]			
20. Transport index and dimensions (preferably in sequence Length x Width x Height) for Category II and Category III only [10.8.3.5.3, Step 9 (b) and (c)]	☐	☐	☐
对于 II 级或III级，包装件的运输指数和尺寸（按顺序=长×宽×高的最好为好）[10.8.3.5.3，步骤 9 (b) 和 (c)]			
21. For Radio Material the Criticality Safety Index (with, in addition and if applicable", reference to paragraphs 10.5.7.2.8, 7.3 (a) to (c) or [10.5.7.2.8, 7.4 (a) or the words "Fissile Excepted" [10.8.3.5.3, Step 9 (d)]	☐	☐	☐
放射性物质，注明临界安全指数（如不适用则填 0），若多正 10.5.7.2.8, 7.3 (a) 至 (c) 或 10.5.7.2.8, 7.4 (a)，或注明 "Fissile Excepted" 字样，"Fissile Excepted" [10.8.3.5.3，步骤 9]			
Authorizations			
批准			
22. Identification mark(s) shown and a copy of the document in English attached to DGD for the following [10.5.7.2.3, 10.8.3.5.4, Step 10, 10.8.7]			
对于下列情况，显示识别标记并随附 DGD 的一份英文文件 [10.5.7.2.3，10.8.3.5.4，步骤 10，10.8.7]			
22.1—Special Form approval certificate	☐	☐	☐
—特殊形式批准证书			
22.2—Type B package design approval certificate	☐	☐	☐
—B 型包装件设计批准证书			
22.3—Other approval certificates as required	☐	☐	☐
—其他要求的批准证书			
23. For radionuclides not listed in 10.3.A, the type of radiation and use of table 10.3.B is witnessed [10.8.3.2.2; 10.8.3.5.2; 10.8.3.5.4, Step 13]			
对于未列入 10.3.A 中的核素，证明按照表格 10.3.B 对 10.8.3.2.2; 10.8.3.5.2; 10.8.3.5.4，步骤 13			
24. Additional Handling Information [10.8.3.11]	☐	☐	☐
附加操作细则 [10.8.3.11]			
25. Name of Signatory and Date indicated [10.8.3.13 (c) and 10.8.3.14], and Signature of Shipper [10.8.3.13]	☐	☐	
签署者姓名和日期 [10.8.3.13 (c) 和 10.8.3.14]，及托运人签字 [10.8.3.13]			
26. Amendment or alteration signed by Shipper [10.8.1.7]	☐	☐	☐
经托运人签字的修订或更改 [10.8.1.7]			
AIR WAYBILL—AIRCL IN DANGEROUS GOODS			
航空货运单—操作性危险			
27. The statement "Dangerous goods as per accepted Shipper's Declaration" or "Dangerous Goods as per associated DGD" [10.8.8.1 (a)]	☐	☐	
注明件 包括打印 "Dangerous Goods as per accepted Shipper's Declaration" 或 "Dangerous Goods as per associated DGD" [10.8.8.1 (a)]			
28. "Cargo Aircraft Only" or CAO, if applicable [10.8.8.1 (b)]	☐	☐	☐
"Cargo Aircraft Only" 或 "CAO" 字样，若适用 [10.8.8.1 (b)]			
29. Where non-dangerous goods are included, the number of pieces of dangerous goods shown [10.8.8.2]	☐	☐	☐
包含非危险品时，标明危险品件数 [10.8.8.2]			
PACKAGE(S) AND OVERPACKS			
包装件和 Overpack			
30. Same number and type of packagings and overpacks delivered as shown on DGD, and are in proper condition for carriage [9.1.2(b) 4.1.1.2 至 4]	☐	☐	
所交货件及 Overpack 的数量及类型与托运人申报单所标注相符相同 [9.1.2(b) 4.1.1.2 至 4]			
31. Unknown transportation test [10.6.2.4.1.2]	☐	☐	☐
运输检查结果未知 [10.6.2.4.1.2]			
Marks			
标签			
32. UN number preceded by prefix [10.7.1.2.1]	☐	☐	
以 UN 前缀开头的 UN 编号 [10.7.1.2.1]			
33. The Proper Shipping Name and where Special Provision A7 is applies, the supplementary information in brackets [10.7.1.2.1]	☐	☐	
运输专用名称并在适用时，在括号中加入特别规定 A7 要求的补充信息。[10.7.1.2.1]			

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	YES 是	NO 否	N/A 不适用
34. The full name and address of the Shipper and Consignee [10.7.1.3.1] 托运人和收货人的全名及地址[10.7.1.3.1]	☐	☐	
35. The permissible gross weight if the gross weight of the package exceeds 50 kg [10.7.1.3.1] 在包装件的毛重超过 50kg 时，最高允许的毛重（Permissible gross weight）[10.7.1.3.1]	☐	☐	☐
36. Type A packages, marked as per 10.7.1.3.4 A 型包装件，根据 10.7.1.3.4 标记	☐	☐	☐
37. Type B packages, marked as per 10.7.1.3.5 B 型包装件，根据 10.7.1.3.5 标记	☐	☐	☐
38. Type C packages, Industrial Packages and packages containing Fissile material marked as per 10.7.1.3.6, 10.7.1.3.7 or 10.7.1.3.8 C 型包装件，工业包装和含易裂变物质的包装件，分别根据 10.7.1.3.6，10.7.1.3.7 或 10.7.1.3.8 标记	☐	☐	☐
Labelling **标签**			
39. Same category labels as per DGD properly affixed on two opposite sides of package. [10.7.4] 在包装件的相对两侧应 DGD 所有的同类别标签 [10.7.4]	☐	☐	
39.1—Symbol of radioactivity and/or UN/IMCO indicated as required. [10.7.3.3.1] —根据要求，标注放射性和/或 UN/IMCO [10.7.3.3.1]	☐	☐	
39.2—Activity in Bq (or multiples thereof). For Fissile material, the total mass in grams may be used instead [10.7.3.3.2] —活度，以 Bq 或其倍数计 表示。对于裂变物质，总质量以克计也可以 [10.7.3.3.2]	☐	☐	
39.3—For Category II & III, same TI as per DGD, round-it-up to one decimal place. [10.7.3.3.3] —对于 II 级、III 级，与 DGD 一致的运输指数 TI，并进位到小数点后一位 [10.7.3.3.3]	☐	☐	☐
40. Applicable label(s) identifying the subsidiary hazard [10.7.3.2; 10.7.4.3] 适用的次危险性标签[10.7.3.2; 10.7.4.3]	☐	☐	☐
41. Two "Cargo Aircraft Only" labels, if required, on the same surface near the hazard labels [10.7.4.2.4; 10.7.4.3; 10.7.4.4.1] 如适用，两个仅限货机标签，分别在邻近危险性标签的同一表面贴签。[10.7.4.2.4；10.7.4.3；10.7.4.4.1]	☐	☐	☐
42. For fissile materials, two correctly completed Criticality Safety Index (CSI) labels on the same surface as the hazard labels [10.7.3.3.4; 10.7.4.3.1] 对于裂变物质，标签两个正确填写了临界安全指数 (CSI) 的标签，与危险性标签在同一表面上 [10.7.3.3.4; 10.7.4.3.1]	☐	☐	☐
43. Any irrelevant marks and labels removed or obliterated [10.7.1.1; 10.7.2.1] 除去或覆盖无关的标记和标签 [10.7.1.1; 10.7.2.1]	☐	☐	
For Overpacks **关于 Overpack**			
44. Package use marks and labels clearly visible or reproduced on the outside of the overpack [10.7.1.6.1; 10.7.4.4] 包装件使用标记和标签应清晰可见或复制在 Overpack 的外面 [10.7.1.6.1; 10.7.4.4]	☐	☐	☐
45. The word "Overpack" marked if marks and labels are not visible on packages within the overpack [10.7.1.6.1] 如果 Overpack 内的包装件的标记、标签不可见，则标“Overpack”字样 [10.7.1.6.1]	☐	☐	☐
46. If more than one overpack is used, identification marks shown [10.7.1.6.2] 当应用 Overpack 超过一个时，显示识别标志 [10.7.1.6.2]	☐	☐	☐
47. Hazard labels reflect the content (s) and quantity of each individual radionuclide and the TI of the overpack [10.7.3.4] 危险性标签显示 Overpack 内各放射素、每个核素的活度以及运输指数 [10.7.3.4]	☐	☐	☐
GENERAL 一般情况			
48. State and Operator variations complied with [2.2] 符合国家和承运人的差异[2.2]	☐	☐	☐
49. Cargo Aircraft Only shipments, a cargo aircraft operates on all sectors 仅限货机的货物,所有航段均由货机运输	☐	☐	☐
50. Packages containing Carbon dioxide solid (dry ice), the marking, labelling and documentary requirements complied with [Packing Instruction 954; 7.1.4.1 (d); 7.2.3.5.1] 内装固体二氧化碳（干冰）的包装件，其标记和标签的要求 [包装说明 954; 7.1.4.1 (d); 7.2.3.5.1]	☐	☐	☐

Comments 意见: _____

Checked by 检查人: _____

Place 地点: _____ Signature 签字: _____

Date 日期: _____ Time 时间: _____

"IF ANY BOX IS CHECKED "NO", DO NOT ACCEPT THE SHIPMENT AND GIVE A DUPLICATE COPY OF THIS COMPLETED FORM TO THE SHIPPER.
"如果任何一项检查为"否"，则拒不接受运送货物，并向一份完成的检查表副本交给托运人。

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Figure 7-9:Acceptance checklist for dry ice

ACCEPTANCE CHECKLIST FOR DRY ICE (Carbon Dioxide, solid)
(For use when a Shipper's Declaration for Dangerous Goods is not required)

干冰(固体二氧化碳)收运检查单
(在不需要托运人危险品申报单时使用)

A checklist is required for all shipments of dangerous goods (9.1.2) to enable proper acceptance checks to be made. The following example checklist is provided to assist shippers and carriers with the acceptance of dry ice when packaged on its own or with non-dangerous goods.

Is the following information correct for each entry?

[illegible]

下列各项内容是否正确?

DOCUMENTATION

文件

AirWaybillNo.: 航空运单号:	Origin: 始发地:	Destination: 目的地:

	YES 是	NO 否	N/A 不适用
The "Nature and Quantity of Goods" box of the Air Waybill or an alternate transport documentation contains the following information [8.2.3] 在航空运单的"货物性质和数量"栏中应包含以下信息 [8.2.3]:			
1. "UN1845" "UN 1845"	[illegible]	[illegible]	
2. The words "Carbon dioxide, solid" or "Dry ice" "固体二氧化碳" 或 "干冰" 的字样	[illegible]	[illegible]	
3. Number of packages (unless these are the only packages within the consignment) 包装件数量 (除非此票货物中仅有干冰包装件)	[illegible]	[illegible]	
4. The net weight of dry ice in kilograms 以千克为单位的干冰的净重	[illegible]	[illegible]	
State and Operator Variations **国家和经营人差异**			
5. State and operator variations complied with [2.8] 符合国家和承运人差异 [2.8]	[illegible]	[illegible]	[illegible]
Note: The following questions do not apply where the dry ice, or packages containing dry ice, is offered in a U.S.D. 注: 下列问题不适用于干冰或含干冰的包装件在U.S.D 中交运.			
Quantity **数量**			
6. The quantity of dry ice per package is 200 kg or less [4.2] 每个包装件中的干冰在 200 千克及以下 [4.2]	[illegible]	[illegible]	
PACKAGES AND OVERPACKS **包装件及 Overpack**			
7. Same number of packages as shown on the Air Waybill 包装件数与总运单所示相同	[illegible]	[illegible]	
8. Packages free from damage and leakage 包装件无破损和泄露	[illegible]	[illegible]	
9. The packaging conforms with Packing Instruction 954 and the package is vented to permit the release of gas 包装件应符合包装指南 954，且包装件相以允许气体释放	[illegible]	[illegible]	
Marks & Labels **明显有效图**			
10. "UN 1845" marked [7.1.4.1 (a)] 标记 "UN1845" [7.1.4.1 (a)]	[illegible]	[illegible]	
11. The words "Carbon dioxide, solid" or "Dryice" [7.1.4.1 (a)] "固体二氧化碳" 或 "干冰" 的字样 [7.1.4.1(a)]	[illegible]	[illegible]	
12. Full name and address of the shipper and consignee [7.1.4.1 (b)] 托运人和收货人的全部和地址 [7.1.4.1(b)]	[illegible]	[illegible]	
Note: The name and address of the shipper and consignee marked on the package may differ from that on the AWB. 注: 包装件上显示的托运人及收货人名称及地址可以与国际单上的不一致			
13. The net weight of dry ice within each package [7.1.4.1 (c)] 每个包装件中干冰的净重 [7.1.4.1 (c)]	[illegible]	[illegible]	
14. Class II label properly affixed [7.2.3.9, 7.2.8] 正确粘贴第 9 类标签 [7.2.3.9, 7.2.8]	[illegible]	[illegible]	

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	YES 是	NO* 否	N/A 不适用
15. Irrelevant marks and labels removed or obliterated [7.1.1 (b); 7.2.1 (a)] 移去或覆盖无关的标记和标签 [7.1.1 (b); 7.2.1 (a)]	☐	☐	☐

注：标记与标签的要求不适用于含有干冰的豁免包装(UN3373)。

For Overpacks

关于 Overpack

16. Packaging Use marks and hazard and handling labels, as required must be clearly visible or reproduced on the outside of the overpack [7.1.7.1, 7.2.7] 包装件使用标记、危险性标签及操作标签必须清晰可见或复制在 Overpack 的外表面 [7.1.7.1, 7.2.7]	☐	☐	☐
17. The word "Overpack" marked if marks and labels are not visible on packages within the overpack [7.1.7.1] 如果 Overpack 内的包装件的标记、标签不可见，标有 "Overpack" 字样 [7.1.7.1]	☐	☐	☐
18. The total net weight of carbon dioxide, solid (dry ice) in the overpack [7.1.7.1.1] 固体二氧化碳（干冰）的总净重标注在 Overpack 上 [7.1.7.1.1]	☐	☐	☐

注：标记与标签的要求不适用于含有干冰的豁免包装(UN3373)。

Comments 意见：_____

_____

Checked by 检查人：_____

Place 地点：_____ Signature 签字：_____

Date 日期：_____ Time 时间：_____

*IF ANY BOX IS CHECKED "NO", DO NOT ACCEPT THE SHIPMENT AND GIVE A DUPLICATE COPY OF THIS COMPLETED FORM TO THE SHIPPER.
*如果任何一项检查为"否"，则拒不接收运送货物，并将一份填写好的检查单的副本交给托运人。

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7.5 Special load notification to captain

The Special Cargo Captain’s Notification is a document used to provide information to the captain. When transporting dangerous goods, ground handling personnel must complete the Special Cargo Captain’s Notification to ensure that written information (handwritten or printed) regarding dangerous goods is provided to the captain in command of the aircraft carrying such goods as early as practicable before flight departure, but in no case later than the moment the aircraft moves under its own power, unless otherwise required by regulations. The captain must sign the Special Cargo Captain’s Notification to acknowledge receipt of the information and, based on the details provided in the notification, take emergency response actions in the event of a dangerous goods aviation incident/accident, as illustrated in Figures 7-10.

7.5.1 Completion of common item of SPECIAL LOAD NOTIFICATION TO CAPTAIN

7.5.1.1 Station of Loading: Fill in the name of the unloading station and use the three-word airport code specified by IATA.

7.5.1.2 Flight Number:Enter flight number of the aircraft shipping special cargo.

7.5.1.3 Date:Enter departure date.

7.5.1.4 Aircraft Registration:Enter the number of the aircraft shipping special cargo.

7.5.1.5 Prepared By:Signature of person who complete the notification.

7.5.1.6 Checked By:Signature of loader. Signature of the person performing the check.

7.5.1.7 Loading Supervisor's Signature: Signature of the supervisor responsible for aircraft loading.

7.5.1.8 Position Moved By: Signature of the personnel who changed the loading position of the dangerous goods.

7.5.1.9 Captain's Signature: Signature of the captain operating the flight.

7.5.1.10 Signature of the handover captain: Signature of the incoming captain.

7.5.1.11 A declaration by personnel responsible for aircraft loading, attesting that

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all packages or unit load devices (ULD) loaded onto the aircraft show no signs of damage or leakage.

7.5.2 Completion of Dangerous Goods Item of SPECIAL LOAD NOTIFICATION TO CAPTAIN

7.5.2.1 Station of unloading:Enter station of unloading, using airport three letter code regulated by IATA.

7.5.2.2 Air Waybill Number:Enter Air Waybill Number.

7.5.2.3 Proper Shipping Name: Fill in the special name for dangerous goods transportation.

Note: If the technical name is supplemented with brackets after the special transport name on the declaration form, the technical name should not be reflected in the captain notice. When transporting a chemical oxygen generator installed in respiratory protection (PBE) as special regulations A144, Must be in the transport special name " Oxygen generator, chemical (Chemical oxygen generator) "with the following statement" Air Crew Protective Breathing Equipment (smoke hood) in accordance with Special Provision A144. (Unit respiratory protection device (smoke mask) per special regulations A144 "..

7.5.2.4 UN or ID Number:Enter UN or ID Number of dangerous goods.

7.5.2.5 Class or Division, and Subsidiary Risk(s) corresponding to the hazard label(s) used:Enter the dangerous goods class or division.

For Class 1 Explosives, specify the Compatibility Group.

7.5.2.6 Packing Group:Enter the Packing Group of dangerous goods.

7.5.2.7 Number of Packages:Enter the Number of Packages of dangerous goods.

7.5.2.8 Net Quantity or Transport Index Per Package:Enter the net quantity of dangerous goods in each package (including the unit of measurement if applicable). If the dangerous goods are radioactive material, enter

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Transport Index Per Package. For ID8000-consumable, use the average gross weight of each piece of cargo; For dry ice, only show the total amount of each cargo hold.

7.5.2.9 Radioactive Material Category:Enter the packing Group and label color for radioactive material.

7.5.2.10 Emergency Code:Enter dangerous goods emergency response code in column N of list in section 4.2 of *DGR*.

7.5.2.11 CAO:If the dangerous goods packing can be only transported by cargo aircraft, mark "√" in this column.

7.5.2.12 Loaded ULD Number:Enter the Loaded ULD Number of dangerous goods.

7.5.2.13 Loaded Position:Enter the Loaded Position of dangerous goods.

7.5.2.14 Moved To Position:If dangerous goods position is changed in transit station, the moved to position should be filled in this column.

7.5.2.15 If for Exempted Transport of Goods/Government Authorization No.: State the details of the exemption under which the dangerous goods are transported in a particular country (if applicable).

7.5.2.16 For non-radioactive materials: The number of packages, exact loading position, and for each package, the net quantity as required or the gross mass if applicable, EXCEPT for:

1) For UN 1845, Carbon dioxide, solid (Dry ice): Optionally provide only the UN number, Proper Shipping Name, Class, and total quantity loaded in each cargo compartment of the aircraft. This information needs to be provided to the airport of unloading for the package(s).

2) For UN 3480 (Lithium ion batteries), UN 3090 (Lithium metal batteries), and UN 3551 (Sodium ion batteries): Optionally provide only the UN number, Proper Shipping Name, Class, total quantity per loading

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position, airport(s) of unloading for the package(s), and whether Cargo Aircraft Only (CAO) is required. As the company currently only operates passenger aircraft and no cargo aircraft, it does not carry UN 3480, UN 3090, or UN 3551. If transported under government exemption, all requirements of sections 7.5.1 and 7.5.2 of this manual must be met.

7.5.3 General Requirements

7.5.3.1 The Notification to Captain must be completed on a dedicated form; other forms such as the Air Waybill, Shipper's Declaration for Dangerous Goods, or invoice cannot be used as substitutes.

7.5.3.2 Approval of the agency of special cargo captain notice (dangerous goods) recognition:

If need to use the approval of the agency of special cargo captain notice (dangerous goods) recognition,it’s need to preliminary evaluation by the Ground service department cargo management center whether meet the operation requirements or not,and also confirm with the agency unit that the special cargo captain notice (dangerous goods) is it consistent with Section 7.5 of this manual,After the evaluation is passed, it is submitted to the operation standard department to review the preparation of the special cargo Captain's notice (dangerous goods) column of the agent unit, and it is approved after meeting the company's transportation standards.

7.5.3.3 The Notification to Captain must be signed by the personnel responsible for loading the aircraft, confirming that the loaded cargo shows no signs of damage or leakage and that the unit load device shows no signs of leakage. Upon receipt of the Notification to Captain, the captain must sign to acknowledge receipt.

7.5.3.4 The Notification to Captain must be readily accessible to the captain during flight. The ground department must retain a clear copy of the

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Notification to Captain, which must indicate or be accompanied by a notation that the captain has signed for it.

7.5.3.5 The Notification to Captain should be in English, in addition to the language required by the state of the operator.

7.5.3.6 Considering that in an emergency, if the content of the Notification to Captain is too extensive for transmission via radiotelephone during flight, a summary of the notification should also be provided. This summary must include at least the quantity of dangerous goods in each cargo compartment, along with their Class or Division.

7.5.4 Sign-off and Retention

7.5.4.1 SPECIAL LOAD NOTIFICATION TO CAPTAIN has three copies. The distribution is as follows:

One copy forwarded to destination with air waybill

One submitted to captain

One saved at the station of departure

7.5.4.2 The retention term is 36 months

7.5.5 *SPECIAL LOAD NOTIFICATION TO CAPTAIN* sample is as follows:

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SPECIAL LOAD NOTIFICATION TO CAPTAIN (NOTOC)

装机站 Station of Loading	航班号 Flight No.	离港日期 Date	飞机注册号 Aircraft Registration No.	填表人签字 Prepared by	检查人签字 Checked by

危险品 DANGEROUS GOODS:	已装在本架飞机上的危险品的包装件无任何破损或泄露迹象 There is no evidence that any damaged or leaking packages containing dangerous goods have been loaded on the aircraft

卸机站 Station of Unloading	货运单号码 AWB No.	若为豁免运输的货物/政府批准文号 government authorization No. if the goods to be transported exemptly	运输专用名称 Proper Shipping Name	类别或项别(次要危险性) 第1类配装组 Class or Div.(Sub Hazard) for 1 Comp. Grp.	UN或ID编号 UN or ID No.	包装件数 No. of PKGS	净重或毛重 放射性物质运输指数及包装尺寸 Net quantity or gross weight if applicable per package Transport Index of radioactive material and demension of the package	放射性物质级别 Radioactive Material Category.	包装等级 Packing Group	紧急处置代码 Emergency response drill code	仅限货机) CAO	针对锂电池货物的包装说明(如PI967第II部分) Packing instructions for lithium battery cargoes (e.g. PI967 Part II)	装载位置			配装组及国际航协代号 Comp. Grp and IMP Code
													集装器识别代号 ULD ID No.	装机位置 Position	变更后位置 Moved to Position	
																详见背面 See

背面 See Back

监装负责人签字 Loading Supervisor's Signature	装载位置变更人签字 Position Moved by	机长签字 Captain's Signature	接班机长签字 Signature of the handover captain

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(Back)

instructions:① ◄► minimum distance regulated by DGR. ②◄|►no loading in proximity ③◄|►[1] cannot be loaded in one cargo compartment unless loaded in non-proximate container or sealed container④◄|►[2] cannot be loaded in one cargo compartment ⑤◄|►[3] 隔离 separation requirements are only apply to testing animal and non-testing animal and animals who are natural enemies. Animals in oestrum cannot be loaded in one cargo compartment.

Class or Div. Comp Group	Cargo IMP Code	RCX 1.3C	RGX 1.3G	RXB 1.4B	RXC 1.4C	RXD 1.4D	RXE 1.4E	RXG 1.4G	RXS 1.4S	RNG RFG RPG 2	RCL 2	RFL 3	RFS RSC RFW 4	ROX ROP 5	RPB RIS 6	RRY RRW 7	RCM 8	ICE 9	FIL	HUM	EAT	HEG	AVI
1.3C	RCX			◄| |►						◄| |►	◄| |►	◄| |►	◄| |►	◄| |►			◄| |►					
1.3G	RGX			◄| |►						◄| |►	◄| |►	◄| |►	◄| |►	◄| |►			◄| |►					
1.4B	RXB	◄| |►	◄| |►		◄| |►	◄| |►	◄| |►	◄| |►		◄| |►	◄| |►	◄| |►	◄| |►	◄| |►			◄| |►					
1.4C	RXC			◄| |►						◄| |►	◄| |►	◄| |►	◄| |►	◄| |►			◄| |►					
1.4D	RXD			◄| |►						◄| |►	◄| |►	◄| |►	◄| |►	◄| |►			◄| |►					
1.4E	RXE			◄| |►						◄| |►	◄| |►	◄| |►	◄| |►	◄| |►			◄| |►					
1.4G	RXG			◄| |►						◄| |►	◄| |►	◄| |►	◄| |►	◄| |►			◄| |►					
1.4S	RXS																◄| |►							
2	RFG/RNG/RPG	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►														
2	RCL	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►													◄| |►	◄| |►
3	RFL	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►					◄| |►									
4	RSC/RFW/RFS	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►					◄| |►			◄| |►						
5	ROX/RCP	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►				◄| |►	◄| |►				◄| |►						
6	RPB/RIS																				◄| |►[1]		◄| |►[1]
7	RRY/RRW																		◄►			◄►	◄►
8	RCM	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►				◄| |►	◄| |►									
9	RSB																					◄| |►	◄| |►
9	RBI	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►		◄| |►	◄| |►	◄| |►									
9	RBM	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►	◄| |►		◄| |►	◄| |►	◄| |►									
	MAG																						
	ICE																				◄| |►		◄| |►
	RMD														◄| |►[1]					◄| |►			◄| |►
	HEG										◄| |►							◄| |►					
	AVI										◄| |►				◄| |►[1]			◄| |►		◄| |►	◄| |►		◄| |►[2]

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7.6 Retention Period of Documentations

7.6.1 After the completion of a flight carrying dangerous goods, all relevant documents pertaining to the air transport of dangerous goods must be retained for a minimum of 24 months. This is with the exception of the air waybill and the special load notification to the captain, which must be preserved for at least 36 months. Each unit saves its own documentations. The documentations compulsorily saved include: Shipper's Declaration for Dangerous Goods, Acceptance Checklist and Special Load Notification to Captain and so on. If all these documentations are saved by electrical system or computer, they must have a standby copy which are easy to print and can accept inspections from CAAC at any moment.

7.6.2 Dangerous goods transport document maintenance responsibilities

(1) Dangerous goods of aviation materials

Document name	Save the responsible unit	Monitoring unit
The Shipper's dangerous goods declaration form	purchase department	Local service management department
Air cargo sheet	purchase department	
Air Report (if any)	purchase department	
Dangerous goods collection and transportation inspection list	Local service management department	
Special cargo captain notice	Local service management department	

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(2) Commercial dangerous goods

Document name	Save the responsible unit	Monitoring unit
The Shipper's dangerous goods declaration form	Local service management department	Local service management department
Air cargo sheet	Local service management department	
Air Report (if any)	Local service management department	
Dangerous goods collection and transportation inspection list	Local service management department	
Special cargo captain notice	Local service management department	

(3) special luggage involving dangerous goods

Document name	Save the responsible unit	Monitoring unit
Special baggage captain notice	Local service management department	Local service management department

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7.6.3 Within 24 hours after the end of the flight operation, the flight crew shall upload the special cargo / baggage captain notice in EFB, and the local service management department shall regularly download and retain the special cargo captain notice in the relevant flight upload data involving the transport of dangerous goods. If the unit does not upload in time, the local service management department shall notify the team, and the team shall notify the corresponding unit to upload.

7.6.4 The uploaded photos of the dangerous goods transport documents uploaded by each responsible unit must be clearly visible and easy to print. In addition to the online documents, each responsible unit should make a backup of the documents so as to accept the inspection of the bureau at any time. The local service management department regularly monitors the leaflet reporting and filling in of each unit in the shared documents.

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8 Radioactive Material

8.1 General Regulations

8.1.1 General

Radioactive materials are substances which spontaneously and continuously emit ionizing radiation, which can be harmful to the health of humans and animals and can affect photographic or X-Ray film. This radiation cannot be detected by any of the human senses (sight, smell, hearing, touch, or taste), but can be detected and measured with suitable instruments.

Each transport mode has special regulations for the safe transport of radioactive material. After negotiating with special institution of UN and members of UN, International Atomic Energy Agency, IAEA for short, establishes *Based on the Regulations for the Safe Transport of Radioactive Materials (2018 edition), explanatory materials refer to the IAEA Regulations for the Safe Transport of Radioactive Materials - Advisory Information (2018 edition), the International Atomic Energy Agency Safety Standards Series NO.SSR-26(Revision 1).*, on which both domestic and international regulations for transport of radioactive material in various modes are based.

8.1.2 Radiation Protection Program for Workers

The transport of radioactive material must be subject to a radiation protection program in order to protect persons, property and the environment from the effects of radiation during the transport of radioactive material by air. This protection is achieved by requiring:

8.1.2.1 Containment of the radioactive contents;

8.1.2.2 Control of external radiation levels;

8.1.2.3 Prevent from reaching the critical value

8.1.2.4 Prevention of damage by heat.

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8.1.2.5 Protection and safety must be optimized in order that the magnitude of individual doses, the number of persons exposed, and the likelihood of incurring exposure must be kept as low as reasonably achievable, economic and social factors being taken into account within the restriction that the doses to individuals subject to dose constraints.

8.1.2.6 Workers must receive appropriate training concerning radiation protection including the precautions to be observed in order to restrict their occupational exposure and the exposure of other persons who might be affected by their actions.

8.1.2.7 In case of operations violating rules due to human factors, no matter the emergency has happened or is happening, the shipper and related competent authorities must be informed separately of the causes of the violation, the adopted measures and precautions as soon as possible.

8.1.3 All substances are made up of one or more chemical elements, among which each of them is represented by internationally acknowledged chemical symbols. Atoms of chemical elements may exist in slightly different variations, but in no way can the chemical nature or physical state of the chemical element can be altered. Any special radioactive substance is made up of several radioactive atoms at a certain time. Each single radioactive atom is carrying through disintegration and spallation process at random and spontaneously at a certain time. This process is established by the radioactivity that each of such atoms emit. The atom then disintegrates into another configuration. This special radioactivity includes one or more various rays (α、β、γ、χ radials and neutron), or radioactivity emitted by special energies of special radioactive nuclides. In most cases, the atom disintegrates into non-radioactive atom of the same or anther chemical element. However, in some case, it disintegrates into new radioactive offspring nuclides.

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8.1.4 Radioactive Activity

The physical measurement of radioactivity degree is called activity of the radioactive substance, which describes number of atomic nucleus of unsteady nuclide in a given sample that has disintegrated during a time unit. It is also said that radioactive activity is times of disintegration for a certain radioactive substance during a time unit. The larger the number of nucleon under disintegration is, the larger the corresponding particles emitted, then the larger the radioactive activity of the substance will be, namely the stronger the radioactivity is.

8.1.5 Radioactive Specific Activity

8.1.5.1 Radioactive Specific Activity is the radioactive activity of radioactive substance in a quantity unit (or volume unit). It is also called specific radioactive or radioactive specific degree with the measuring unit Bq/kg. Radioactive specific activity can be used to accurately indicate the radioactivity magnitude of a certain substance. Therefore, it is used for measuring whether a certain substance should be listed as radioactive substance in various transport modes.

8.1.5.2 SI activity unit is Bq, which is defined as one atom spallation/per sec. Big units are also frequently used, such as KBq (1KBq=10^3Bq), MBq (1MBq=10^6Bq), GBq (1GBq=10^9Bq) and TBq (1TBq=10^{12}Bq).Those units are standardized ones used in IATA DGR. Any article or substance with a radioactive specific activity larger than 70kBq/ kg(0.002μCi/g)is defined as radioactive substance.

8.1.5.3 Activity of radioactive substance is, in essence, the measurement of its quantity. The remaining activity decreases with the disintegration of each radioactive atom. The measurement of continuous disintegration is a half-disintegration period defined as the period of time used for a specific radioactive material disintegrating to half of its initial activity. Continuous

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half-disintegration period reduces the strength of radioactivity to 1/2, 1/4, 1/8 and so on of its initial strength.

8.1.6 Dose Equivalent and Dose Equivalent Rate

8.1.6.1 The physical measurement of the degree of human body being irradiated is dose equivalent. There are allowable working limitations for human body's dose equivalent internationally and domestically. For example, The average annual dose equivalent for radioactive working personnel mustn't exceed 20mSv and the public average dose equivalent mustn't exceed 2mSv. These limitations are derived form the accumulated dose year by year and can be used as hourly dose equivalent rate limitation corresponding to possible irradiation periods. Therefore, during transport process of radioactive materials, different hourly dose equivalent rates are applicable to different situations.

8.1.6.2 Dose equivalent in a time unit is called dose equivalent rate (also called radiation level). Obviously, the less the time is, the larger the dose equivalent will be and the higher the radioactive level of the substance will be. This indicates a higher radioactive hazard for the radioactive material. Therefore, we can see that radiation level is a parameter of great significance. During transport, radiation level is converted to Transport Index, abbreviated as TI) so as to determine the hazardous degree of radioactive materials. Transport Index is the maximum radiation value at a distance of one meter from radioactive cargo or its outer surface. It is a very important parameter for administering radioactive materials during transport.

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8.2 Transport Limitations

8.2.1 Radioactive material may only be transported under exemption conditions

The following radioactive materials may only be transported by air with the relevant national exemptions:

8.2.1.1 In vented type B(M) packages;

8.2.1.2 In packages which require external cooling by an ancillary cooling system;

8.2.1.3 In packages subject to operational controls during transport;

8.2.1.4 Explosive;

8.2.1.5 A pyrophoric liquid.

8.2.2 Radioactive Material in Air Mail

Provisions of the Universal Postal Union (UPU), the national postal authorities concerned, the *Technical Instructions* of ICAO and this manual allow the carriage of radioactive material in excepted packages, provided that the activity does not exceed one tenth of the relevant limit specified in Table 10.5.A in IATA *DGR*. The provisions relating to documentation (Subsection 10.8 in IATA *DGR*) do not apply to the transportation of such radioactive material.

8.2.3 Other Limitations

The following provisions of Chapter 2 of IATA *DGR* are also applicable in this Chapter:

8.2.3.1 Hidden Dangerous Goods;

8.2.3.2 Dangerous Goods Carried by Passengers or Crew;

8.2.3.3 Dangerous Goods in Operator's Property;

8.2.3.4 Dangerous Goods Permitted as Air Cargo;

8.2.3.5 Dangerous Goods in Excepted Quantities;

8.2.3.6 State and Operator Variations.

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8.3 Classification

8.3.1 Definition

Radioactive material means any material containing radionuclides where both the activity concentration and the total activity in the consignment exceed the values specified in 10.3.2 of *DGR*. In this manual, the following radioactive materials are not included in Class 7:

8.3.1.1 Radioactive material implanted or incorporated into a person or live animal for diagnosis or treatment;

8.3.1.2 Radioactive material in consumer products which have received regulatory approval, following their sale to the end user;

8.3.1.3 Natural material and ores containing naturally occurring radionuclides, which are either in their natural state, or have only been processed for purposes other than for extraction of the radionuclides, and not intended to be processed for use of these radionuclides, provided the activity concentration of the material does not exceed 10 times the values specified in Table 10.3.A of the *DGR* or 10 times the values calculated in accordance with 10.3.2.3 to 10.3.2.5;

8.3.1.4 Non-radioactive solid objects with radioactive substances present on any surfaces in quantities not in excess of the limit specified in the definition of contamination in Appendix A of IATA *DGR*.

8.3.2 Description

Radioactive materials are articles or substances, which spontaneously and continuously emit ionizing radiation, which can be harmful to the health of humans and animals and can affect photographic or X-Ray film. This radiation cannot be detected by any of the human senses (sight, smell, hearing, touch or taste), but it can be detected and measured with suitable instruments.

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8.3.3 Radioactive materials are grouped according to their form or characteristics. These include:

8.3.3.1 Special Form;

8.3.3.2 Low Specific Activity (LSA);

8.3.3.3 Surface Contaminated Object (SCO);

8.3.3.4 Fissile;

8.3.3.5 Low dispersible radioactive material;

8.3.3.6 Other form.

A radioactive material may meet the definition of one or more of the above.

8.3.4 Special Form Radioactive Material

8.3.4.1 Special Form radioactive material is either an indispersible solid radioactive material or a sealed capsule containing radioactive material. That is to say, radioactive material is constructed into an indispersible solid form or put into a sealed capsule. Then, this radioactive material is designed in a special form.

8.3.4.2 Special Form radioactive material must meet the following requirements: If it is in a sealed capsule, that capsule must be so constructed that it can only be opened by destroying it; The design for Special Form radioactive material must have at least one dimension not less than 5 mm; The Special Form design must have received unilateral approval.

8.3.4.3 Special Form radioactive material must be of such a nature or so designed that if it is subjected to the tests specified in 10.3.4.3 and 10.3.4.4 of IATA *DGR* it must meet the following requirements:

(a) It would not break or shatter under the impact, percussion or bending tests;

(b) It would not melt or disperse in the heat test ;

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(c) The activity in the water from the leaching tests above would not exceed 2KBq (50nCi); or

(d) Alternatively for sealed sources, the leakage rate for the volumetric leakage assessment test specified in ISO 9978:1992 "Radiation Protection—Sealed Radioactive Sources—Leak Test Methods", would not exceed the applicable acceptance threshold acceptable to the competent authority.

8.3.5 Low Specific Activity (LSA) Material

8.3.5.1 Radioactive material, which by its nature has a limited specific activity, or radioactive material for which limits of estimated average specific activity apply, is termed Low Specific Activity, or LSA material. External shielding material surrounding the LSA material must not be considered in determining the estimated average specific activity. LSA material is classified in one of three groups:

1) LSA-I;

2) LSA-II;

3) LSA-III.

8.3.5.2 LSA-I material is:

1) Uranium and thorium ores and concentrates of such ores, and other ores containing naturally occurring radionuclides which are intended to be processed for the use of these radionuclides;

2) Natural uranium, depleted uranium, natural thorium or their compounds or mixtures, providing they are unirradiated and in solid or liquid form;

3) Radioactive material, for which the A_2 value is unlimited, other than fissile material in quantities not excepted under 10.3.7.2 of IATA *DGR* ;

4) Other radioactive material in which the activity is distributed

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throughout and the estimated average specific activity does not exceed 30 times the values for activity concentration specified in 10.3.2 of IATA *DGR*, excluding fissile material in quantities not excepted under 10.3.7.2 in IATA *DGR*.

8.3.5.3 LSA-II material is:

1) Water with tritium concentration up to 0.8 TBq/L; or

2) Other material in which the activity is distributed throughout and the estimated average specific activity does not exceed $10^{-4}A_2/g$ for solids and gases, and $10^{-5}A_2/g$ for liquids.

8.3.5.4 LSA-III material is a solid (e.g. consolidated wastes, activated materials), excluding powders, in which:

1) The radioactive material is distributed throughout a solid or a collection of solid objects, or is essentially uniformly distributed in a solid compact binding agent (such as concrete, bitumen, ceramic, etc.);

2) The radioactive material is relatively insoluble, or it is intrinsically contained in a relatively insoluble matrix, so that, even under loss of packaging, the loss of radioactive material per package by leaching when placed in water for 7 days would not exceed 0.1 A_2; and

3) The estimated average specific activity of the solid, excluding any shielding material, does not exceed $2\times10^{-3}A_2/g$ e.g. consolidated wastes, activated materials.

8.3.6 Surface Contaminated Object (SCO)

8.3.6.1 Surface Contaminated Object (SCO) means a solid object which is not itself radioactive but which has radioactive material distributed on its surfaces. SCO is classified in one of two groups:

1) SCO-I;

2) SCO-II;

3) SCO-III.

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8.3.6.2 SCO-I Definition:

A solid object on which:

1) The non-fixed contamination on the accessible surface averaged over 300 cm^2 (or the surface area if less than 300 cm^2) does not exceed 4 Bq/ cm^2 (0.1 nCi/ cm^2) for beta and gamma emitters and low toxicity alpha emitters, or 0.4 Bq/ cm^2 (0.01 nCi/ cm^2) for all other alpha emitters; and

2) The fixed contamination on the accessible surface averaged over 300 cm^2 (or the surface area if less than 300 cm^2) does not exceed 40 kBq/ cm^2 (1 μCi/ cm^2) for beta and gamma emitters and low toxicity alpha emitters, or 4 kBq/ cm^2 (0.1 μCi/ cm^2) for all other alpha emitters; and

3) The non-fixed contamination plus the fixed contamination on the inaccessible surface averaged over 300 cm^2 (or the surface area if less than 300 cm^2) does not exceed 40 kBq/c cm^2 (1 μCi/ cm^2) for beta and gamma emitters and low toxicity alpha emitters, or 4 kBq/ cm^2 (0.1 μCi/ cm^2) for all other alpha emitters.

8.3.6.3 SCO-II Definition:

A solid object on which either the fixed or non-fixed contamination on the surface exceeds the applicable limited specified for SCO-I and on which:

1) The non-fixed contamination on the accessible surface averaged over 300 cm^2 (or the surface area if less than 300 cm^2) does not exceed 400 Bq/ cm^2 (10 nCi/ cm^2 for beta and gamma emitters and low toxicity alpha emitters, or 40 Bq/ cm^2 (1 nCi/ cm^2) for all other alpha emitters;

2) The fixed contamination on the accessible surface averaged over 300 cm^2 (or the surface area if less than 300 cm^2) does not exceed 800 kBq/cm2 (20 μCi/ cm^2) for beta and gamma emitters and low toxicity alpha emitters, or 80 kBq/ cm^2 (2 μCi/ cm^2) for all other alpha

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emitters; and

3) The non-fixed contamination plus the fixed contamination on the inaccessible surface averaged over 300 cm^2 (or the surface area if less than 300 cm^2) does not exceed 800 kBq/ cm^2 (20 μCi/ cm^2) for beta and gamma emitters and low toxicity alpha emitters, or 80 kBq/cm^2 (2 μCi/ cm^2) for all other alpha emitters.

8.3.6.4 SCO-III Definition:

A large solid object which,because of its size,cannot be transported in a type of package described in these Regulations.

Note:SCO-III material is forbidden in air transport.

8.3.7 Fissile Material

Uranium-233, Uranium-235, Plutonium-239, Plutonium-241 or any combination of these. Excepted from this definition is:

8.3.7.1 Natural uranium or depleted uranium which is unirradiated; and

8.3.7.2 Natural uranium or depleted uranium, which has been irradiated in thermal reactors only.

8.3.7.3 Material with fissile nuclides less than a total of 0.25g;

8.3.7.4 Any combination of A, B and/or C

8.3.8 Low Dispersible Radioactive Material

Low dispersible radioactive material means either a solid radioactive material or a solid radioactive material in a sealed capsule that has limited dispersibility and is not in powder form.

8.3.9 Other Form Radioactive Material

Other form radioactive material is radioactive material that does not meet the requirements of Special Form radioactive material as specified in 8.3.1 in this manual.

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8.4 Identification

8.4.1 Proper Shipping Name

Radioactive materials should use their proper shipping name during transportation. Any radioactive material should choose the most proper shipping name. These shipping names are as follows: (See 10.4.A of *DGR* for details)

Excepted Package

- UN2908, Radioactive material, excepted package, empty packaging
- UN2909, Radioactive material, excepted package, articles manufactured from depleted uranium
- UN2909,Radioactive material, excepted package, articles manufactured from natural thorium
- UN2909,Radioactive material, excepted package, articles manufactured from natural uranium
- UN2910, Radioactive material, excepted package, limited quantity of material
- UN2911, Radioactive material, excepted package, articles
- UN2911, Radioactive material, excepted package, instruments
- UN3507,Uranium hexafluoride,radioactive material, excepted package, less than 0.1 kg per package,non-fissile or fissile-excepted.

Low Specific Activity (LSA) Material

- UN2912, Radioactive material, low specific activity (LSA-I), non fissile or fissile-excepted
- UN3321, Radioactive material, low specific activity (LSA-Ⅱ), non fissile or fissile-excepted
- UN3322, Radioactive material, low specific activity (LSA-III)
- UN3324, Radioactive material, low specific activity (LSA-Ⅱ), fissile
- UN3325, Radioactive material, low specific activity (LSA-III), fissile

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Surface Contaminated Objects (SCO)

■ UN2913, Radioactive material, surface contaminated objects(SCO-Ⅰ), non fissile or fissile-excepted

■ UN2913,Radioactive material, surface contaminated objects (SCO-II),non fissile or fissile-excepted

■ UN2913,Radioactive material, surface contaminated objects (SCO-III),non fissile or fissile-excepted

■ UN3326, Radioactive material, surface contaminated objects (SCO-I), fissile

■ UN3326,Radioactive material, surface contaminated objects(SCO-Ⅱ), fissile

Type A Package

■ UN2915, Radioactive material, Type A package, non special form, non fissile or fissile-excepted

■ UN3327, Radioactive material, Type A package, non special form

■ UN3332, Radioactive material, Type A package, special form, non fissile or fissile-excepted

■ UN3333, Radioactive material, Type A package, Special Form, fissile

Type B Package

■ UN2916, Radioactive material, Type B(U) package,

■ UN3328, Radioactive material, Type B(U) package, fissile

Type B Package

■ UN2917, Radioactive material, Type B(M) package, non fissile or fissile-excepted

■ UN3329, Radioactive material, Type B(M) package, fissile

Type C Package

■ UN3323, Radioactive material, Type C package, non fissile or fissile-excepted

■ UN3330, Radioactive material, Type C package, fissile

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Special Arrangement

■ UN2919, Radioactive material, transported under special arrangement, non fissile or fissile-excepted

■ UN3331,Radioactive material,transported under special arrangement,fissile

Uranium Hexafluoride

■ UN2978, Radioactive material, uranium hexafluoride

■ UN2977, Radioactive material, uranium hexafluoride, fissile

■ UN3507,Uranium hexafluoride,radioactive material, excepted package, less than 0.1 kg per package,non-fissile or fissile-excepted.

8.4.2 Determining Activity

Activity limits for packagings containing radioactive material are determined by the activity values for "Special Form" radioactive material and for material, which is "Other than Special Form". The value for Special Form is designated A_1. The value for "Other than Special Form" is designated A_2.

8.4.2.1 Listed single radionuclides

$A_1$and A_2 values for common radionuclides are listed in Table 10.3.A of IATA *DGR*.

Table 8-1 A_1 and A_2 Values for Common Radionuclides

Radionuclide	Element (Atomic No)	A_1 (Special Form) (TBq)	A_2 (Other form) (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
Ac-225 (a)	Actinium (89)	0.8	0.006	1×10^1	1×10^4
Ac-227 (a)		0.9	0.00009	1×10^{-1}	1×10^3
Ac-228		0.6	0.5	1×10^1	1×10^6
Ag-105	Silver (47)	2	2	1×10^2	1×10^6
Ag-108m (a)		0.7	0.7	1×10^1 (b)	1×10^6 (b)
Ag-110m (a)		0.4	0.4	1×10^1	1×10^6
Ag-111		2	0.6	1×10^3	1×10^6

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8.4.2.2 Unlisted single radionuclides

For single radionuclide whose class has been known but not listed in Table 10.3.A in IATA DGR, the determination of its A_1 and A_2 values must have multilateral approval. Alternatively, the values of A_1 and A_2 in the following table may be used without obtaining such approval. See Table 8-2 in this section.

Table 8-2Basic Radionuclide Values for Unknown Radionuclides or Mixtures

Radioactive contents	A_1	A_2	Activity concentr-ation for exempt material	Activity limits for an exempt consign-ment
	(TBq)	(TBq)	(Bq/g)	(Bq)
Only beta or gamma emitting nuclides are known to be present	0.1	0.02	1×10^{1}	1×10^{4}
Alpha emitting nuclides but no neutron emitters are known to be present	0.2	9×10^{-5}	1×10^{-1}	1×10^{3}
Neutron emitting nuclides are known to be present or no relevant data available	0.001	9×10^{-5}	1×10^{-1}	1×10^{3}

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8.4.2.3 For mixed fissile substances, the international values of A1 and A2 are determined by the formula in 10.3.2.4 and 10.3.2.5 in IATA *DGR* or Table 8-1 in this manual.

8.5 Packing

8.5.1 Packing Instruction

8.5.1.1 Packing requirements for radioactive materials vary with the particular radionuclide (or radionuclides) involved. In all cases, the radiation is considered; if the material is not in “Special Form”, then the possibility of leakage is considered; and if the material is fissile, then the possibility of criticality is considered. A further factor, relevant if the quantity, i.e. activity, of the radioactive material is very large, is that the heat generated by the radiation may be significant, in which case heat dissipation is considered.

8.5.1.2 As noted in 1) above, the radiation level depends on several factors—and the activity (quantity) of the radioactive material is only one of those factors. Equal quantities of two different radionuclides, each packed in the same type of packaging, may produce very different radiation levels both on the external surface of the package and at any specific distance. Therefore, to ensure that radiation levels comply with specified permissible limits, the specified permitted quantities vary with the particular radionuclides involved.

8.5.1.3 The terms A_1 and A_2 used in these packing requirements denote the maximum activity (or quantity) limits for “Special Form” and “other forms” respectively, of each radionuclide permitted in a Type A package. They also serve as the basic limits for other purposes.

8.5.1.4 In most cases, the complete package must be allotted a “Transport Index”. The “Transport Index” is a number devised with the purpose of indicating the relative degree of radiation hazard of packages containing radioactive material.

8.5.1.5 The complete package, in most cases, must also be allotted to one of

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three categories and then labeled with the hazard label for that category.

8.5.2 General Packing Requirements

8.5.2.1 The package must be so designed in relation to its weight, volume and shape besides leakage and heat dissipation that it can be easily and safely handled and transported. In addition, the package must be so designed that it can be properly secured in the aircraft during transport.

8.5.2.2 The design must be such that any lifting attachments on the package will not fail when used in the intended manner and that, if failure of the attachments should occur, the ability of the package to meet other requirements of these Regulations would not be impaired. The design must also take account of appropriate safety factors to cover snatch lifting.

8.5.2.3 Attachments, and any other features on the outer surface of the package, which could be used to lift it, must be designed either to support its weight or must be removable or otherwise rendered incapable of being used during transport.

8.5.2.4 As far as practicable, the packaging must be so designed and finished that the external surfaces are free from protruding features and can be easily decontaminated. The outer layer of the package must be so designed as to prevent the collection and the retention of water.

8.5.2.5 The package must be capable of withstanding the effects of any acceleration, vibration or vibration resonance which may arise under conditions likely to be encountered in routine transport without any deterioration in the effectiveness of the closing devices on the various receptacles or in the integrity of the package as a whole.

8.5.2.6 The materials of the packaging and any other components or structures must be physically and chemically compatible with each other and with the radioactive contents. Account must be taken of their behavior under

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irradiation.

8.5.2.7 All valves through which the radioactive contents could otherwise escape must be protected against unauthorized operation. The design of the package must take into account ambient temperatures and pressures that are likely to be encountered under normal conditions of transport. For radioactive material having other dangerous properties, the package design must take into account those properties.

8.5.2.8 The temperature of the accessible surfaces of packages must not exceed 50°C at an ambient temperature of 38°C with no account taken for insolation. Packages containing radioactive liquids mustn't leak under a pressure difference of not less than 95kPa induced by internal pressure.

8.5.2.9 Packages must be so designed that, if they were exposed to ambient temperatures ranging from -40°C to +55°C, the integrity of containment would be protected and not be impaired.

8.5.2.10 Packages containing radioactive material must be capable of withstanding without leakage, a maximum operating pressure plus 95 kPa during transport.

8.5.2.11 **Surface Contamination**: The non-fixed radioactive contamination on any external surface of any package must be kept as low as practicable and, under normal conditions of transport, must not exceed the following limits:

A 4 Bq/cm^2 for β and γ emitters and low toxicity alpha emitters,

B 0.4 Bq/ cm^2 for all other α emitters.

These limits are applicable when averaged over an area of 300 cm^2 of any part of the surface.

8.5.2.12 In the case of overpacks and freight containers, the level of non-fixed contamination on the external and internal surfaces must not exceed the limits specified in 11) above.

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8.5.3 Different Radionuclides in One Package

When different individual radionuclides are packaged together in the same package, the total activity must be determined as described in 10.3.2.4 to 10.3.2.5 in IATA *DGR*.

8.5.4 Packed with Other Items

A package containing radioactive material (except LSA and SCO) must not contain any other items except such articles and documents as are necessary for the use of the radioactive material. Low Specific Activity materials (LSA) and Surface Contaminated Objects (SCO) may be packed with other items provided that there is no interaction between them and the packaging or the radioactive contents that would reduce the safety of the package.

8.5.5 Overpacks Containing Packages of Radioactive Materials

8.5.5.1 Packages of radioactive material may be combined together in an overpack for transport, provided that each package contained therein meets the applicable requirements in 10.5.6 of IATA *DGR*. However, packages of fissile material for which the transport index exceeds zero must not be carried in an overpack.

8.5.5.2 Only the original shipper of the packages contained within an overpack contained within an overpack is permitted to use the method of direct measurement of radiation level to determine the transport index of a rigid overpack.

8.5.5.3 The overpack may also contain packages of goods not subject to these Regulations.

8.5.6 Types of Packaging

8.5.6.1 The packaging for the transport of radioactive material must provide for:

1) Containment: preventing contamination of people and the environment;

2) Protection from radiation: the type of packaging depends on the amount

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and type of radiation (α、β、γ, neutron);

3) Prevention of criticality: a concern when Fissile material is shipped; and

4) Protection from internal heat generation.

8.5.6.2 Types of packaging include:

1) Excepted Packages(8.5.7);

2) Industrial Package Type 1 (Type IP-1 Package)

3) Industrial Package Type 2 (Type IP-2 Package)

4) Industrial Package Type 3 (Type IP-3 Package)

5) Type A Packages

6) Type B(U) and B(M) Packages

7) Type C Packages

8.5.7 Excepted Packages

8.5.7.1 Radioactive materials in limited quantities, instruments, manufactured articles and empty packagings in accordance with relevant regulations in IATA *DGR* may be transported as excepted packages, provided that:

1) The radiation level at any point on the external surface of the package does not exceed 5 μSv/h;

2) If the excepted package contains fissile material, relevant regulations in 10.3.7.2 of *DGR* must be met, and the smallest dimension of the package must not be less than 10 cm; and

3) The non-fixed radioactive contamination on any external surface of the excepted package does not exceed the limits of 11) in 8.5.2 in this manual;

4) If transported by air mail, the requirements of Subsection 10.2.2 of *DGR* should be met.

8.5.7.2 Exceptions

Excepted packages are subject to the provisions of the Regulations

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relating to: training requirements; package marking; air waybill completion; inspection and decontamination requirements; the reporting of dangerous goods accidents, incidents and other occurrences; general packaging requirements; and any other provisions specifically retained in 10.5.8.2 of IATA *DGR*.

8.5.7.3 For excepted packages of radioactive materials possessing any other dangerous characteristics, the other hazard takes precedence. Therefore, the package is subject to the Regulations in this manual relevant to other hazard.

8.5.7.4 Radioactive materials in limited quantities

Radioactive material whose activities do not exceed the relevant exception limits listed in the column headed "Radioactive Materials—Package Limits" in 10.3.11.1.2 of the *DGR* may be transported in an excepted package, provided that:

1) These materials are packaged in such a manner that, in conditions likely to be encountered during routine transport (incident-free conditions), there can be no leakage of radioactive material from the package; and

2) The packaging bears the marking "RADIOACTIVE" on an internal surface in such a manner that a warning of the presence of radioactive material is visible on opening the package.

Note: *Categorization, Labeling and Shipper's Declaration are NOT required.*

8.5.7.5 Instruments and manufactured articles

Instruments or manufactured articles such as clocks, electronic tubes or apparatuses having radioactive material as a component part may be transported in an excepted package, provided that these instruments or articles are securely packed and the following conditions are fulfilled:

1) The radiation level at 10 cm from any point on the external surface of

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any unpacked instrument or article does not exceed 0.1 mSv/h (10 mrem/h);

2) The activity of an instrument or article does not exceed the relevant exception limits listed in the column headed “Instruments and Articles—Item Limits” in DGR Table 10.3.C;

3) The total activity per package does not exceed the relevant exception limit listed in the column headed “Instruments and Articles—Package Limits” in DGR Table 10.3.C;

4) Each instrument or article is marked “RADIOACTIVE” on its external surface, except:

(1) radioluminescent time-pieces or devices;

(2) consumer products that have received regulatory approval, following their sale to the end user or do not individually exceed the activity limit for an exempt consignment in Table 10.3.C (column 6) in *DGR*, provided such products are transported in a package that bears the marking “RADIOACTIVE” on an internal surface in such a manner that warning of the presence of radioactive material is visible on opening the package; and

5) The active material is completely enclosed by non-active components (a device performing the sole function of containing radioactive material must not be considered to be an instrument or manufactured article).

Note: *Categorization, hazard labels and Shipper’s Declaration are NOT required.*

8.5.7.6 Articles manufactured from natural uranium or depleted uranium or natural thorium

Manufactured articles, in which the sole radioactive material is unirradiated natural uranium, unirradiated depleted uranium or unirradiated natural thorium may be transported as an excepted package,

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provided that the outer surface of the uranium or thorium is enclosed in an inactive sheath made of metal or some other substantial material.

Note: *Categorization, hazard Labels and Shipper's Declaration are NOT required.*

8.5.7.7 Empty packages

An empty packaging which had previously contained radioactive material may be transported as an excepted package, provided that:

1) It is in a well-maintained condition and securely closed;

2) The outer surface of any uranium or thorium in its structure is covered with an inactive sheath made of metal or some other substantial material;

3) The level of internal non-fixed contamination when averaged over any 300 cm ² does not exceed the value specified in 10.3.11.1.6 of IATA *DGR*

4) Any labels which may have been displayed on it are no longer visible.

Note: *see 10.3.11.1.6 of the DGR*

8.5.7.8 Activity limit per excepted package

1) Activity limits for radioactive materials which are not sealed or manufactured products are in Table 8-3.

2) Where the radioactive material is enclosed in, or forms a component part of an instrument or other manufactured article, such as a clock or electronic apparatus, the limits specified in 10.3.C of IATA *DGR* for each individual item and each package respectively; and

3) Where the radioactive material is not so enclosed in or is not included as a component of an instrument or other manufactured article, the package limits specified in 10.3.C.

4) Manufactured articles

For articles manufactured of natural uranium, depleted uranium, or

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natural thorium, an excepted package may contain any quantity of such material provided that the outer surface of the uranium or thorium is enclosed in an inactive sheath made of metal or some other substantial material.

Table 8-3 Excepted Package Activity Limits

Nature of Contents	Radioactive Materials	Instruments and Manufactured Articles	
	Package Limits	Item Limits	Package Limits
Solids:			
Special Form	$10^{-3}A_1$	$10^{-2}A_1$	A_1
Other Forms	$10^{-3}A_2$	$10^{-2}A_2$	A_2
Liquids	$10^{-4}A_2$	$10^{-3}A_2$	$10^{-1}A_2$
Gases:			
Tritium	$2\times10^{-2}A_2$	$2\times10^{-2}A_2$	$2\times10^{-1}A_2$
Special Form	$10^{-3}A_1$	$10^{-3}A_1$	$10^{-2}A_1$
Other Forms	$10^{-3}A_2$	$10^{-3}A_2$	$10^{-2}A_2$

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8.5.8 Industrial Packaging

8.5.8.1 Industrial Packaging may be used for Low Specific Activity (LSA) material and Surface Contaminated Objects (SCO). Industrial Package includes Industrial Package Type 1, Type 2 and Type 3.

8.5.8.2 Activity limit

The total activity in a single package of LSA material or in a single package of SCO must be so restricted that the radiation level at a distance of 3m from the external surfaces of the unshielded material, object or conglomerate does not exceed 10 mSv/h, and the activity in a

single package must also be so restricted that the activity limits for an aircraft specified in Table 8-4 are not exceeded. A single package of non-combustible solid LSA-II or LSA-III material shall not contain an activity greater than 3,000 A_2.

8.5.8.3 Industrial packagings of all types must meet the requirements in Subsection 10.6 of IATA *DGR*.

8.5.8.4 LSA and SCO Quantity Limit

The quantity of Low Specific Activity material (LSA) or Surface Contaminated Objects (SCO) in a single Industrial Package Type 1, Industrial Package Type 2, Industrial Package Type 3 must be so restricted that the external radiation level at 3 m from the unshielded material does not exceed 10 mSv/h (1 rem/h).

8.5.8.5 LSA and SCO - Fissile

LSA material and SCO which is, or contains, fissile material must meet the applicable requirements of *DGR* 10.5.9.7.

8.5.8.6 LSA and SCO - Restrictions

Packages and freight containers containing LSA or SCO material must meet the requirements of *DGR* 10.5.3.2 and 10.5.5. LSA material in group LSA-I and SCO in group SCO-I must not be transported unpackaged.

8.5.8.7 LSA and SCO - Integrity Limits

LSA material and SCO must be packaged in accordance with Table 8-4 below.

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Table 8-4 Activity Limit for LSA and SCO Material in Industrial Package on Aircraft

Natures of Materials	Activity Limit for Each Aircraft
LSA—I	not limited
LSA—IIand LSA—III Inflammable Solids	not limited
LSA—II and LSA—III Inflammable Solids, All Liquids and Gases	$100A_2$
SCO	$100A_2$

8.5.9 Type A Packages

8.5.9.1 Type A packages must not contain activities greater than the following:

(a) for Special Form radioactive material: A_1; or

(b) for all other radioactive materials: A_2

See Table 10.3.A in IATA *DGR* for details.

8.5.9.2 The design for Type A package does not require approval by competent authority.

8.5.9.3 The design for Special Form Radioactive Material requires unilateral approval.

8.5.10 Type B Packages

8.5.10.1 Type B packages must not contain:

1) Activities greater than those authorized for the package design;

2) Radionuclides different from those authorized for the package design; or

3) Contents in a form, or a physical or chemical state, different from those authorized for the design, as specified in the certificate of approval.

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8.5.10.2 If transported by air, Type B(U) and Type B(M) must not contain activities greater than the following:

1) For low dispersible radioactive material, as authorized for the package design as specified in the certificate of approval;

2) For Special Form radioactive material, 3,000 A_1 or 100,000 A_2, whichever is the lower; or

3) For all other radioactive material, 3,000 A_2.

8.5.10.3 Unilateral approval

Each Type B (U) package design requires unilateral approval, i.e. approval of the competent authority of the State of origin only. But Type B (U) package designs for fissile material and low dispersible shall require multilateral approval.

8.5.10.4 Multilateral Approval

Each Type B (M) package design requires multilateral approval, i.e. approval by the competent authorities of the State of origin and of each State through or into which the package is to be transported. Type B (M) package is forbidden on passenger aircraft.

8.5.11 Type C Packages

8.5.11.1 Type C Packages requires better performance than that of the Type B, which can withstand testing such as heat and bumping tests demanding higher requirements.

8.5.11.2 Type C packages must not contain:

1) Activities greater than those authorized for the package design;

2) Radionuclides different from those authorized for the package design; or

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3) Contents in a form, or physical or chemical state different from those authorized for the package design, as specified in their certificates of approval.

8.5.11.3 Each Type C package design requires unilateral approval, i.e. approval of the competent authority of the State of origin only, except that

1) A Type C package design for fissile material shall require multilateral approval; and

2) A Type C package design for low dispersible radioactive material shall require multilateral approval.

8.5.12 Packages Containing Fissile Materials

8.5.12.1 Any package containing fissile materials must be in accordance with regulations of package activity limit in 10.5 of IATA *DGR*.

8.5.12.2 Each package design for fissile material must require multilateral approval, namely approval of the competent authorities of the state of origin and the competent authorities of each state through or into which the consignment is to be transported.

8.5.12.3 Packages containing fissile materials must not contain:

1) Fissile materials whose quantity exceeds the maximum permissible quantity for the package design;

2) Any radionuclide or fissile material different from those authorized for the package design; or

3) Contents in a form or physical or chemical state, or in a spatial arrangement, different from those authorized for the package design;

8.5.13 Determination of Transport Index(TI) and Criticality Safety Index (CSI)

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8.5.13.1 Transport Index (TI) is a single number assigned to a package, overpack or freight container used to provide control over radiation exposure. TI has two purposes which indicate not only relative degree of radioactive hazard by non-fissile package but also relative degree of radioactive hazard or criticality hazard by fissile package. It is also used to establish categories for labeling, to determine whether transport under exclusive use is required; to establish spacing requirements during storage in transit, and to define loading requirements and so on.

8.5.13.2 The TI based on radiation exposure control for a package, overpack or freight container is the number derived using the following procedures:

1) Determine the maximum radiation level at a distance of 1 m from the external surfaces of the package, overpack or freight container.

2) For freight containers the value determined as above must be multiplied by the appropriate factor from Table 8-5 in this manual.

3) The figure obtained as above must be rounded up to the first decimal place, except that a value of 0.05 or less may be considered as zero.

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Table 8-5 Multiplication Factors for Freight Containers

Largest Cross-Sectional Area of the Freight Container	Multiplication Factor
$\leqslant 1m^2$	1
$>1m^2$ to $\leqslant 5m^2$	2
$>5m^2$ to $\leqslant 20m^2$	3
$\geqslant 20m^2$	10

8.5.13.3 Determination of criticality safety index (CSI)

1) CSI is used for controlling the quantities of the packs and overpacks containing fissile materials, and special boxes containing radioactive materials placed in a pile.

2) The Criticality Safety Index (CSI) for packages containing fissile material must be obtained by dividing the number 50 by value of N derived using the procedures specified in 10.6. 2. 8. 3 in *DGR* of IATA, i.e. CSI equals 50/N.

3) The Criticality Safety Index (CSI) for each batch of goods must be determined as the sum of the CSIs of all the packages contained.

4) Radioactive packages must be in accordance with regulations in 10.6 in IATA *DGR*.

8.5.14 Limits on Transport Index (TI) and Radiation Levels for Packages and Overpacks

8.5.14.1 Except for consignments under exclusive use, the Transport Index of any individual package or overpack must not exceed 10, nor must the Criticality Safety Index of any package or overpack exceed 50.

8.5.14.2 Except for packages or overpacks transport under exclusive use, the maximum radiation level at any point on any external surface of a package or overpack must not exceed 2 mSv/h.

8.5.14.3 The maximum radiation level at any point on any external surface of a package or overpack under exclusive use must not exceed 10 mSv/h.

8.5.14.4 Packages and overpacks must be assigned to Category I-White, II-Yellow or III-Yellow in accordance with Table 8-6 and 10.5.15 in IATA *DGR*.

8.5.14.5 If the Transport Index is greater than 10, the package or overpack must be transported under exclusive use.

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8.5.14.6 If the surface radiation level is greater than 2 mSv/h, the package or overpack must be transported under exclusive use and under the provisions of 10.9.3.3 in IATA *DGR*.

8.5.14.7 A package or overpack which contains several packages transported under special arrangement must be assigned to Category III-Yellow.

8.5.14.8 Category Determination for Packages, Overpacks and Freight Containers. See Table 8-6.

Table 8-6 Category Determination for Packages, Overpacks and Freight Containers.

Categories of Packages (Other Than Excepted Packages)		
Transport index	Maximum Radiation Level at any Point on External Surface	Category
0★	Not more than 5μSv/h	I-White
More than 0 but not more than 1 ★	More than 5μSv/h but not more than 0.5mSv/h	II-Yellow
More than 1 but not more than 10	More than 0.5mSv/h but not more than 2mSv/h	III-Yellow
More than10	More than 2mSv/h but not more than 10mSv/h	III-Yellow Exclusive transport
Categories of Overpacks and Freight Containers Used as Overpacks		
Transport Index		Category
0		I-White
More than 0 but not more than 1		II-Yellow
More than 1		III-Yellow

* If the measured TI is not greater than 0.05, the value quoted may be considered as zero.

8.5.15 Special Arrangement

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8.5.15.1 If the radioactive material does not comply with any of the methods of packing provided in this manual, the material can only be carried under special arrangement, which must be approved by the competent authorities of the States concerned. These provisions must be adequate to ensure that the overall level of safety in transport and in-transit storage is at least equivalent to the level of safety which would be provided if all the applicable requirements of these regulations in IATA *DGR* and this manual had been met. Each consignment must have multilateral approval.

8.5.15.2 See *DGR* 10.6 for details for Packaging Specifications and Performance Testing

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8.6 Marking and Labeling

8.6.1 Marking

8.6.1.1 Shipper's Responsibility

1) Check that any relevant marking on the package or overpack already on the package is in the correct location and meets the quality and specification requirements of this manual;

2) Remove or obliterate any irrelevant marking already on the package or overpack;

3) Ensure that each overpack or single packaging used for radioactive material bears the identification markings as specified;

4) Apply any appropriate new marking in the correct location, and ensure that it is of durable quality and correct specification; and

5) Ensure that his responsibilities for marking are completely fulfilled when the package or overpack is presented to HNA for shipment.

8.6.1.2 Quality and specification of markings

1) All markings must be so placed on the packagings or overpacks that they are not covered or obscured by any part of or attachment to the packaging or overpack or any other label or marking. The required markings must not be located with other package markings that could substantially reduce their effectiveness.

2) Quality of markings

(1) All markings must be:

Durable and printed or otherwise marked on, or affixed to, the external surface of the package or overpack;

(2) Readily visible and legible;

(3) Displayed on a background of contrasting color.

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3) Language of markings

English or English with corresponding Chinese; Chinese in domestic transport.

4) Size of markings

Markings used on package and overpack use should be at least 12 mm high, except for packages of 30 L or 30 kg capacity or less when they should have a minimum height of 6 mm.

8.6.1.3 Required markings

1) The following markings are required on all Industrial Package Types IP-1, IP-2 and IP-3, Type A, Type B(U), Type B(M) and Type C packages containing radioactive material:

(1) Proper Shipping Name;

(2) UN Number, preceded by the letters "UN";

(3) Full name and address of the shipper and consignee;

(4) If the gross weight of the package exceeds 50 kg, the permissible gross weight should be marked. (for excepted package, if gross weight of the package exceeds 50 kg, approval should be acquired);

(5) When carbon dioxide, solid (dry ice) is used as a refrigerant, the net weight of carbon dioxide, solid (dry ice) in the package should be marked.

2) Markings of excepted packages

Excepted Packages must be marked with:

(1) UN number, preceded by the letters "UN";

(2) Full name and address of the shipper and consignee; and

(3) Permissible gross weight, if this exceeds 50 kg;

(4) When carbon dioxide, solid (dry ice) is used as a refrigerant, the net weight of carbon dioxide, solid (dry ice) in the package should be marked.

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3) Industrial package identification

(1) Each package which conforms to a Type IP-1package must be marked with “TYPE IP-1”;

(2) Each package which conforms to a Type IP-2 package or a Type IP-3 package design must be marked with “TYPE IP-2” or “TYPE IP-3” as appropriate;

(3) International Vehicle Registration code (VRI Code), as indicated in Appendix D.1 and D.2 in *DGR* of IATA, of the country of origin of design;

(4) Name of the manufacturers, or other identification of the packaging specified by the competent authority.

4) Type A Package identification

(1) Each package which conforms to a Type A packaging design must be marked with:

(2) “TYPE A”;

(3) International Vehicle Registration Code (VRI Code), as indicated in Appendix D.1 and D.2 in IATA *DGR* , of the country of origin of design; and

(4) Name of the manufacturers, or other identification of the packaging specified by the competent authority.

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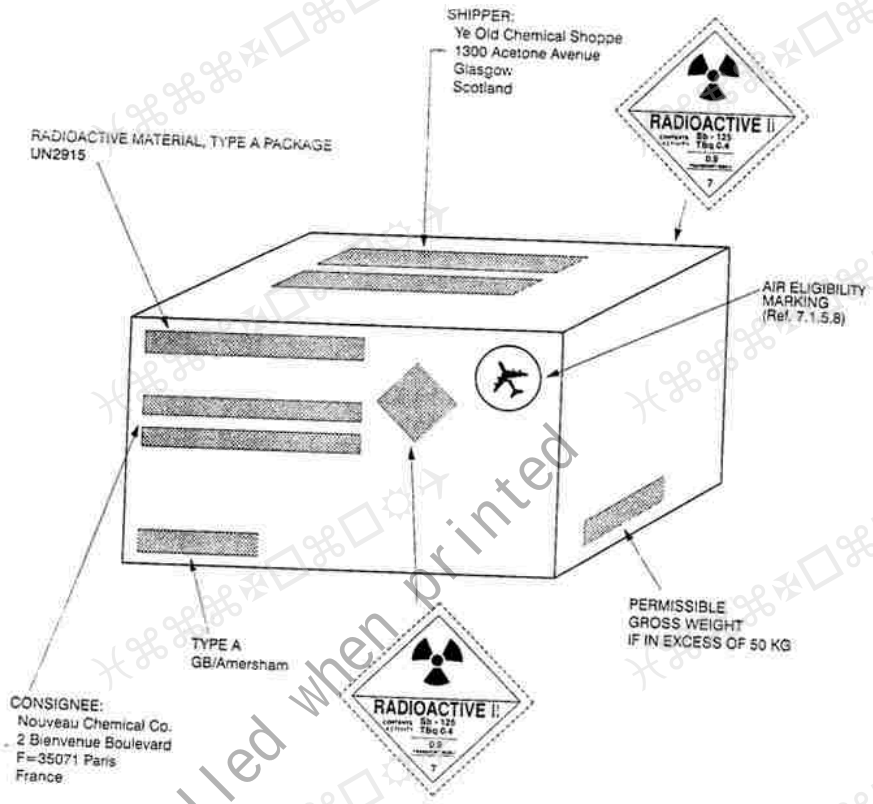

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5) Type B Package identification

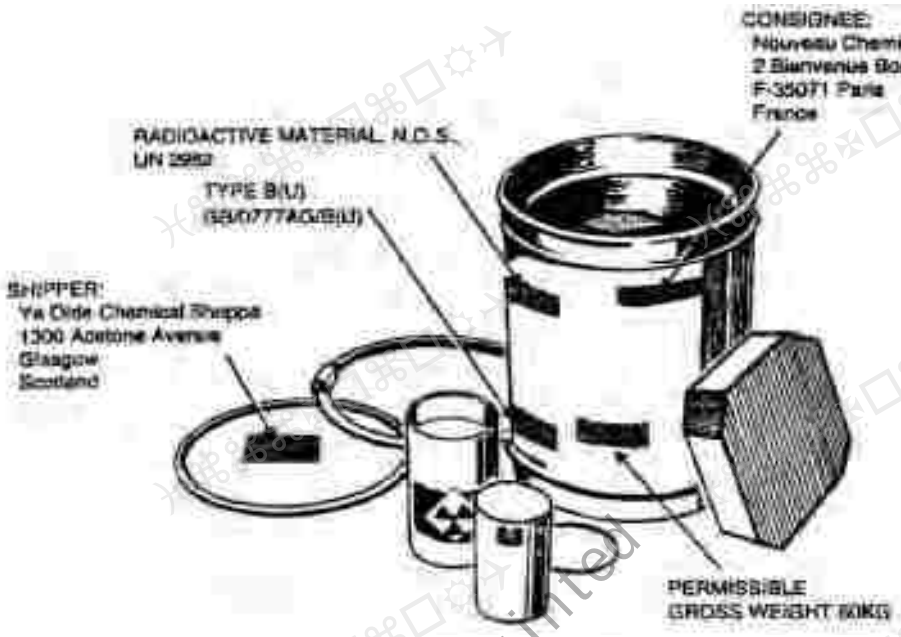
Each package which conforms to a Type B packaging design must be marked as follows:

(1) "TYPE B(U)" or "TYPE B(M)" as appropriate;

(2) Identification mark allocated to the design by the competent authority;

(3) Serial number to uniquely identify each packaging which conforms to that design; and

(4) Trefoil symbol must be plainly marked by embossing, stamping or by other means, resistant to the effects of fire and water, on the outermost receptacle which is resistant to the effects of fire and water;



6) Type C Package identification

(1) Each package which conforms to a Type C packaging design must be marked as follows:

(2) "TYPE C" as appropriate;

(3) Identification mark allocated to the design by the competent authority;

(4) Serial number to uniquely identify each packaging which conforms to that design;

(5) Trefoil symbol must be plainly marked by embossing, stamping or by other means, resistant to the effects of fire and water, on the outermost receptacle which is resistant to the effects of fire and water;

7) Fissile Package identification

Each package containing fissile material must be marked according to the requirements of its type. For packages containing fissile material only, the identification mark should contain the type codes "AF", "B(U)F", "B(M)F", "CF" or "IF".

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8) Overpacks

(1) Inner packaging should be marked by clearly visible markings like the proper shipping name, UN number and other package use markings. Otherwise, all these markings should be reproduced on the outside of the overpack.

(2) When radioactive packages marked by Type IP-1,Type IP-2,Type IP-3,Type A、B or C is required to be used in accordance with *DGR* of IATA, the closed overpack must be marked with "OVERPACK" unless these markings are clearly visible.

(3) When UN 1845,carbon dioxide,solid (dry ice),is placed in an overpack,the total net quantity of dry ice in the overpack must be marked on the outside of the overpack.

9) Markings of other regulations

Markings required by other international or national transport regulations are permitted in addition to markings required by regulations in this manual provided that they cannot be confused with or in conflict with any markings prescribed by regulations in this manual because of their color, design or shape.

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8.6.2 Labeling

8.6.2.1 Shipper's Specific Responsibilities

1) The shipper is responsible for all necessary marking and labeling of each package, overpack or freight container containing radioactive material in compliance with the following requirements:

2) Remove or obliterate any irrelevant labeling already on the package or overpack;

3) Use labels of durable quality and correct specification;

4) Inscribe on each label, in a durable manner, any required additional information;

5) Affix the appropriate label(s) in the correct location(s) and in a secure manner;

6) Ensure that the responsibilities for labeling are completely fulfilled when the package or overpack is presented to the operator for shipment;

7) When an empty packaging is transported as an excepted package, the previously displayed labels must be removed or obliterated.

8.6.2.2 Quality and specification of labels

1) Durability: The material of every label, the printing, and any adhesive thereon, must be sufficiently durable to withstand normal transport conditions without a substantial reduction in effectiveness and the labels are clearly visible.

2) Labels are of two types:

Hazard labels (in the shape of a square set at 45◦);

Handling labels (in various rectangular shapes), which are required, either alone or in addition to hazard labels.

3) Label Specifications: Both labels (hazard labels and handling labels) used on packages and overpacks containing radioactive material, must conform, in shape, color, format, symbol and text, to the specimen designs reproduced in 10.7.7 in IATA *DGR*. Except as indicated, no variation in specification is permitted. Except as otherwise provided in IATA *DGR*, the minimum dimensions of the hazard labels must be 100 × 100 mm, and the minimum width of the line inside the edge forming the diamond must be 5 mm. The dimensions for handling label shown in Figure 7.4.A in *DGR* to Figure 7.4.E are the minimum dimension. Hazard labels must have a line of the same color as the symbol, 5 mm inside the edge and

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running parallel to it. There could be identification info in the labels, including company name of label manufacturer, but must be outside of the otter edge of solid line, font size is less than 10. Except for the Criticality Safety Index label (CSI), the upper half of the label is reserved for the trefoil symbol and the lower half for texts and the class number.

8.6.3 Applicability of Hazard Labels

Hazard Label

The hazard labels to be used on packages and overpacks of radioactive material are specified in the List of Dangerous Goods in Subsection 4.2 of *DGR*. Each package of radioactive material must be labeled in accordance with the category assigned to it in Table 8-6. Each package of fissile material must, in addition, bear the Criticality Safety Index (CSI) label (10.7.7.4) adjacent to the radioactive hazard labels.

8.6.3.1 Subsidiary risk label

Packages of radioactive material, which possesses other hazardous properties meeting the criteria for one or more of the other classes, must bear the applicable subsidiary risks labels. Such subsidiary risk labeling is not required for an uncompressed gas that is non-flammable and non-toxic.

8.6.3.2 Label marking

1) The contents, activity and for Category II and III Yellow labels, the transport index must be marked on the label in a clear and durable manner, and for the CSI label, the Criticality Safety Index.

2) The contents must be inscribed as follows:

(1) Except for LSA-I material, the symbol of the radionuclide as listed

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in Table 10.3.A in IATA *DGR*.

(2) For mixtures of radionuclides, or for different individual radionuclides packed together in the same package, the most restrictive radionuclides must be listed to the extent that space on the line permits;

(3) LSA (except LSA-I) or SCO the symbol of the radionuclide followed by "LSA-II", "LSA-III", "SCO-I" or "SCO-II" as appropriate;

(4) For LSA-I materials, only the term "LSA-I" need be used.

3) Activity

(1) The maximum activity of the radioactive contents must be inscribed in terms of becquerel or multiples thereof. The equivalent activity in curies or multiples thereof may be shown in parentheses following the becquerel units.

(2) For fissile materials, the total mass of the fissile radionuclide in grams or kilograms may be used in place of the activity.

(3) For overpacks and freight containers, the "Contents" and "Activity" entries on the labels must bear the accurate required information at full length. For overpacks and freight containers containing mixed loads of packages containing different radionuclides, such entries may read " See Shipper's Delaration " . For different individual radionuclide contained in the same package, it is required to list the activity of each radionuclide provided space permitted.

4) Transport index (TI)

For Category II and Category III Yellow labels only, the Transport Index must be inscribed in the box provided. It must be rounded up to one decimal place.

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5) Criticality Safety Index (CSI)

The Criticality Safety Index label must be inscribed with the Criticality Safety Index (CSI) as stated in the certificate of approval for special arrangement or the certificate of approval for the package design, issued by the competent authority, in the box provided.

6) Overpacks

For overpacks the "Contents" and "Activity" entries on the labels must bear the information as required, totaled together for the entire contents of the overpack. For overpacks containing mixed loads of packages containing different radionuclides, such entries may read "Shipper's Declaration for Dangerous Goods".

8.6.3.3 Affixing labels

1) See Section 6 in this manual for general requirements of affixing labels.

2) Labels should be affixed adjacent to the shipper's or consignee's address appearing on the package. Subsidiary hazard labels, when applicable, must be affixed adjacent to the primary hazard labels. When a "Cargo Aircraft Only" handling label is required, it must be affixed on the same surface of the package near the hazard label(s).

3) The Radioactive Material label together with any subsidiary risk label(s), the Criticality Safety Index label (if applicable) and the "Cargo Aircraft Only" label (if applicable) must be affixed to two opposite sides of the package. For a freight container, the labels must be affixed to all four sides of the container. For a cylindrical package, two sets of labels must be affixed opposite each other such that they are centered on opposite points of the circumference. On very small packages including cylinders, where the two sets of labels would

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overlap, only one label is required.

4) If a rigid overpack is used, at least two sets of labels, affixed to opposite sides of outside surfaces of the overpack must be used. If a non-rigid overpack is used, at least one set of labels must be affixed to a durable tag secured to the overpack.

5) Excepted packages of radioactive material must be labeled with the "Radioactive Material, Excepted Package" handling label.

6) If the package is of such an irregular shape that a label cannot be attached or printed on a surface, it is acceptable to attach the label(s) to the package by means of strong tag(s).

7) The package must be of such a size that there is adequate space to affix all required labels.

8.6.3.4 Handling labels

1) Cargo Aircraft Only label must always be used on Type B (M) packages of radioactive materials and on freight containers containing such Type B (M) packages.

2) A package orientation "This Way Up" label is not necessary on a package containing radioactive material, in liquid form.(See the affixed Figure 2 in 6.5.4 of Chapter 6)

3) Large freight containers containing radioactive material, other than excepted packages must bear four placards conforming to 10.7.7.5 in *DGR* in addition to the required labels. The placards must be affixed in a vertical orientation to each side wall and each end wall of the freight container.

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8.6.3.5 Label specifications

1) Category I-White(See the affixed Label Figure in 8.8)

Name: Radioactive

Cargo Imp Code: RRW

Minimum dimensions: 100 × 100 mm

Symbol (trefoil): Black

Background: White

2) Category Ⅱ -Yellow(See the affixed Label Figure in 8.8)

Name: Radioactive

Cargo Imp Code: RRY

Minimum dimensions: 100 × 100 mm

Symbol (trefoil): Black

Background: Top half Yellow with White border, bottom half White

3) Category III-Yellow(See the affixed Label Figure in 8.8)

Name: Radioactive

Cargo Imp Code: RRY

Minimum dimensions: 100 × 100 mm

Symbol (trefoil): Black

Background: Top half Yellow with White border, bottom half White

Dimensions: The dimensions shown are minimum, where larger dimensions are used, the proportions must be maintained. The figure "7" must be 25 mm or larger.

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4) Placard for Class 7—Radioactive Materials

This placard is to be used on large freight containers.

Dimensions: The dimensions shown are minimum, where larger dimensions are used, the proportions must be maintained. The figure "7" must be 25 mm or larger.

***Note**: The word "Radioactive" in the bottom half of the placard is optional. See the affixed Label Figure in 8.8 for dimension.*

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8.7 Documentation

8.7.1 Shipper's Declaration for Dangerous Goods

Radioactive material must not be included on the same declaration form as other dangerous goods, except for Carbon dioxide, solid (dry ice) when used as a refrigerant. When Carbon dioxide, solid (dry ice) is used as a refrigerant for radioactive material, details of the Carbon dioxide, solid (dry ice) shipment must be shown on the Shipper's Declaration. This does not apply to radioactive material, excepted packages, which do not require a Shipper's Declaration.

8.7.1.1 The "Shipper's Declaration for Dangerous Goods" form must be filled following the same regulations used in declaration for non-dangerous goods, except the entry" Nature and Quantity of Dangerous Goods "(for category, nature, quantity and packing of the dangerous goods).

8.7.1.2 Nature and Quantity of Dangerous Goods, instructions for filling category, nature, quantity and packaging of dangerous goods.

1) UN No., preceded by the prefix "UN".

2) Proper Shipping Name.

3) Class or Division: The Class number—"7". Any assigned subsidiary hazard class or division number(s) must be entered following the numerical hazard class or division and must be enclosed in brackets.

4) Packing Group: For radioactive materials having a subsidiary risk, the assigned packing group should be defined.

5) Quantity and Type of Packing. Sequence of filling is as follows:

Name or symbol of each radionuclide(s) or, for mixtures of radionuclides, an appropriate general description or a list of the most restrictive radionuclides;

A description of the physical and chemical form of the material, or a notation that the material is Special Form radioactive material (not

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required for UN 3332 and UN 3333) or low dispersible material.

6） Number of packages (of same type and content), their type of package and activity (unit becquerel used must be clearly indicated) of the radioactive contents in each package, including packages in overpacks. For fissile material, the total weight of fissile material in grams or kilograms may be used in place of activity. The words “All Packed in One” must immediately follow the relevant entries.

e.g. Indium l92, 2 Type B（U)packages＊925GBq each

When an overpack is used, the wording “Overpack Used” must be inserted on the declaration form immediately after all the relevant entries relating to the packages within the overpack.

7） Packing instructions

Sequence for filling in: Category of the package(s), overpack or freight container, i.e. “I-White” or “II-Yellow” or “III-Yellow”.

Only for transport index and dimensions of each package or overpack or container of category “II-Yellow” and “III-Yellow”. Dimension must be: length (L) × width (W) × height (H) (see Figure 8-4). The transport index must be rounded up to the first decimal place.

For Fissile Material, other than fissile excepted, the Criticality Safety Index;

For Fissile Material only—The words “Fissile Excepted”, if the material is excepted under 10.3.7.2 of *DGR*.

8） Authorizations

A list of the identification marks of any of the following documents issued by a competent authority for the shipment together with the shipper’s declaration.

Special Form approval certificate

Low Dispersible Material certificate

Type B package design approval certificate；

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Type B(M)Package shipment approval certificate;

Type C package design approval and shipment approval certificate

Fissile Materia1 package design approval certificate;

Fissile Materia1 package shipment approval certificate;

Fissile material excepted under 10.3.7.2.6 of DGR

Special Arrangement approva1 certificate

Any similar documents.

9) Where a consignment is required to be shipped under exclusive use, the statement “Exclusive Use Shipment” should be inscribed.

e.g. Figure 8.7.D

8.7.2 Air Waybill

8.7.2.1 The “Shipper’s Declaration for excepted radioactive material” form must be filled following the same regulations used in declaration for other dangerous goods, except the entries for category, nature, quantity and packing of the dangerous goods.

8.7.2.2 For excepted radioactive material, the following contents must be filled into the entry for “Nature and Quantity of Goods” according to actual conditions:

1) When Carbon dioxide, solid (dry ice) is used as a refrigerant for radioactive material, excepted packages, no Shipper’s Declaration is required and the details of the Carbon dioxide, solid (dry ice) shown in the “Nature and Quantity of Goods” box;

2) “Radioactive material, excepted package-limited quantity of materia1”, UN2910;

3) “Radioactive material, excepted package-instruments”, UN2911;

4) “Radioactive material, excepted package-articles”, UN2911;

5) “Radioactive material,excepted package-articles manufactured from natural uranlun1”, UN2909;

6) “Radioactive material,excepted package,articles manufactured from

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depleted uranium", UN2909;

7) "Radioactive material,excepted package,articles manufactured from natural thorium", UN2909 and

8) "Radioactive material,excepted package,empty packaging", UN2908.

8.7.2.3 Examples of the completion of air waybills

Figure 8-1 Consignment Containing Dangerous Goods for Which a Shipper's Declaration is Required

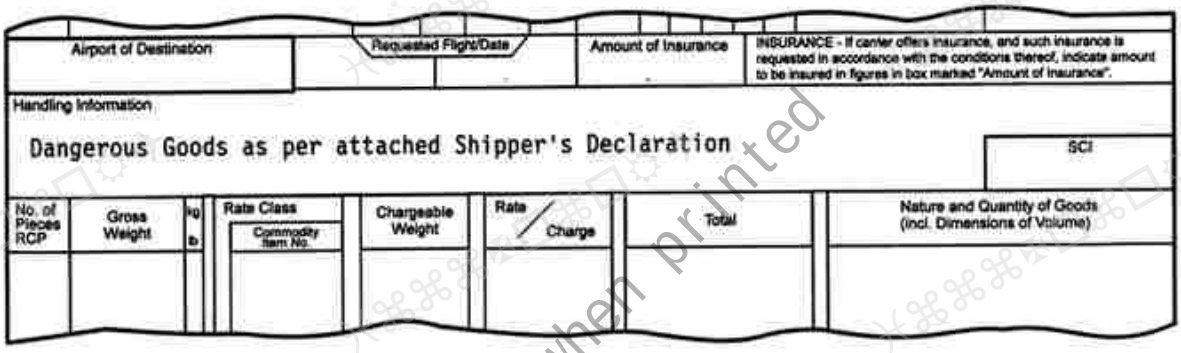

Figure 8-2 Air Waybill Example—Cargo Aircraft Only

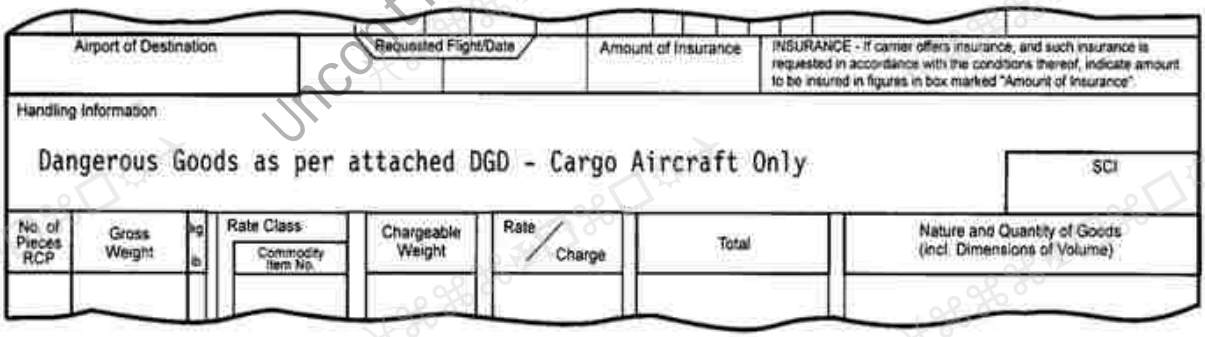

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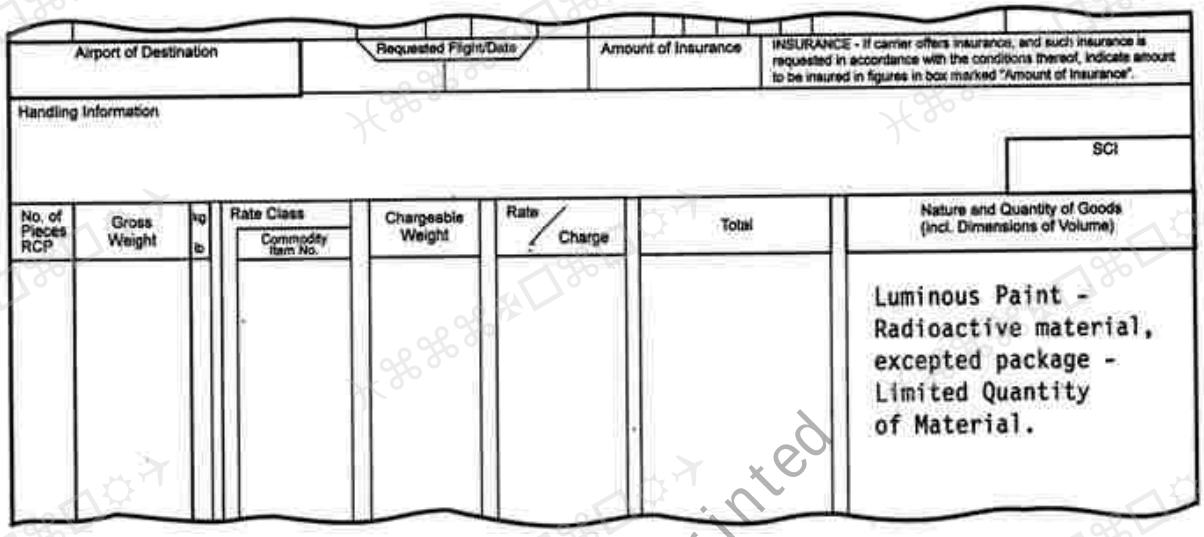
Figure 8-3 Consignment Containing Excepted Packages of Radioactive Material



8.7.3 Acceptance Inspection Form

Usage and handling of acceptance inspection form for radioactive and non-radioactive dangerous goods are the same. Refer to Subsection 7.4 in this manual for usage details. *Excepted radioactive packages don't need such acceptance inspection forms.*

8.7.4 Captain Notification for Special Freight

Both radioactive and non-radioactive dangerous goods use the same Captain Notification for Special Freight for shipment. Refer to Subsection 7.5 for usage details.

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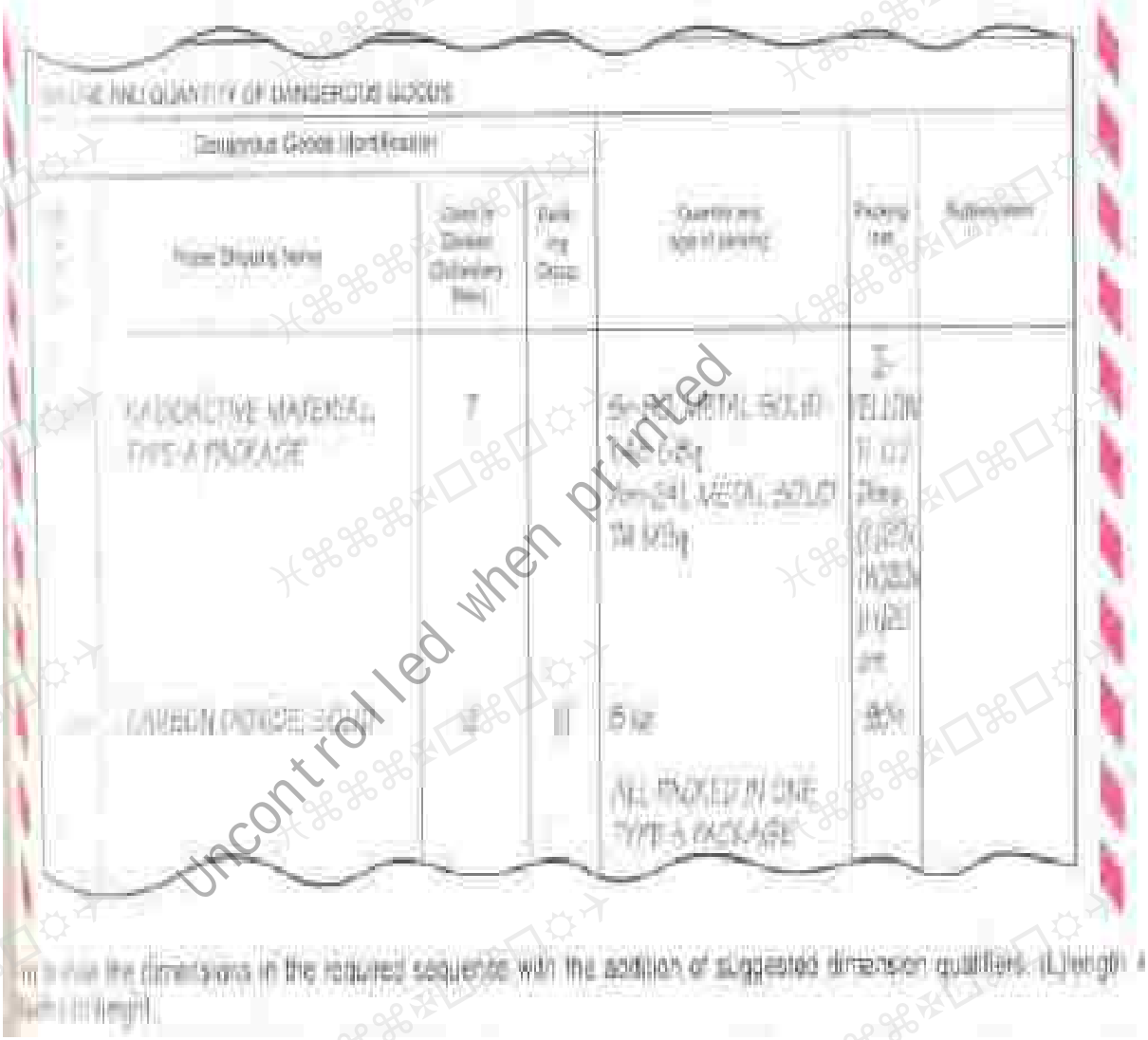
Figure 8-4 Declaration Completion Example

FIGURE 10.8.E
Shipper's Declaration Completion — Example 3



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8.8 Tag Examples of Radioactive Material

Figure 8-5

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9 Acceptance of Dangerous Goods

9.1 General

9.1.1 Requirement

9.1.1.1 The collection and transportation of dangerous goods shall strictly comply with the applicable laws, government regulations, orders or requirements of the State and the provisions of the carrier and ground agents and the following requirements:

1) To confirm that the personnel who go through the consignment procedures and sign the dangerous goods transport documents have been trained and assessed as qualified, and meet the requirements of the carrier's *dangerous goods transport manual*;

2) To confirm that dangerous goods and mail are accompanied by complete documents related to the transport of dangerous goods by air, unless otherwise provided for in the *Technical Instructions*;

3) Inspect the the dangerous goods and mail according to the requirements of the *Technical Instructions*.

9.1.1.2 HNA and organization or agents of HNA must in accordance with regulations of this Chapter when accepting dangerous goods.

9.1.2 Shipper’s Responsibility

9.1.2.1 Shippers must comply with any applicable laws, regulations, orders or requests set forth by the state of origin, transit and destination. Shippers consign dangerous goods to HNA according to regulations of this manual and IATA *DGR*.

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9.1.2.2 Shipper should ensure all personnel transacting shipping and signing the documentations have receive dangerous goods training according to *dangerous goods transportation regulations of civil aviation of China* and ensure to implement shipper's responsibility during transport(Transportation Order No.4 from Department of Transportation ,2024).

9.1.2.3 The shipper must ensure that the articles or substances are not belong to the prohibited for transport by air.

9.1.2.4 Before any package or overpack of dangerous goods is offered for transport, it is the shipper's responsibility to ensure that the articles or substances must be properly classified, packaging, marked, labeled, and documented. It is forbidden to ship dangerous goods in the name of non-dangerous goods.

9.1.2.5 When consigning dangerous goods restricted by governmental laws and regulations, shipper should provide valid certificates of related competent authorities.

9.1.3 Shipper's Requirements

9.1.3.1 Shipper should ensure class and proper shipping name of dangerous goods and provide all related information to operators. The information provided by shipper includes product nature instruction, physical and chemical test report, security technical data or equivalent information and cargo nature test report given by appraisal unit designated by HNA. For dangerous goods shipped first or using general entry, the class, proper shipping name and packaging group should be decided according to test report given by appraisal unit. Written certificate without test data from shipper is invalid.

9.1.3.2 When consigning dangerous goods, shipper should correctly complete

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Shipper's Dangerous Goods Declaration according to regulations of IATA *DGR* and ensure to operator that the contents of the consignment must be properly identified, classified, packaged, marked, labeled, and prepare for all the related transport documents.

9.1.3.3 The production and test of limited quantity packaging of dangerous goods must obey test standard of limited quantity packaging regulated in 6.6 of IATA DGR. Limited quantity packaging is the same as UN specification packaging. Shipper must provide packaging performance test report given by professional packaging appraisal unit.

9.1.3.4 Shipper should order flight, date, and tonnage in advance. If the dangerous goods need transit transport, operator must inform transit station in advance. The goods can be transported only after approved by transit station to ensure the transit of goods on time.

9.1.4 Acceptance Record of Dangerous Goods

9.1.4.1 The counter for accepting dangerous goods must establish dangerous goods acceptance record. Record contents include acceptance date, dangerous goods name, class and division, pieces and quantity, packaging group, shipper, dangerous goods acceptance information (accept or refuse,if refuse, note the reason);

9.1.4.2 The retention time of the record is 24 months.

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9.2 General Requirements for Accepting Dangerous Goods

9.2.1 Operation requirements for the acceptance staff

9.2.1.1 Acceptance staff of dangerous goods must receive professional training and periodical recurrent training according to training syllabus approved by CAAC or regulated by *DGR*. Only the staff that passed dangerous goods training can accept dangerous goods.

9.2.1.2 Acceptance staff should accept dangerous goods according to this manual, *DGR* and related documentations.

9.2.1.3 Acceptance staff should check dangerous goods packaging, quantity limitation, packaging method and its transport documentations, as well as its markings and labels of the packaging, overpack and container, according to dangerous goods checklist to confirm whether the DG shipment is declared correctly as the requirements of IATA DGR. Besides, the acceptance staff must verify if the shipper has passed the dangerous goods training.

9.2.1.4 Acceptance staff should check shipper's documentations about dangerous goods class, division, and proper shipping name. Shipper's documentations contain one or more of the following items: product nature instruction, physical and chemical test report, security technical data or equivalent information and cargo nature test report given by appraisal unit designated by HNA.

9.2.1.5 For the following situations, if HNA can ensure the documentations provided by shipper have enough persuasion, the cargo does not need to be tested by designated dangerous goods appraisal unit.

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1) The documentations provided by shipper have specific technical data and the nature of goods can be directly identified according to class standard of Section 3 of IATA *DGR*.

2) The proper shipping name and packaging group of articles or substances can be directly found in dangerous goods name table of Chapter 4 of IATA *DGR*.

9.2.1.6 Dangerous goods that need to provide cargo nature test report:

The classification, Proper Shipping Name, and packing group determination for dangerous goods with unclear hazard properties must be based on an identification report issued by a qualified testing laboratory. Written statements provided by the shipper that are general and lack test data are invalid.

9.2.1.7 For UN specification packaging, check whether the packaging has packaging performance test report given by professional packaging appraisal unit or not according to related regulations in *DGR*. For UN specification packaging produced in China, the packaging must have *packaging performance test report for goods transported abroad* and *packaging appraisal report for goods transported abroad* given by inspection and quarantine units set up by national quality inspection and quarantine authority. See figure 9-1.

9.2.1.8 The production and test of limited quantity packaging must obey test standard of limited quantity packaging regulated in Subsection 6.6 of IATA *DGR*. Shipper must provide performance test report of limited quantity packaging given by professional packaging appraisal unit.

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9.2.1.9 Acceptance staff should check the regulations of transit station and destination of dangerous goods transportation or regulation of operator for extended transportation according to state and operator variations in 2.8 of *DGR* or state and operator information in 7.3 and 8.3 of 《TACT(Rules)》.

9.2.1.10 Acceptance staff should ensure shipper has booked a full flight. If the cargo needs to be transferred, the departure station must inform transit station in advance, and get approval from transit station, to ensure on-time transit.

9.2.1.11 Acceptance staff must confirm dangerous goods transportation documentations are signed by shipper and must check and assess the dangerous goods training of shipper to identify whether the shipper meets requirements of ***dangerous goods training syllabus*** and can carry out the shipper's responsibility.

9.2.1.12 For any circumstances, HNA holds the rights to invite professional person or department to finally identify cargo nature. If acceptance staff supposes the information provided by shipper cannot prove the cargo nature, he has the right to ask shipper to let cargo be tested in appraisal unit designated by HNA.

9.2.1.13 For nature test of identifying dangerous goods, HNA only accepts cargo nature appraisal report given by HNA designated testing unit or national profession laboratory. All the appraisal reports must be stamped by the unit of profession laboratory (only in China) and signed by professional technical staff.

9.2.1.14 If acceptance inspections repeatedly reveal damage, leakage, or other deficiencies in UN specification packagings from the same manufacturer, Hainan Airlines shall record the packaging manufacturer and further confirm the usability of packagings produced by that factory.

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9.2.1.15 Dangerous goods acceptance inspection procedures are only required at the point of initial acceptance. However, any subsequent carrier operating an aircraft that forms part of the same journey must check to ensure that the integrity of the package(s), overpack(s), freight container(s), or ULD(s) has not been compromised, there is no leakage, and the markings and labels are compliant. Furthermore, if goods require ULDs for transport, the ULD equipment must be inspected in advance for integrity and airworthiness to ensure it meets cargo transportation requirements.

9.2.2 Excepted Conditions

HNA must not accept from a shipper a unit load device or a cargo container containing dangerous goods other than:

9.2.2.1 A cargo container for radioactive material;

9.2.2.2 A unit load device or other type of pallet containing consumer commodities when prepared according to Packaging Instruction Y963;

9.2.2.3 A unit load device or other type of pallet containing Carbon dioxide, solid (dry ice) used as a refrigerant for other than dangerous goods prepared according to Packaging Instruction 954;

9.2.2.4 A unit load device containing magnetized material provided prior approval from the operator has been obtained.

9.2.2.5 When accepting unit load device containing Class 9 dangerous goods, operator must put an identification label on the unit load device.

9.2.3 An operator must not accept a package or overpack containing dangerous goods or a unit load device or other type of pallet containing dangerous goods as described in 9.2.2 nor a cargo container containing radioactive material unless:

9.2.3.1 Two shipper Dangerous Goods Declaration or equivalent replacement

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documents must be attached with the goods. One copy of the declaration shall be shipped with the goods to the destination, and the other shall be kept on the ground by the agent of the carrier for a appropriate time for inspection, and shall not be filed until the goods arrive at the destination station. After the flight transportation, the agent shall upload the Shipper Dangerous Goods Declaration Form to the address designated by the company.

9.2.3.2 Cargo must be checked by acceptance staff to confirm it is properly marked and labeled and there is no leakage or indication of damage, ensuring its integrity has not been compromised.

9.2.4 Regarding overpacks and the packages they contain, the operator must take all reasonable steps to establish that:

9.2.4.1 The package or overpack does not contain packages of dangerous goods which require segregation according to Table 9.3.A;

9.2.4.2 Unless all markings and labels of all dangerous goods in the overpack are clearly visible, the overpack has been marked with the word “Overpack”, the proper shipping name, UN/ID number, “Limited Quantities” (when applicable) and special handling instruction must be reproduced on the outside of the overpack.

9.2.4.3 Packaging specification markings need not be reproduced on the overpack. The “Overpack” marking is an indication that packages contained within comply with prescribed specifications.

9.2.5 Packaging Requirement

9.2.5.1 About cargo containers containing radioactive material, the accepatance staff must ensure that all four sides of the container are correctly labeled.

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9.2.5.2 See 5.2 of this manual or packaging requirements

9.2.6 The Handling for Dangerous Goods Contained in General Cargo

9.2.6.1 Cargo acceptance staff should seek confirmation from shippers about the contents of any item of cargo where there are suspicions that it may contain dangerous goods, with the aim of preventing undeclared dangerous goods from being loaded on an aircraft as general cargo. Many ordinary looking items may contain dangerous goods and a list of some general descriptions which, experience has shown, are often applied to such items is found in Subsection 2.2.

9.2.6.2 Operators' acceptance staff must be adequately trained to assist them to identify and detect dangerous goods presented as general cargo. If the nature of goods is not clear or hard to identify, shipper should provide product nature instruction and hazard appraisal certificate of cargo nature to prove these dangerous goods will not do harm to air transport and then can be transported. HNA has right to refuse consignment if the test report cannot be provided or cannot meet the requirements.

9.2.6.3 If concealment or underreporting is discovered, an incident report shall be made in accordance with Section 15.3.2.4 5) of this Manual.

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Figure 9-1

中华人民共和国出入境检验检疫

出境危险货物运输包装使用鉴定结果单

编号 310100301002288

申请人	江苏汇鸿国际集团土产进出口股份苏州有限公司				
使用人	昆山市迪菲芳香油有限公司				
包装容器名称及规格 开口钢桶 D395*480MM, 内有塑料瓶装 IL 货物*28 瓶			包装容器标记及批号 1A2/Y30/S/01 UN 320814 PL001		
货物包装类别	III				
包装容器性能检验结果单号	3208003010000066				
运输方式	空运				
危险货物名称	(中文) 糠基硫醇(易燃,未列明)		危险货物类别	3	
	(英文) Furfuryl mercaptan (Flammable liquid,n.o.s.)		联合国编号	1993	
危险货物状态	液态		危险货物密度	1.13	
报检包件数量	-2-件	单件容积	24.7L	单件毛重	-30-KG
危险货物灌装日期	2001 年 04 月 20 日			单件净重	-28-KG
检验依据	SN/T0372-1995《空运出口危险货物包装检验规程——使用鉴定》 《国际空运危险货物安全运输技术规则》				
鉴定结果	上述危险货物所使用的包装容器，经抽样鉴定，其适用性及使用方法符合《空运出口危险货物包装检验规程——使用鉴定》和《国际空运危险货物安全运输技术规则》第二部《明细表》和第三部《包装规则》310，根据《明细表》该包装件符合 货 的规定。 签字： 日期： 2001 年 04 月 23 日				
本结果单有效期	截止于 2002 年 01 月 08 日				

分批出境核销栏	日期	出境数量	结余数量	核销人	日期	出境数量	结余数量	核销人

说明：1.外贸经营单位必须持本结果单正本向有关运输部门办理危险货物出境托运手续；2.声明信用证要求包装检验证书时，可凭本结果单向出境所在地检验检疫机关申请签发检验证书或根据需要办理分证。

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9.3 Special Requirements for Acceptance of Dangerous Goods

9.3.1 General

Special requirements for acceptance of Dangerous Goods refer to special requirements for some dangerous goods which meet the general requirements.

9.3.2 Acceptance of Radioactive Material

9.3.2.1 When accepting dangerous goods in China, shipper must provide *certificate for radioactive material packaging radiation level or surface contamination check* given by environmental protection authority of province, autonomous region, and municipality. Radioactive material packaging level, nuclide activity and transport index on shipper's declaration must be the same as the technical index on *certificate for radioactive material packaging radiation level or surface contamination check.* See figure 9-2 for example.

When accepting dangerous goods out of China, follow the regulations stipulated by the local government.

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Figure 9-2《*Certificate for Radioactive Material Packaging Radiation Level or Surface Contamination Check*》

Send to unit: code:

Cargo name:				Piece:				
Radial type:				Physical status:				
Radioactivity:				Remarks:				
Packaging number	Packaging type	Radionuclide symbol	Radioactivity Bq(mCi)	Packaging surface radiation level mSv/h(mre/h)	Transport index	Packaging surface contamination Bq/cm(μCi/cm)		Package level
						α	β	

Check unit(stamp): Verification unit(stamp):

Check man(signature):_____ Verification man(signature):_____ Issue date:_____

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9.3.2.2 When accepting radioactive material in excepted *package*, operator should check related certificate from shipper in order to ensure the packaging meets the following conditions:

1) Radiation level of each spot of the packaging surface is not more than 5μSv/h(0.5mrem/h).

2) Radioactive material's activity in the packaging is not more than activity limitations of excepted packaging in Table 10.5.A of *DGR*.

3) Non-fixed Radioactive contamination of each excepted packaging surface is not more than limitations of in Table 10.5.C of *DGR*.

4) For instrument and manufactures in excepted packaging, the radiation level at any place of 100mm away from each spot of the unpacked instrument and finished products should be not more than 100μSv/h(10mrem/h).

5) Empty packaging ever containing radioactive material before should not be labeled for previous radioactive material mark.

6) There is no need to fill in Shipper's Dangerous Goods Declaration. But the outer packaging should be labeled with professional label for radioactive material in excepted packaging.

9.3.2.3 When accepting special form radioactive material, shipper must have *Special* Form *radioactive material approval certificate* given by the competent authority of state of origin.

1) The design of special form radioactive material must meet definition of special form radioactive material in this manual and require unilateral approval.

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2) Unilateral approval refers to an approval of a design which is required to be given by the competent authority of the State of origin of the design only. The design of special form radioactive material started from China must receive approval of the competent authority of China.

3) Competent authority must give a certificate to prove this design is satisfied with *special form radioactive material approval certificate* defined for special form radioactive material and must mark the design identification marking.

9.3.2.4 When accepting fissile material, shipper must have *fissile material package design approval certificate* and *fissile material package shipment approval certificate* given by the competent authority of the State.

Each design for fissile material needs multilateral approval. Multilateral approval refers to the approval of a design by the competent authorities of the State of origin and of each State through or into which the consignment is to be transported.

9.3.2.5 When accepting radioactive material in type B package, shipper must have *type B package design approval certificate* given by the competent authority of the State. *Type B package design approval certificate* must show the activity limitation of radioactive material contained in approved type B package. Type B package must meet following conditions:

1) The activity of radioactive material contained in packaging cannot exceed the design standards of the packaging.

2) The nuclide of the packaging content must be the same as the radioactive nuclide on *Type B package design approval certificate.*

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3) The exterior or physical or chemical state of the packaging with radioactive material must be the same as that on *Type B package design approval certificate.*

9.3.2.6 When accepting radioactive material in type B(U)package, shipper must have *type B package design approval certificate* which must have unilateral approval from the competent authority of the State of origin.

9.3.2.7 When accepting radioactive material in type B(M)package, shipper must have *type B(M)package shipment approval certificate.* The design of each type B(M)package must have multilateral approval. Type B(M)packaging cannot be transported by passenger aircraft.

9.3.2.8 When accepting radioactive material in type C packaging, shipper must have *type C package shipment approval certificate* given by the competent authority of the State. Except the design of type C package containing fissile material and low dispersible radioactive material must have multilateral approval, other type C packaging only need to have unilateral approval.

9.3.3 Acceptance of Explosives

9.3.3.1 HNA passenger flights only accept explosives in division 1.4S, for example: ammo for sport, ammo for security….; cargo flights can accept all explosives in any division except 1.4S or compatibility group, but the explosives in division 1.4S are not forbidden by air transport.

9.3.3.2 The explosives transported by shipper must use UN specification packaging (except packaging belonging to packing instruction 101) and packaging way shown in related packaging instruction in Section 5 of IATA *DGR*.

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9.3.3.3 When shipping explosives, following documentations must be provided:

1) Test report for explosives division or compatibility group and/or approval certificate and test report given by related competent authorities should include the proper shipping name, UN code, division or compatibility group for the explosives.

2) If the explosives packaging belongs to Packing Instruction 101, shipper should provide approval certificate for packaging way given by related competent authorities.

9.3.3.4 For domestic transport, shipper must get a written permission approving explosives transport from public security organization.

9.3.3.5 Shipper must prepare transit permission or import permission or related documentations required by transit station and destination or related operators for explosives transport.

9.3.3.6 For confirmation of class, compatibility group or proper shipping name of new explosive material or goods, shipper must get the approval certificate from the competent authority of the State of origin or from international transport department of state of departure.

9.3.3.7 Strictly follow the special regulations of related states or operators.

9.3.4 Acceptance of Gas

1) For confirmation of class or proper shipping name of dangerous gas first transported, shipper must provide test report in accordance with regulations in item 9.3.2 of this manual.

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2) Shipper must provide enough certificates to prove that the pressure receptacle containing gas meets related regulations or national standards. Meanwhile the packaging must meet regulations in packing instruction of IATA *DGR*.

3) No matter whether the information provided by shipper is accurate or not, operator holds the right to invite professionals or department to finally identify cargo nature. If acceptance staff supposes the information provided by shipper cannot prove the cargo nature, he has right to ask shipper to let cargo be tested in appraisal unit designated by HNA for pressure receptacle inspection.

9.3.5 Acceptance of Infectious Substances

9.3.5.1 Order flight in advance: Shipper should order flight, date, and tonnage in advance. The goods can be transported only after approved by transit station. If the dangerous goods need transit transport, precautions must be taken to ensure special care, expeditious handling, and monitoring of the shipment in transit.

9.3.5.2 Documentation requirements:

1) Declaration: when dry ice is transported as refrigerant with infectious substance in one packaging, the "Q" value can be disregarded. In such situation, as refrigerant, dry ice must be declared in declaration.

2) Shipment certificate given by class 1 sanitation authority of province should include group of the infectious substance and contents like there is no infectious substance in packaging surface.

9.3.5.3 Packaging statement provided by shipper: when consigning infectious substance, shipper must provide packaging statement to announce the packing way meets the regulations in packing instruction 602 of *DGR*.

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9.3.5.4 Shipper must prepare all documentations required by transit station and destination for infectious substance transport. If operators find the label or documentation is wrong, inform shipper or consignee immediately to take measures for modification.

9.3.5.5 Regulations are as follows: before consigning infectious substance, shipper and consignee must make good arrangements in advance and get confirmation that this infectious substance can be transported and claimed without delay. Shipper also needs to inform the consignee of situations about cargo transport; meanwhile, operator should make good arrangements in advance to ensure quick transport.

9.3.5.6 If the flight is confirmed, send loading telegram to inform destination and transit station of the loading, meanwhile mark the outbound flight, date, destination, or transit station on air waybill.

9.3.5.7 For dangerous goods needing transit shipment, the extended flight confirmation telegram should be transported with transport documentations and related operators should ensure quick transport.

9.3.5.8 A live animal containing an infectious substance must not be transported.

9.3.6 Acceptance of Self-Reactive Substances of Division 4.1 and Organic Peroxides of Division 5.2

9.3.6.1 When shipper declares the shipment of this kind of cargo, special storage requirements must be marked in “other operation instruction” box of Shipper’ Dangerous Goods Declaration.

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9.3.6.2 Shipper should order flight, date, and tonnages. The goods can be transported only after approved by transit station. If the dangerous goods need transit transport, operator must inform transit station in advance to ensure the transit of goods on time.

9.3.6.3 During transport, cargo must be protected from direct sunlight and all sources of heat and be placed in adequately ventilated areas and be separated from other cargo.

9.3.6.4 The cargo packaging should be stuck with hazard label and “keep away from heat” label.

9.3.6.5 when Self-Reactive Substances of or Organic Peroxides are transported as examples, mark the situation in “Additional Handling 1nformation” box and transport the Self-Reactive Substances of or Organic Peroxides in accordance with regulations in 3.4.1.2. or 3.5.2.6 in IATA *DGR*.

9.3.7 Vehicle Transport

9.3.7.1 Large vehicles transport including internal-combustion engine transport only applies to flights of wide boarded aircraft and cargo aircraft.

9.3.7.2 Vehicles driven by liquefied petroleum gas can only be transported by cargo aircraft. High pressure receptacle, line and line controller must be empty before loading.

9.3.7.3 Vehicles driven by petrol should empty fuel. The remaining fuel cannot exceed 1/4 cubage of the fuel tank.

9.3.7.4 Vehicles driven by diesel oil need not empty the fuel tank but need to leave enough space for fuel to avoid leakage when expanding.

9.3.7.5 Carefully check the vehicle and ensure there is no leakage of fuel, and the fuel tank cover and water tank cover are fastened.

9.3.7.6 Fuel and water need not be emptied. The tire need not release the gas.

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9.3.7.7 Anti-leakage accumulator need not be unloaded and be cut off power. However, accumulator needs to be fastened and kept upright, and it cannot contact other parts to prevent short circuit. If the battery group cannot maintain upright during transport, it must be unloaded and packed according to packing instruction 492 or 870 in IATA DGR. If accumulator is installed with lithium or natrium battery,additional requirements are needed to be followed.

9.3.7.8 Equipments containing dangerous goods required for vehicle transport, such as fire extinguisher, charge cylinder, security device and so on must be fastened to the vehicle. If vehicle containing dangerous goods in name list of dangerous goods only transported by cargo aircraft, the vehicle must be loaded on cargo aircraft.

9.3.7.9 If the vehicle is transported in knocked-down state which leads to cutoff of the fuel line, all the broken fuel line must be sealed.

9.3.7.10 Naked engine or vehicle cannot be stuck with Class 9 hazard label.

9.3.8 Acceptance of Dangerous Goods with Outer Packaging in Cylinder, Can and Bottle Shape

If the outer packaging in cylinder can and bottle shape is a single packaging, shipper must use tray or other overpacks to make the packaging convenient for transport.

9.3.9 Acceptance of Consumer Product

An article or package may bear a warning symbol or consumer hazard label. The article or substance contained in the package may not necessarily meet the criteria for classification shown in Section 3 Conformation should be obtained from the shipper, if required, before accepting the package as “Not Restricted”.

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9.4 Acceptance Procedure

9.4.1 Qualifications

All operators and agents transacting dangerous goods shipment must transport dangerous goods after receiving qualification cognizance from management department for dangerous goods transport of HNA or CAAC.

9.4.2 Application and Documentation of Shipper

9.4.2.1 The shipper and the agent shall truthfully fill in the shipper Dangerous Goods Declaration Form, air cargo slip, dangerous goods identification result document, UN38.3 test report or summary, certification of the cabin position, instructions / certification materials about the agent and the packaging of the goods, and other documents, and be responsible for the correctness of the declared contents.

9.4.2.2 Shippers or agents should go to Entry and Exit Inspection and Quarantine Bureau of China to transact import and export dangerous goods packaging with finished *Shipper's Dangerous Goods Declaration*

9.4.2.3 Commodities inspection unit should implement inspection according to packaging performance inspection regulations for air transported export dangerous goods. If qualified, sign *Appraisal result for air transported export dangerous goods packaging receptacle usage.*

9.4.2.4 For the inspection and management of some pressure receptacle (except sprayer and small gas receptacle), infectious substance, radioactive material and military dangerous goods, the transaction must be implemented in accordance with related regulations.

9.4.2.5 Only after operator supposes the documentations and cargo preparation are in accordance with regulations can they transact transport for shipper.

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9.4.2.6 Shipper should order flight, date, and tonnages in advance. If the cargo is transported to destination by direct flight, shipper should inform consignees the dangerous goods information in advance.

9.4.3 Acceptance of Operator

9.4.3.1 The Company or entrust relevant agency personnel to check the packaging conformity of the goods transported in China by opening bags, including packaging performance, packaging specifications, packaging suitability, etc check up.

9.4.3.2 When goods in one *Appraisal result for export dangerous goods packaging receptacle usage* need to be transported separately, cargo department of HNA should return the original certificate to shipper's unit for next use after registering in "separate transport record" box of single certificate. After all the goods are transported or out of period of validity, cargo department of HNA should retain or write off the single certificate.

9.4.3.3 For the storage of dangerous goods, transport department should store dangerous goods in different classes and protect the packaging and receptacle from damage. If the leakage and damage of packaging and receptacle is detected, the transport department cannot accept these dangerous goods and make a record.

9.4.3.4 When accepting shipper's import or transit dangerous goods abroad, transact the goods according to requirements of CAAC and IATA and check if the packaging and labeling of the dangerous goods meet requirements of *DGR* or not. Refuse to accept the unqualified dangerous goods.

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9.4.3.5 Acceptance staff should check every item according to dangerous goods acceptance checklist. For the shipper’s declaration and related documentations, packaging, marking, and labeling, if one of them cannot meet the requirements, the dangerous goods should be refused for transport. If refusing transport, return one piece of the shipper’s dangerous goods declaration and acceptance checklist to shipper. The returned declaration cannot be used again. Shipper can re-prepare for the documentations and cargo packaging not meeting the requirements.

9.4.3.6 The receiving and transportation personnel must check item by item according to the dangerous goods collection and transportation inspection list, and shall not reject the items in all inspection lists. As long as the shipper's dangerous goods declaration form and other relevant documents, packaging, marks, labels, etc., do not meet the requirements, it shall refuse to receive and transport them. At the same time, if the consignor refuses to collect and transport, the dangerous goods declaration form and the dangerous goods collection and transport inspection form shall be returned to the shipper. The returned shigoods goods form shall not be reused. The shipper may reprepare the documents or cargo packages that do not meet the requirements.

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9.5 Charge

9.5.1 Items

9.5.1.1 Air transport fee of dangerous goods is charged according to related regulations.

9.5.1.2 Dangerous goods acceptance charge(RAC)

1) From China to any destination of IATA:Charge 400RMB for each air waybill.

2) From areas out of China to any destination of IATA:according to regulations of 《TACT(Rules)》, charge RAC by different standards from different countries.

3) For dangerous goods in excepted quantities, charge RAC according to standard above.

4) For dry ice with UN1845, free of charge.

9.5.2 On air waybill, enter:

9.5.2.1 RAC in "other charge" box of the air waybill.

9.5.2.2 If HNA, on behalf of other operators, accepts dangerous goods, charge RAC according to ways regulated by both sides in terms of 《TACT(Ru1es)》4.5.

9.5.2.3 When the dangerous goods are shipped by HNA, acceptance staff should refer to 《TACT(Ru1es)》7.3.2 for transit and storage charge of transit station and destination and enter these charges into "Other Charges" box of the air waybill.

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10 Storage of Dangerous Goods

10.1 General regulations

10.1.1 The storage must obey applicable laws, regulations, orders or requests of government and regulations of HNA during transportation.

10.1.2 When proceeding the storage of dangerous goods in China mainland, HNA and its contracted ground handling agency must follow the regulations per below sections.

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10.2 Dangerous goods Storehouse Equipment and Management

10.2.1 Basic Requirements for Dangerous Goods Storehouse

10.2.1.1 Dangerous goods storehouse and placement area must have safe and enough illumination facilities and effective firefighting facilities to response quickly when emergency happens.

10.2.1.2 Dangerous goods storehouse should be protected from direct sunlight and all sources of heat and be placed in adequately ventilated areas. The temperature cannot be high in summer. There should be some ventilation facilities, such as ventilator to dispel the chemical smell due to the storage of large amount of dangerous goods.

10.2.1.3 Dangerous goods storehouse should equip exposure suit and gas defence or other necessities to response in time when dangerous goods leakage or accident happens. Gas defences mainly include filtrated gas defence and isolated oxygen or air mask.

10.2.1.4 Dangerous goods storehouse for radioactive materials of Class 7 must have firm walls and doors and, to some extend, have function of reducing radiation level. If there is no professional storehouse for radioactive materials, store radioactive materials according to requirements of item 4)in 10.3.2 of this chapter.

10.2.1.5 Dangerous goods storehouse should equip personal exposure articles. Exposure articles often used mainly include work clothes, work caps, boot, rubber gloves, and respirator and so on.

10.2.1.6 Dangerous goods storehouse should ensure water source and sand to response quickly when emergency happens.

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10.2.1.7 No fire and no smoking in storehouse and adjacent areas, especially in storehouse for flammable and explosive goods. It is forbidden to use fire in storehouse and the storehouse must equip anti-thunder facility.

10.2.1.8 Dangerous goods storehouse should equip necessary alarm facilities.

10.2.1.9 Electrical wires, lights, fire lighting and evacuation indicator in dangerous goods in storehouse must meet related requirements.

10.2.1.10 The designated area for dangerous goods in general storehouse should also equip facilities above.

10.2.1.11 Dangerous goods storehouse and placement area must keep far away from other cargo to move them out quickly when emergency happens.

10.2.2 Dangerous Goods Storehouse Management

10.2.2.1 Staffs of dangerous goods storehouse must receive training and pass the test for the post. Staffs of dangerous goods storehouse must receive professional training for fireproofing and firefighting and be familiar with dangerous goods nature or emergency response.

10.2.2.2 No smoking and no fire in dangerous goods storehouse. Especially in storehouse for flammable and explosive goods. It is forbidden to use fire and anti-thunder facility must be equipped.

10.2.2.3 The dangerous goods should be stored in different dangerous goods storehouses and different areas in terms of hazard class or division. The management department of dangerous goods storehouse should set up full and effective regulations and measures and ensure a good fireproofing, anti-thief, anti-mouse, waterproof and anti-freeze environment.

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10.2.2.4 Any person without approval cannot enter dangerous goods storehouse. When shipper, consignee or his agents need to enter storehouse in special situation, they must be accompanied with operators. Relates staff should lock the storehouse in time when leaving.

10.2.2.5 Dangerous goods storehouse should put up information like segregation table for dangerous goods contradictory in nature, emergency phone numbers, hazard slogan, storage requirements and emergency response in obvious areas for operators to consult at any time.

10.2.2.6 When entering or exiting dangerous goods storehouse, check air waybill code, count numbers, inspect packaging and register the record for entering or exiting dangerous goods storehouse in *log of entering or exiting dangerous goods*. The log should at least include date, air waybill code, flight, pieces, weight, name, class and notice for storage. For each enter and exit, storehouse administrator must sign log. The record should be retained for 24 months.

10.2.2.7 Dangerous goods storehouse should keep tidy, dry, and clean.

10.2.2.8 If the dangerous goods are refused to be transported, the consignee and shipper should together submit application to dangerous goods acceptance department and complete *dangerous goods refusing application*. The dangerous goods acceptance principal should audit and sign the application then give approval. When handing over the goods, the storehouse administrator should check air waybill code, count numbers, inspect packaging and sign *dangerous goods refusing application* with shipper after refused shipment completed. The *dangerous goods refusing application* should at least include date, air waybill code, flight, pieces, weight, name, class, and reason for refusal. The application should be retained for 24 months.

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10.2.2.9 Dangerous goods storehouse should be inspected periodically for the damage and leakage of the dangerous goods and other abnormal situation. If there are some abnormal situations, immediately report to related departments according to dangerous goods accident and incident response procedures. For each inspection, sign on the *dangerous goods storehouse inspection record. Dangerous goods storehouse inspection record* must at least include inspection date and the storage of dangerous goods, and check that if there is fire, leakage, spilt or other abnormal situations. For each inspection, the storehouse administrator must sign the record which should be retained for 24 months.

10.2.2.10 Dangerous goods storehouse should be cleared out periodically. For dangerous goods transported abnormally, periodically contact with consultation department for handling to prevent long term overstock of dangerous goods. For each clearance, sign on the *dangerous goods storehouse clearance record, dangerous goods storehouse clearance record* must at least include clearance date, the clearance area, air waybill and pieces of dangerous goods before clearance, if it is the same as the record on *log of entering or exiting dangerous goods* and abnormal situation response. For each clearance, the storehouse administrator must sign the record which should be retained for 24 months.

10.2.2.11 For accepted dangerous goods, if the cargo is detained in storehouse resulted by shipper or agents, some of the storehouse storage fee should be charged. The fee should be charged according to related regulations of HNA.

10.2.2.12 For dangerous goods in normal transit, if the dangerous goods are held up for more than 3 days, contact tonnage control department in time and inform them the detained situation to transport goods as soon as possible.

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10.2.2.13 Dangerous goods storehouse should have security personnel for 24 hours a day and prevent dangerous goods from losing and illegally using.

10.2.2.14 Responsibility for security personnel in dangerous goods storehouse

1) Monitor the cargo of storehouse in open air. Forbid unrelated persons and vehicles to get close to the cargo.

2) Responsible for checking pass permit of persons and vehicles that entering the cargo control area.

3) Strictly monitor the entering of the cargo to prevent the cargo without receiving security check from entering the storehouse.

4) Responsible for security management of dangerous goods storehouse to prevent robbing and stealing.

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10.3 Placement of Dangerous Goods

10.3.1 Portage and Placement of Dangerous Goods

10.3.1.1 Dangerous goods are stored in different dangerous goods storehouses or different areas according to different hazard. If they need to be stored in general storehouse, they must be put in designated area for integrated management and there must be obvious marking and isolation facilities in this area.

10.3.1.2 Packaging of incompatible dangerous goods must be stored according to the segregation principles shown in Table 9.3.A of *DGR*. The packagings can not contact or be close to each other in any time. There must be 2m distance between them when stored in storehouse.

10.3.1.3 Operators must follow portage and place dangerous goods packaging according to “handle with care” and “don’t keep upside down” principles. (See Section 11 of this manual).

10.3.1.4 Dangerous goods marking should be in obvious position and not be put together in a pile. The direction of the bottleneck should be upward or the same as the direction of marking.

10.3.1.5 The dangerous goods should be stored separately in terms of class, division, or compatibility group. For example: explosives of Class 1 should be stored separately in terms of division or compatibility group. When handling the dangerous goods, prevent collision, shake, fiction and roll, and goods need to be handled with care and load and unload gently.

10.3.1.6 Dangerous goods in storehouse should be placed in accordance with requirements like “handle with care”, “arrows up”, “marking and label outward” and principles like big one up, heavy one up and wood box and iron box above paper box. General speaking, the height of the cargo should not exceed 4 floors or 3 meters.

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10.3.1.7 The dangerous goods storehouse of HNA does not have function of storing dangerous goods needing freezing or refrigeration. The dangerous goods needing freezing or refrigeration can be put in refrigerator and must be put in designated area for good management.

10.3.1.8 When dangerous goods are to be stored, if there is special requirement for freezing or refrigeration on air waybill or cargo packaging, different handling measures should be taken according to different hazard.

1) Dangerous goods needing freezing or refrigeration like explosives of Class 1, substance releasing flammable gas in contact with water of division 4.3, toxic and infectious substance of class 6, radioactive material of class 7 and corrosive material of class 8 cannot be put in refrigerator and must be put in separate storehouse according to different hazard.

2) Dangerous goods with damage, leakage or smell should not be put in refrigerator.

3) Except above ones, dangerous goods needing freezing or refrigeration can be put in refrigerator.

10.3.2 Special Requirements for Storage of Some Dangerous Goods

10.3.2.1 Steel cylinder of compressed gases

Steel cylinder of compressed gases can be placed upright on the shelves or lie down on the dry ground but cannot be placed upside down. When lying down, the steel cylinder of compressed gases must be blocked by triangle wood to prevent movement. When several steel cylinders are placed together, the directions of their bottoms and bottlenecks must be the same and be prevented from pointing at crowded place. When the temperature of the storehouse is more than 35℃, cooling measures must be taken.

10.3.2.2 Refrigerated liquid nitrogen tin

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1) Liquid nitrogen tin must keep upright and arrow up.

2) If it has a large amount, place in a confined space and take care of ventilation to prevent suffocation.

10.3.2.3 Packaging of Organic Peroxides and Self-Reactive Substances.

Packaging of Organic Peroxides and Self-Reactive Substances must be protected from direct sunlight and all sources of heat and be placed in adequately ventilated areas.

10.3.2.4 Radioactive material packaging

The number of packages, overpacks and cargo containers containing radioactive material stored in any one storage area must be so limited that the total sum of transport index or the criticality safety indexes in any group of such packages, overpacks or cargo containers does not exceed 50. If exceeding 50, groups of such packages must be stored in the place which is at least 6 meters away from other groups of such packages, overpacks or cargo containers.

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10.4 Ground service agent temporary storage of dangerous goods management provisions

10.4.1 This chapter is based on the Regulations on the Administration of the Transport of Dangerous Goods by Public Air and the Dangerous Goods Navigation Air Transport Temporary Storage Management Measures and relevant laws(Transportation Order No.4 from Department of Transportation ,2024), regulations, standards and norms formulated.

10.4.1.1 The ground service agent shall carry out the storage of dangerous goods by air in accordance with this Regulation The laws of the People's Republic of China, administrative regulations, rules and other regulations of the Civil Aviation Administration Except as otherwise provided in the documents.

10.4.1.2 The Law responsible for the safety and operation of temporary storage sites for the transport of dangerous goods by air Human units shall strengthen and implement the main responsibilities of air transport production and business units, and Strengthen the management of subcontractors.

10.4.1.3 The Cargo Management Center of the Land Service Department shall regularly check the ground for the registration of dangerous goods qualification in the Bureau The service agent temporarily stores the warehouse for inspection, and makes the relevant inspection list

10.4.2 Basic Requirements

10.4.2.1 Ground service agents to carry out dangerous goods air transport storage activities, should be in accordance with the relevant provisions of the "*Public Air Transport of Dangerous Goods Management Regulations*"(Transportation Order No.4 from Department of Transportation ,2024), complete the dangerous goods ground service agent record.

10.4.2.2 The newly established special storage area and designated temporary storage

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area of the ground service agent shall, before being put into use, ensure that the special storage area and designated temporary storage area meet the requirements of these Measures through safety self-inspection

10.4.2.3 The ground handling agency should establish its own management system for storage of Dangerous Goods according to this section and relevant requirements. The management system should at least include below requirements:

1) General Policy for temporary storage of Dangerous Goods.

2) Job responsibility for Safety Management and Supervision function of temporary storage management of Dangerous Goods.

3) Safety management of temporary storage of dangerous goods, including storage management, operation requirements and ledger management.

4) Training requirements for staffs who handle the temporary storage of Dangerous Goods.

5) Safety and security requirements for temporary storage of Dangerous Goods.

6) Emergency Action Response program for temporary storage of Dangerous Goods.

7) Reporting procedure for incident of public-transporting Dangerous Goods.

8) Regular implementation of self-inspection procedures.

9) Procedures for handling dangerous goods that cannot be delivered.

10.4.2.4 Dangerous goods storage practitioners, including management personnel, shall receive dangerous goods training that meets the requirements and be assessed as qualified.

The handling staff and staff who takes in charge of emergency action response should possess strong knowledge about relevant Class and Division's temporary storage requirements and emergency action response requirements, also possess strong knowledge about reporting method when there is an

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incident of transporting Dangerous Goods.

10.4.2.5 The ground handling agency should take proper safety and security action for preventing irrelevant people entering the storage area, to avoid Dangerous Goods to be stolen or improperly handled.

The ground handling agency which handles high-risk Dangerous Goods should establish a safety and security program and practice it fully by following the requirements in *Regulations on the Administration of Dangerous Goods Transportation in Civil Aviation*(Transportation Order No.4 from Department of Transportation ,2024) and Technical instruction.

10.4.2.6 The ground service agent shall establish a device that can be read outside the dangerous goods storage area and be updated in real time

New dangerous goods storage electronic ledger, accurately grasp the name of dangerous goods, danger Risk, number of pieces, weight, storage location and other relevant information.

10.4.2.7 The ground handling agency should include the Emergency Action Response program for storage of Dangerous Goods into the company's overall Emergency Action Response program and drill it at least once a year.

10.4.2.8 The reporting procedure for incident of transporting Dangerous Goods should meet the requirement of *Administrative Measures for Determination and Report of Dangerous Goods Air public-Transport Incidents.*

10.4.2.9 The ground handling agency should implement the self-inspection procedures for temporary storage of Dangerous Goods at least once a year and correct the issues at the soonest.

10.4.3 Temporary storage Requirements

10.4.3.1 The ground service agent shall store the dangerous goods in the storage place for the transport of dangerous goods by air and carry out temporary storage

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activities in accordance with the requirements of this Regulation. If the ground service agent needs to set up a temporary storage area, he shall inform the airport management authority of the setting up of the relevant information before opening.

10.4.3.2 The ground service agent shall, according to the type, danger and quantity of the dangerous goods stored, set up storage places, equip operation and emergency disposal facilities and equipment, and regularly test and maintain them to ensure that they are in good condition and normal availability. These facilities and equipment shall comply with the requirements of the "Dangerous Goods Air Transport Storage Site Safety Management Code" (MH/T 1073) and other relevant technical standards and regulations.

10.4.3.3 The ground handling agency should provide necessary protective appliances to the handling staffs and make sure the protective appliances are fully functional.These protective equipment shall comply with the requirements of the "Dangerous Goods Air Transport Storage Site Safety Management Code" (MH/T 1073) and other relevant technical standards and regulations.

10.4.3.4 The ground handling agency should post relevant posters or signs showing the Class, Division, and risk of stored Dangerous Goods.

"No smoking", "No open fires" and relevant signs should be posted in obvious area. Next to the signs, Emergency Action Response program and Reporting Procedure for incident of Dangerous Goods Air Transport should be posted.

10.4.3.5 Except the necessary equipment for storing the Dangerous Goods, nothing irrelevant should be stored at the same area. Non-dangerous goods that loaded in the same cart or ULD with Dangerous Goods is exceptional.

10.4.3.6 The ground handling agency should perform acceptance check according to *Regulations on the Administration of Dangerous Goods public-Transportating in Civil Aviation*(Transportation Order No.4 from Department of

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Transportation ,2024) and *Technical Instructions*, make sure the Dangerous Goods meets the requirement before storing in designated area.

10.4.3.7 The ground service agent shall inspect the dangerous goods in advance before storing them; When storing operation, it should be handled and put lightly, and strictly prevent impact, heavy pressure, dragging, inversion and side placement.

When handling Dangerous Goods that is over 50 kgs per piece, proper equipment should be used for handling, avoid handling by hands.

10.4.3.8 Except for emergency disposal needs, it is prohibited to open packaging, packaging and modification, logistics processing, sampling and other operations in the storage site.

10.4.3.9 The ground service agent shall, according to the actual storage situation of dangerous goods, divide different areas in the special storage area, special storage library and designated temporary storage area, and store dangerous goods in different categories (item) according to the relevant provisions in the Technical Rules and relevant industry standards.

10.4.3.10 The tow bucket or container equipped with multiple categories (items) of other dangerous goods shall be stored in the designated area of the air transport storage site of dangerous goods.

10.4.3.11 The ground service agent shall conduct regular inspection of the air transport and storage sites of dangerous goods to ensure that the packaging of the stored dangerous goods is complete, consistent with the standing book, and continuously meets the requirements of these provisions, and keep the inspection records.

10.4.3.12 If the ground service agent finds the dangerous goods with deformed or slightly damaged packaging in the storage place during pre-inspection or regular inspection, it shall timely contact the shipper to replace the packaging

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of the departing dangerous goods or notify the consignee to withdraw the incoming dangerous goods.

In the event of dangerous goods transport by public air, the ground service agent shall initiate the emergency response plan, take effective disposal measures in time, and cooperate with the bureau to carry out the investigation according to the regulations.

10.4.3.13 Unless otherwise required by the relevant government administrative departments, the dangerous goods transported on domestic routes (excluding Hong Kong, Macao and Taiwan routes) by the ground service agent shall not exceed three months in the storage place, and the dangerous goods transported on Hong Kong, Macao and Taiwan routes and international routes shall not exceed six months.

The ground service agent shall check, register and keep the delivered dangerous goods. The dangerous goods ground service agent shall timely report the relevant situation to the operator transporting the dangerous goods, and conduct storage management in accordance with the relevant requirements of these Measures.

For the dangerous goods, the carrier shall, in accordance with the requirements of the relevant government administrative department or the agreement with the shipper, and the relevant units shall cooperate in the handling.

10.4.4 Other requirements

10.4.4.1 The storage site used for storing cryopreserved dangerous goods shall not only meet the relevant provisions of low-temperature environment, but also meet the requirements of these Provisions.

10.4.4.2 Self-reactive substances and organic peroxides and dangerous goods meeting

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the special provisions A20 or A136 shall be protected from direct sunlight, far away from heat sources, and stored in well-ventilated areas.

10.4.4.3 The storage of radioactive substances shall meet the relevant requirements of the Technical Rules.

10.4.4.4 Dry ice or goods containing dry ice as refrigerant shall be stored in a ventilated area; if temporarily stored in closed areas, measures shall be taken to avoid suffocation.

10.4.4.5 The designated temporary storage area shall only allow the storage of large dangerous goods such as automobiles, engines and magnetic materials.

Container containing dangerous goods to be left and just entered, in weather and temperature conditions

If suitable, it may be stored in the open air designated temporary storage area, but the storage time shall not exceed 24 hours.

10.4.4.6 The storage time of dangerous goods in other designated temporary storage areas shall not exceed 48 hours.

10.4.5 management by personal supervision

10.4.5.1 The ground service agent shall submit the relevant information of dangerous goods storage at least once a year to the regional authority of the air transport storage site of dangerous goods.

10.4.5.2 Units engaged in the temporary storage activities of the air transport of dangerous goods shall accept and cooperate with the supervision and inspection of the civil aviation administrative authorities.

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11 Loading of Dangerous Goods

11.1 Loading Principles

When loading the dangerous goods, (un)loading supervisor should receive dangerous goods training of related posts and can work after getting the certificate. (un)Loading supervisor is responsible for monitors and conducts porters to load and unload goods according to dangerous goods portage procedures and operation requirements. During (un)loading of dangerous goods, should be in strict accordance with the following principles:

11.1.1 Pre-check Principles

Before loading on an aircraft and unit load devices, dangerous goods packaging must be inspected. Only when the package meets all requirements can it continue to be shipped.

The inspection should include:

11.1.1.1 When loading packages or overpacks containing dangerous goods onto an aircraft or into a ULD, they must be inspected to ensure the outer packaging shows no signs of leakage or damage and there is no detectable odor. Damaged or leaking packages must not be loaded onto the aircraft or ULD and must be removed and safely disposed of by the ground handling agent or relevant competent authority. In case of leakage, it must also be ensured that other cargo is protected from damage and contamination.

11.1.1.2 If any harmful contamination due to leakage or packaging damage of dangerous goods is discovered on an aircraft, it must be cleaned immediately. Any package of dangerous goods loaded on an aircraft found to be damaged or leaking shall be removed from the aircraft. The leakage situation shall be assessed to ensure other packages are not contaminated. Simultaneously, check other cargo, baggage, or ULDs for contamination. Any contaminated cargo,

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baggage, or ULDs must be offloaded to ensure transport safety. Thereafter, the remaining part of the consignment must be confirmed to be in good condition and suitable for air transport.

11.1.1.3 When unloading a package or overpack of radioactive material or a cargo container for radioactive material from aircraft or unit load device, check if there is any damage or leakage or not. If it is evident that a package is damaged or leaking, or it is suspected that the package may have leaked or been damaged, access to the package should be restricted. Local safety and emergency action procedures should then be followed.

When necessary, additional steps for the protection of persons, property, and the environment, in accordance with the provisions established by the relevant competent authority (e.g., occupational health and safety authority, environmental agency, etc.), should be taken to overcome and minimize the consequences of such leakage or damage. The presence of GHS pictograms on a package which indicates that contents may pose a risk to persons, or the environment may need to be considered even though the contents are not classified as dangerous goods.

11.1.1.4 Hazard labels and handling labels on packages are correct and securely affixed. If labels are missing, detached, or illegible, the inspector shall immediately report the situation to the acceptance department for accurate replacement. This requirement does not apply if labels were missing, detached, or illegible at the time of acceptance.

11.1.1.5 The language marking (including proper shipping name, UN or ID code, name and address of shipper and consignee) of the packaging should be correct and legible. If there is any missing, inform acceptance department in time.

11.1.1.6 During the transport of radioactive materials, loading/unloading supervisors must ensure cargo handlers strictly implement inspection procedures. If

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radioactive cargo is misloaded and contaminates other cargo, baggage, or ULDs, cargo handlers must immediately initiate the dangerous goods irregularity emergency procedures and report the incident. An aircraft contaminated with radioactive material must be immediately taken out of service and assessed by qualified personnel. It must not be returned to service if radiation levels on any accessible surface or non-fixed contamination exceed the limits specified in the *Technical Instructions*.

11.1.1.7 Any person responsible for transporting or unpacking an infectious substance package who becomes aware that the package is damaged or leaking shall:

1) Avoid handling or minimize contact with the package as much as possible;

2) Check adjacent packages for contamination and isolate potentially contaminated packages;

3) Notify the competent public health authority or epidemic prevention department and provide information to any other country through which the package transits regarding potential hazards to personnel who may have been exposed;

4) Notify the shipper or consignee.

11.1.2 Orientation Principles

Liquid dangerous g oods packages all bear the package orientation (mark "This SIDE Up" as required) label. Operators should keep the package upright in accordance with such a label at all times when loading and stowing to the unit load device or aircraft.

11.1.3 Principle of Gentle Handling

When handling or loading/unloading dangerous goods packages, whether manually or mechanically, they must be handled gently. Avoid impacts, bumps, drops, or collisions. Prevent accidental damage caused by dragging, pulling, or incorrect operation.

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11.1.4 Separation Principles

Separation requirements refer to separation that is needed between some dangerous goods and human, or between dangerous goods in different classes, or between dangerous goods and not dangerous goods when storing and loading to guarantee personnel's security and cargo's integrity.

11.1.5 Approachability Principles

Approachability requirements aim at packaging only transported by cargo aircraft. It means that during storage and loading, the packaging with "CARGO AIRCRAFT ONLY" label should have approachability, e.g., during storage and flight, warehouse administrator or crew member can approach such packaging. As required, if the volume and weight is permitted, above personnel can move it by hand at any time.

11.1.6 Principle of Securing Cargo to Prevent Movement

After dangerous goods packages are loaded into the aircraft cargo compartment, to prevent damage, loading personnel shall secure them within the compartment. Effective measures must be taken as necessary to prevent packages from shifting during flight or colliding with other cargo in the hold, which could cause breakage. The loading of dangerous goods packages shall comply with the following requirements:

11.1.6.1 Small packaging will not drop from container board through mesh;

11.1.6.2 The bulk packaging will not move in the cargo compartment;

11.1.6.3 Barrel packaging must be blocked by other cargo if it is hard to fix by nylon belt;

11.1.6.4 If fixing bulk packaging by other cargo, fix it in five orientations (front, back, left, right and up) ;

11.1.6.5 If the container is not full of goods (the used cubage not more than 2/3 of the

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total cubage), fix the cargo.

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11.2 Loading Requirements

11.2.1 General Requirements

11.2.1.1 Before loading the cargo, cargo loading personnel must carefully check and verify the cargo file and label to prevent dangerous goods affixed with *"*CARGO AIRCRAFT ONLY*"* label loading on the aircraft.

11.2.1.2 During loading of dangerous goods, (un)loading supervisor is responsible to monitor cargo handling staff to load and unload cargo according to the operational requirements of dangerous goods, to prevent dangerous goods into the aircraft cockpit and cabin or flight deck, but except the restrictive articles of competent authorities or IATA *DGR* as otherwise provided.

11.2.1.3 Stopover flights for the transport of dangerous goods (including AOG), in order to prevent the dangerous goods over station stop-over misuse originating station staff should stop dangerous goods are placed in the cargo space behind the location and make fixed on the top position within the cargo hold, stops cargo, baggage, stops handling in the loading and unloading of goods, cannot be free to touch or move the dangerous goods, moving dangerous goods must informed the HNA Cargo Co., Ltd. local cargo at the person in charge. Stops flight security personnel are under an obligation to my company over the station Dangerous Goods do a good job monitoring, such as goods packaging appears damaged, leakage, overflow, fire, or other irregularities found should be the duty captain, the local civil aviation regulatory total duty of the security Ministry of Supervision Bureau, I run control unit FOC and our cargo department report, chapter 15.5 of the specific contents of the report detailed in this manual.

11.2.2 Special Loading Requirements for Class D Cargo Compartment

Currently, HNA does not have aircraft with updated D cargo compartment. If the relative D compartment does not install approved and independent smoke or fire detector(B2636、B2960、B2965、B2578 and B2990 are not installed), it cannot transport flammable and explosive dangerous goods (including dangerous goods

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whose primary or subsidiary risk belongs to Class 1, Division 2.1, Class 3, Class 4 and Class 5) except that loaded in terms of special reasons listed in operation rules or *Technical instructions*, dangerous goods

contained in luggage of passenger and crew members and radioactive materials in excepted packaging.

11.2.3 Segregation of Incompatible Dangerous Goods

11.2.3.1 Incompatible Dangerous Goods refers to some dangerous goods which, if mixed, would be liable to cause a chemical reaction. For example: flammable liquid and Organic Peroxides.

1) Packages containing dangerous goods, which might react dangerously with each other in the event of leakage, must be segregated during acceptance, handling, and loading.

Note: *Incompatible dangerous goods must also be segregated during acceptance, handling, and loading. Related local government regulations should also be considered.*

2) See Table 11-1 for dangerous goods needing separation

The application of isolation requirements is based on all hazard labels on the package, whether primary or secondary.. An " × " at the intersection of a row and a column indicates that packages containing these classes/divisions of dangerous goods must be incompatible. A "—" at the intersection of a row and a column indicates that packages containing these classes/divisions of dangerous goods do not require separation.

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Table 11-1 Incompatible Dangerous Goods

Hazard Label	1 excl. 1.4s	2.1	2.2, 2.3	3	4.1	4.2	4.3	5.1	5.2	8	9see 9.3.2.1.3
1 excluding 1.4S	Refer to 9.3.2.2.5	×	×	×	×	×	×	×	×	×	×
2.1	×	–	–	–	–	–	–	–	–	–	×
2.2, 2.3	×	–	–	–	–	–	–	–	–	–	–
3	×	–	–	–	–	–	–	×	–	–	×
4.1	×	–	–	–	–	–	–	–	–	–	×
4.2	×	–	–	–	–	–	–	×	–	–	–
4.3	×	–	–	–	–	–	–	–	–	×	–
5.1	×	–	–	×	–	×	–	–	–	–	×
5.2	×	–	–	–	–	–	–	–	–	–	–
8	×	–	–	–	–	–	×	–	–	–	–
9see 9.3.2.1.3	×	×	–	×	×	–	–	×	–	–	–

Note 1. Except packaging group of 1.4S, other explosives goods cannot be placed together with goods with all classes or divisions listed in above table. Hainan Airlines only operates passenger aircraft currently, so except Class 1, 1.4S, all other explosions are prohibited to be transported.

2.Table 11-1 does not include Class 1 Division 1.4S, Class 6, Class 7, and Class 9 (except lithium batteries and sodium ion batteries, see 11.2.3 clause 3), which do not require segregation from other classes of dangerous goods.

11.2.3.2 The package contained multiple risk among primary risk and subsidiary risk should be segregated per Table 11-1 but does not need to be segregated with package with same UN Number. For example, UN3219 Liquid that reacts with water, corrosive, n.o.s.

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11.2.3.3 Packages and Overpacks of UN 3480 Lithium ion batteries prepared according to Packing Instruction PI 965 Section IA or IB, packages and Overpacks of UN 3090 Lithium metal batteries prepared according to Packing Instruction PI 968 Section IA or IB, and packages and Overpacks of UN 3551 Sodium ion batteries prepared according to Packing Instruction PI 976, will cause fire and damage when placed next to each other, so these packages cannot be loaded next to or at same position with package or overpack with Class 1 (except 1.4S), Division 2.1, Class 3, Division 4.1 or Division 5.1 label. To make sure the segregation is effective, the segregation requirement in Table 11-1 must be followed. The segregation requirement applied to all hazard label on package or overpack, no matter for primary risk label or subsidiary risk label.

11.2.3.4 UN explosive motor, flammable liquid drive or fuel cell motor, flammable liquid drive explosive machine, flammable liquid drive and fuel cell machine does not need to be segregated with Dangerous Goods package with Division 5.1.

11.2.3.5 There must be at least 2 meters distance between incompatible Dangerous Goods in the warehouse.

11.2.3.6 If Dangerous Goods are built on pallet or loaded loose in bulk compartment, either of below two segregation ways can be chosen:

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1) Load two incompatible Dangerous Goods on pallet or in cargo compartment by using nylon belt, keeping the distance of at least 1 meter between them. See figure 11-1.

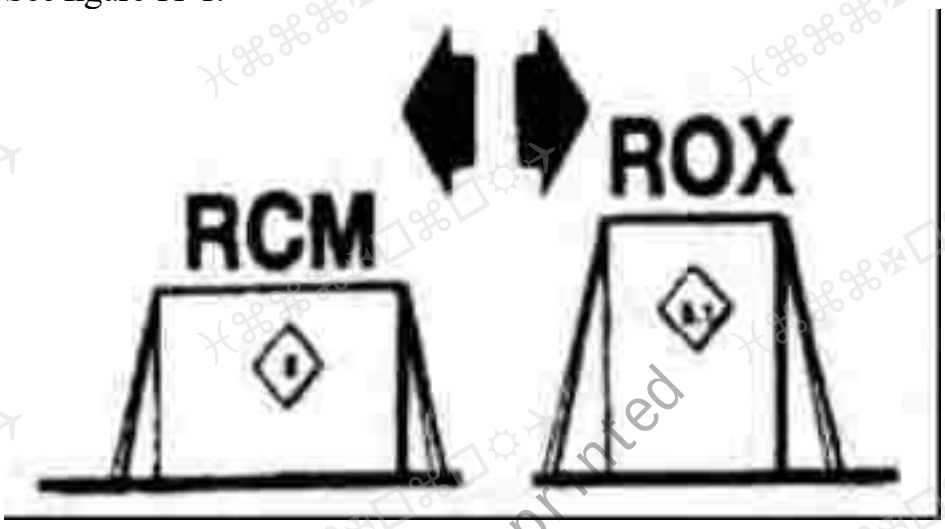

Figure 11-1

2) Segregate two incompatible Dangerous Goods by placing general cargo package between them, keeping the distance of at least 0.5 meter. See figure11-2

Figure 11-2

11.2.4 Separation of Explosive Substances and Articles

11.2.4.1 Only explosives in Division 1.4, compatibility group S, are permitted to be transported on passenger aircraft. Only the following explosives may be transported on a cargo aircraft:

1) Division 1.3 Compatibility groups C, G;

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2) Division 1.4 Compatibility groups B, C, D, E, G, S.

(1) The extent to which explosives may be stowed together in an aircraft is determined by their "compatibility". Explosives are compatible if they can be stowed together without significantly increasing either the probability of an accident or, for a given quantity, the magnitude of the effects of such an accident.

(2) Explosives in Compatibility Group S may be stowed with explosives in all compatibility groups.

(3) Except as provided for in DGR 9.3.2.2.5 or Subsection 11.2.4, provision 5) of this manual, explosives of different compatibility groups may be stowed together, whether they belong to the same division.

(4) Explosives of Division 1.4B must not be loaded with other explosives except for Division 1.4S. When loaded on the same aircraft with explosives other than Division 1.4S, Division 1.4B explosives must be loaded into separate unit load devices and when stowed aboard the aircraft, the unit load devices must be separated by other cargo with a minimum separation distance of 2 m. When not loaded in a unit load device Division 1.4B and other explosives must be loaded into different, non-adjacent loading positions and separated by other cargo with a minimum separation distance of 2 m.

11.2.5 The Separation between Class 6 Dangerous Goods and Other Cargo

Toxic or Infectious Substances requiring a subsidiary risk *"Toxic"* label must not be stowed in the same compartment with:

11.2.5.1 Animals;

11.2.5.2 Foodstuffs;

11.2.5.3 Feed;

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11.2.5.4 Other edible substances intended for consumption by humans or animals, unless the following two conditions:

1) The toxic or Infectious Substances and packaging with a subsidiary risk "Toxic" label are loaded in one closed unit load device and the foodstuffs or animals are loaded in another closed unit load device.

2) The toxic or Infectious Substances and packaging with a subsidiary risk "Toxic" label and above cargo are loaded in different unit load device. And the unit load devices must not be stowed adjacent to each other.

11.2.6 Loading of Carbon Dioxide, Solid (dry ice)

11.2.6.1 Carbon dioxide, solid (dry ice) may be carried provided that the operator has made suitable arrangements depending on the aircraft type, the aircraft ventilation rates, the method of packing and stowing. For Carbon dioxide, solid (dry ice) shipped as a refrigerant for other commodities, the number cannot exceed the limitation in Table 11-2.

11.2.6.2 Carbon dioxide, solid (dry ice) has two risks for live animals. One is that the vapours emitted by Carbon dioxide, solid (dry ice) are heavier than air and will replace oxygen. If the Carbon dioxide in the air is more than 2.5%, it will affect the physiologic function of people and animals. The other is that Carbon dioxide will reduce the surrounding temperature and hurt animals or cargo sensitive to temperature.

11.2.6.3 When aircraft is loading or has loaded dry ice, the ground operators should be informed. When landing in transit stop, open the door to improve the air flowing to reduce the Carbon dioxide in cargo compartment. If the goods need to be stowed, staffs can enter cargo compartment only after the air becomes clear.

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11.2.6.4 If operator accepts unit load device containing dry ice and need to add dry ice, he must inform captain of the quantity of dry ice.

Table 11-2 Weight Limitation for Dry Ice

Aircraft type	Compartment	Maximum Weight	
		In the Same Compartment with Animal	In the Different Compartments without Animal
B737	1	0	200 kilograms
	4	0	200 kilograms
A320/A321	Fw	0	0
	Rear	0	200
A330		250 kilograms	1000 kilogram
B787		250 kilograms	1000 kilogram

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11.2.7 Loading of Division 4.1 and Division 5.2

Packages or unit load devices containing packages of self-reactive substances of Division 4.1 and/or organic peroxides of Division 5.2 must be protected from direct sunlight and all sources of heat and be placed in adequately ventilated areas during loading and not be placed with other cargo.

11.2.8 Loading of Expandable Polymeric Beads

POLYMERIC BEADS, EXPANDABLE is a semi-processed products used to manufacture polymeric articles. These are impregnated with a flammable gas or liquid as a blowing agent and may evolve small quantities of flammable

gas during transportation. A total net weight of expandable polymeric beads (or granules) or plastic moulding materials cannot exceed 100 kg (220 lbs.)

and must be placed in any inaccessible compartment or sealed container. Refer to Packing Instruction 957 of the DGR for details.

11.2.9 Loading of Magnetized Materials

11.2.9.1 Magnetized materials must be loaded so that headings of aircraft compasses are maintained within the tolerances prescribed by the applicable aircraft airworthiness requirement and, where practical, in locations minimizing possible effects on compasses. Multiple packages may produce a cumulative effect. For magnetized material transported under the conditions of an approval described in Packing Instruction 953, loading must be in accordance with conditions specified in the authorizing approval.

11.2.9.2 magnetized material with field strengths causing a compass deflection of more than 2 degrees at a distance of 2.1m but not more than 2 degrees at a distance of 4.6m (equivalent to 0.418 A/m or 0.00525Gauss measured at a distance of 4.6m) are not subject to any other requirements into any other requirements of DGR from IATA when carried as cargo except for the following:

1) The shipper must make prior arrangements with the operator identifying the magnetized material. A Shipper's Declaration for Dangerous Goods is not required provided the words "magnetized material" and number of packages (unless these are the only packages within the consignment) are shown in the "Nature and Quantity of Goods" box on the exists with the operator, the shipper may provide the information by EDP or EDI techniques;

2) The package must bear the magnetized material handling label;

3) The operator must stow the packaged magnetized material in accordance with the Provision 1) of Subsection 11.2.9.

4) The Dangerous Goods Incident reporting requirements must be met.

11.2.10 Loading of Radioactive Material

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11.2.10.1 Category I-White Radioactive Material packaging can be stowed in cargo compartment of any aircraft type.

11.2.10.2 To reduce to the lowest radiation level affected by Radioactive Material packaging, Radioactive Material packaging should be placed on the ground of lower compartment or in container or the furthest end of the main compartment.

See Table 11-3 for TI and CSI Limits for Cargo Containers, passenger aircraft and cargo aircraft.

Table 11-3 TI and CSI Limits for Cargo Containers and Aircraft

Type of Cargo Container or Aircraft	Maximum Total Sum of Transport Indices (TI)				Maximum Total Sum of Criticality Safety Indexes (CSI)	
	Not Under Exclusive Use		Under Exclusive Use		Not Under Exclusive Use	Under Exclusive Use
	Non-fissile	Fis-sile	Non-fissile	Fiss-ile		
Cargo container—small	50	50	—	—	50	—
Cargo container—large	50	50	No limit	100	50	100
Passenger aircraft	50	50	—	—	50	—

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Packages or Overpacks having a surface radiation level greater than 2mSv/h must not be transported by air except by special arrangement.

Type B (M) packages and consignments under exclusive use must not be transported on passenger aircraft.

The total activity of LSA material and SCO in industrial packages in any single aircraft must not exceed the limits shown in Table 11-3.

Vented Type B (M) packages, packages which require external cooling by an ancillary cooling system, packages subject to operational controls during

transport, and packages containing pyrophoric materials must not be transported by air.

11.2.10.3 The total sum of the criticality safety indexes in each radioactive material packaging must not exceed 10. For each passenger aircraft, the total sum of the criticality safety indexes in non-fissile radioactive material packaging must not exceed 50; For fissile material, the total sum of the criticality safety indexes in passenger must not exceed 50.

11.2.10.4 Separation between radioactive material and persons

1） The radioactive radiation received by staff in one year cannot exceed 5mSv. So Category II-Yellow and Category III-Yellow packages must be separated from persons.

2） During transport, maintain the principle of keeping exposure to radiation as low as reasonably achievable. For packages of radioactive materials in passenger or cargo aircraft, the separation limits between packaging surface and flight deck or cabin ground are shown in Table 11-4. For packages of radioactive materials in cargo aircraft, the separation limits are shown in Table 9.3.A of *DGR*. Minimum separation for radioactive material packaging, overpacks or cargo container also apply to areas with person. The separation distance is decided according to total TI, not related to continuous flight hours.

3） When in cargo compartment bellow cabin, radioactive material packaging should be placed on the ground or container board. See figure 11-3.

11.2.10.5 Any aircraft that has become contaminated by radioactive material must stop to use, and not be re-used unless the non-fixed contamination and the radiation level on the surfaces are decontaminated.

Table11-4 Separation Distance between Radioactive Material and Persons

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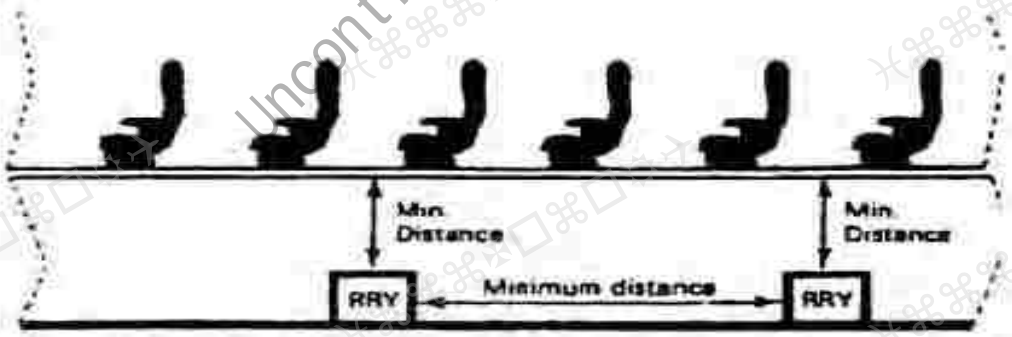
Total Sum of TI	Minimum Distance（m)	Total Sum of TI	Minimum Distance（m)
0.1-1.0	0.3	13.1-14.0	2.05
1.1-2.0	0.5	14.1-15.0	2.15
2.1-3.0	0.7	15.1-16.0	2.25
3.1-4.0	0.85	16.1-17.0	2.35
4.1-5.0	1.0	17.1-18.0	2.45
5.1-6.0	1.15	18.1-20.0	2.60
6.1-7.0	1.30	20.1-25.0	2.90
7.1-8.0	1.45	25.1-30.0	3.20
8.1-9.0	1.55	30.1-35.0	3.50
9.1-10.0	1.65	35.1-40.0	3.75
10.1-11.0	1.75	40.1-45.0	4.00
11.1-12.0	1.85	45.1-50.0	4.25
12.1-13.0	1.95		

Figure 11-3 Separation Distance between Radioactive Material and Personnel



11.2.10.6 Separation from undeveloped photographic films or plates

1） The Undeveloped Photographic Films becomes useless after receiving radiation. The minimum separation distances between Undeveloped Photographic Films and Category II and Category III-Yellow packages are shown in Table 11-5.

2） Separation distance is related to total TI and irradiation time.

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Table 11-5 Separation of Radioactive Material—Photographic Films and Plates (unit: m)

Total Sum of TI	Duration of Carriage					
	2hours or less	2-4 hours	4-8 hours	8-12 hours	12-24 hours	24-48 hours
1	0.4	0.6	0.9	1.1	1.5	2.2
2	0.6	0.8	1.2	1.5	2.2	3.1
3	0.7	1.0	1.5	1.8	2.6	3.8
4	0.8	1.2	1.7	2.2	3.1	4.4
5	0.8	1.3	1.9	2.4	3.4	4.8
10	1.4	2.0	2.8	3.5	4.9	6.9
20	2.0	2.8	4.0	4.9	6.9	10.0
30	2.4	3.5	4.9	6.0	8.6	12.0
40	2.9	4.0	5.7	6.9	10.0	14.0
50	3.2	4.5	6.3	7.9	11.0	16.0

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11.2.10.7 Separation between Radioactive Material and Live Animals

Category II-Yellow and Category III-Yellow packages, Overpacks and cargo containers must be separated from live animals by 0.5 m or more for journeys of 24 hours or less and by a distance of 1.0 m or more for journeys of more than 24 hours.

11.2.10.8 Radioactive material packaging in TYPE A

The weight of Cargo placed on radioactive material packaging in TYPE A cannot be more than 5 times of the packaging's weight.

11.2.11 Cryogenic liquefied gas loading

Cryogenic liquefied gas package must be arranged properly in advance before loading and select the appropriate aircraft type as well as live animals in isolation. At the same time inform the loading personnel of self-protection that no entry into the cargo hold for unloading before the cargo hold door open for

ventilation in an appropriate way.

11.2.12 Loading Requirements in Some States

Different states and operators have different special requirements for loading dangerous goods which must be implemented strictly in transport. See section 2.8 of *DGR* for these special requirements. Take the details of USA and Japan for example:

11.2.12.1 According to American regulation USG-10, TI limitation for each radioactive material: for passenger aircraft, the TI cannot exceed 3.

11.2.12.2 According to Japanese regulation JPG-22, all packaging with "cargo aircraft only" label must be approachable in flight, except class 7 radioactive material.

11.2.12.3 According to Japanese regulation JPG-11, Class 7 radioactive material (except radioactive material in excepted packaging) cannot be placed with dangerous goods in class 1, 2, 3 and 8.

11.2.13 When loading, see Table 11-6 for separation requirements.

11.2.14 If there is leakage or damage of any dangerous goods packaging on the aircraft, the packaging must be unloaded from the aircraft or arrange related authority to unload the packaging. After that, ensure the remainder packaging good and uncontaminated.

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Table 11-6

Stowing Instructions - Incompatible Dangerous Goods and special cargo
不相容危险物品和特种货物存储和装载指南

Cargo IMP Code 货物三字代码	Class or Division & Comp. Group 分类或分项和配装组	RCX *	RGX *	RXB *	RXC *	RXD *	RXE *	RXG *	RXS	RNG	RFG	RCL	RPG *	RFL	RFS	RSC	RFW	ROX	ROP	RPB	RIS	RRW	RRY	RCM	RSB	MAG	ICE	RMD	AVI	FIL	HUM	EAT	HEG	LHO
RCX *	1.3C		X	X				X		X	X	X	X	X		X	X	X	X					X									
RGX *	1.3G	X		X	X	X	X			X	X	X	X	X		X	X	X	X					X									
RXB *	1.4B	X	X		X	X	X	X		X	X	X	X	X		X	X	X	X					X									
RXC *	1.4C		X	X				X		X	X	X	X	X		X	X	X	X					X									
RXD *	1.4D	X	X	X				X		X	X	X	X	X		X	X	X	X					X									
RXE *	1.4E	X	X	X				X		X	X	X	X	X		X	X	X	X					X									
RXG *	1.4G	X		X	X	X	X			X	X	X	X	X		X	X	X	X					X									
RXS	1.4S																																
RNG	2.2	X	X	X	X	X	X	X																									
RFG	2.1	X	X	X	X	X	X	X																									
RCL	2.2	X	X	X	X	X	X	X																				X				X	
RPG *	2.3	X	X	X	X	X	X	X																				X			X		
RFL	3	X	X	X	X	X	X	X									X																
RFS	4.1																																
RSC	4.2	X	X	X	X	X	X	X									X																
RFW	4.3	X	X	X	X	X	X	X																X									
ROX	5.1	X	X	X	X	X	X	X						X		X																	
ROP	5.2	X	X	X	X	X	X	X																									
RPB	6.1																											X			X		
RIS	6.2																											X			X		
RRW	7Cat I																																
RRY	7Cat II/III																											①	②			①	①
RCM	8	X	X	X	X	X	X	X																									
RSB	9																																
MAG	9																																
ICE	9																											X				X	
RMD	9																																
Special Load 特种货物装载																																	
AVI												X	X							X	X		①				X				X	X		
FIL																							②										
HUM																												X			X		
EAT													X							X	X							X		X			
HEG											X												①				X						
LHO																							①										

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Note:

×: Must be separated *: Cargo Aircraft Only
Bulk compartment-- Cannot be loaded onto the same cargo compartment
ULD Load—Must not be loaded into the same ULD.

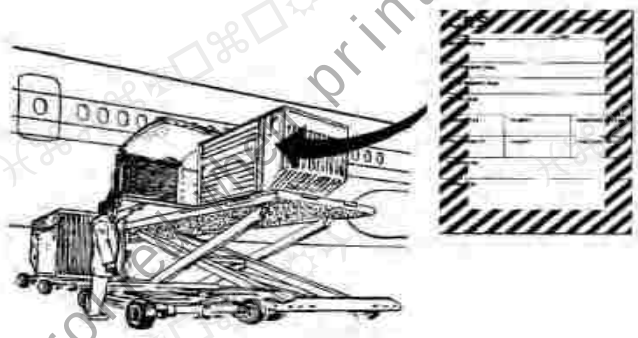
① The minimum separation distances between **RRY** and **AVI/LHO/HEG** should be at least 0.5 m.

② **FIL** and **RRY** must not be loaded into the same cargo compartment.

EAT: Foodstuffs have not been sealed.
AVI: Live Animal **HEG:** Hatching Eggs **LHO:** Live Human Organs
PER: Perishable **HUM:** Human remains in coffin
FIL: Undeveloped unexposed film

11.3 ULD Tag and Special Load Notification to Captain

11.3.1 If dangerous goods are transported with ULDs, a ULD tag shall be attached on such ULDs with dangerous goods after the buildup is finished. The edge of such a tag shall be in obvious red and at least 2 same tags shall be attached on the opposite side of the ULDs. Meanwhile, the tag shall be always highly legible; the minimum size is 148mm ×210mm. The sample is as follow:



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Dangerous goods container sign must show hazard class and division. Only having IMP code is not enough.

If placed in a protective tag holder, t

his information must remain clearly visible.

Figure 11-7 Example for Dangerous Goods ULD ID Tag

AIRLINE:		PSN:			
DESTINATION:		CLASS/DIV.			
NET WEIGHT(KG):		PIECES:			
GROSS WEIGHT(KG):					
TOTAL(KG):					
DEPARTURE AT		FLIGHT		POSITION	
TRANSFER AT		FLIGHT		POSITION	
REMARKS:					

11.3.2 If the ULD contains the packages with label of Cargo Aircraft Only, then the ULD must be loaded into freighters only per the TI.

11.3.3 After the Dangerous Goods is offloaded from the ULD, the ULD tags must be removed at the soonest.

11.3.4 Supervision personnel or freight ground agents should submit the Special Cargo Captain's Notice to the captain before customs clearance, and the captain should confirm and fill it out completely before signing for it.

11.3.4.1 The captain should sign the NOTOC if there is no question. Captain has the rights to check the loading status of special cargo and ask the loading staff to offload or reload the cargo if it does not meet the regulations.

11.3.4.2 When an aircraft changes crew at an intermediate stop but the cargo continues on the same aircraft, the captain of the preceding sector must sign the NOTOC and leave it in a conspicuous and secure fixed location within the flight deck. Upon boarding, the next crew shall retrieve and confirm the document from this fixed area, then sign in the "Relieving Captain" signature block.

11.3.4.3 Refer to Chapter 7 --Completion of Special Load Notification to Captain.

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11.3.4.4 Cargo load planning shall notify the Load Control Unit of the ULD number and the hazard class or division of the dangerous goods. The Load Control Unit must mark the dangerous goods information on the load sheet and coordinate with the ground operations department.

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11.4 Regulations for Cargo Compartment Code, Position and Total Approved TI of Radioactive Material

11.4.1 Class 1 Radioactive, White Label

No limitation

11.4.2 Class 2 and Class 3, Yellow Label

See TI Table for radiation level;

Loaded on the ground of cargo compartment;

Separated from Perishables;

See Table 11-8 to 11-9 for the maximum approved TI of each compartment

Table11-8——BOEING 737

Radioactive, Yellow Label			
		Maximum approved TI	
cargo compartment	berth	with passenger	without passenger
H1	FWD	5	50
H4	AFT	6	50

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11.4.3 The sum of each aircraft's maximum TI is 50

11.4.4 Radioactive Material——Limitation

Radioactive material with class II and III label must be separated from person:

See Table 11-10 to 11-11 for maximum TI of all areas;

On Passenger Aircraft, packaging must be fixed on the ground of compartment.

Table11-9——BOING 737

Packaging Height	Total Berth FWD	Total Berth AFT
CM	TI	TI
10—20	5	6
21—30	4	5
31—41	3	4
42—53	2	3
54—69	1	2
70—84	0	1

11.5 Unloading Requirements

The dangerous goods packaging or overpacks cannot be unloaded from aircraft or unit load device unless it is found free from visible leaks or damage.

11.5.1 If it is found that the package may have leaked or been damaged, inspect the damage and contamination of places where the dangerous goods located. If there is hazard contamination, clear it immediately.

11.5.2 If any person responsible for the carriage of packages containing infectious substances becomes aware of damage to or leakage from such a package, that person must:

11.5.2.1 Avoid handling the package or keep handling to a minimum;

11.5.2.2 Inspect adjacent packages for contamination and put aside any packages that may have been contaminated;

11.5.2.3 Inform the appropriate authority, and provide information on any other countries of transit where persons may have been exposed to danger;

11.5.2.4 Notify the shipper and/or the consignee.

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11.6 Telegram

11.6.1 After departure, weight and balance personnel should inform related stations (transit station and destination) of the following information by LDM.

After flight departure, load control personnel shall notify the relevant stations (intermediate and destination stations) of the following situations in the Load Distribution Message (LDM).

11.6.1.1 LDM should include:

1) Loading position and pieces of dangerous goods;

2) UN/ID No of dangerous goods;

3) Three-letter code of dangerous goods;

4) Special notice

11.6.1.2 LDM examples

QU SHAAPMU SHAKUMU SHAKLMU TYODDMU NRTAPMU SHAFFMU SHATZMU NRTFFMU SHAUFMU NRTKKMU SHAAPMU MRTKLCA 100509AKG/PMG/TYOWW

LDM

CA921/15. B2556.B40/322.3/9-NRT

158/10/0.210.T1830.1/200.3/900.A/1720.PAX/168.B/740.F/2325.T

W5100

SI

BW82939 BI99.00

NRT FRE 2455 POS 0 BAG 1928 TRA 0

11.6.2 After the flight leaves, the installation station shall issue a special cargo loading report (FSH) and inform the cargo department of the transport of

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dangerous goods, so as to prepare for unloading in advance.

11.6.2.1 After receiving FSH, each station should stow cargo according to regulations of this manual. During transit stop, transit station generally cannot change the loading position. If it is needed to change the position, make a proper arrangement in terms of related regulations and inform related stations.

11.6.2.2 FSH examples

QU NRTAPJL NRTKLJL NRTFFMU

. SHAFCMU 110509/LIU

FSH

MU7888/11MAY SHAMRT

781-15066715 T12K50/RPB/UN3006/CLASS6.1

POSITION/P11/P190375MU

781-15066726TIK20/EAT

POSITION/P22/PIP 1597MU

11.6.3 Telegram for ULD Loading Position

QU NRTAPJL NRTKLJL NRTKFJL

. HAKFDHU 110449/WANG

CPM

HU921/11NOV.B2556.F18Y196

-11P/P1P2343CA/NRT/545/CO-21P/P1P2678CA/NRT950/CO

-22P/P1P2515CA/NRT/960/CO-31L/NRT/540/BO

-31R/ NRT/540/BO-32L/ NRT/540/BO

SI/P1P2515CA/RPB/UN3006

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12 Dangerous Goods Delivery

12.1 General Provisions

12.1.1 During transport, dangerous goods delivery must strictly comply with laws applicable to provisions and orders of pertinent states, government, or provisions relating to the operator.

12.1.2 Dangerous goods delivered to HNA must have priority to common cargo in delivery to the cargo owner or his agent institutions.

12.1.3 Dangerous goods delivery and transport domestically must also observe the following various items of provisions in this chapter. Dangerous goods with their destinations abroad must be dealt with as stipulated in the corresponding countries.

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12.2 Notice of Goods Arrival

12.2.1 Requirements

12.2.1.1 After arrival of dangerous goods at their destinations, unless otherwise appointed, the operator should send goods arrival notice to the consignee in time. Goods arrival notice usually takes the form of telephone notice and written notice.

12.2.1.2 Dangerous goods arrival notice should be sent 8 hours after its arrival. As for dangerous goods requiring refrigeration and freezing, the consignee should be informed 2 hours after dangerous goods arrival. In case of failing to inform the consignee, causes must be written down in airway bill.

12.2.2 Notice Content

Contents of goods arrival notice include: airway bill No, goods arrival date, number of pieces, weight, goods name, required pertinent government procedures and storage period free of charge. As to goods with its transport charge required to be paid, inform the consignee of the sum of the required charge.

12.2.3 Notice Sample of Goods Arrival (See next page)

12.2.4 Handling of Goods Exceeding Time Limit

12.2.4.1 If the consignee hasn't taken delivery of airway bill and goods after 7 days from dangerous goods' arrival at the destination station, the operator should send delivery-hastening notice to the consignee.

12.2.4.2 If the consignee hasn't taken delivery of airway bill and goods after 14 days from dangerous goods' arrival at the destination station, the operator should send an ultimate delivery-hastening notice to the consignee and send an Irregularity Report-IRP to the departure station.

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NOTICE OF CARGO ARRIVAL

.....Year.....Month.....Day (Notice of the time)

Please be notified that shipment mentioned below has arrived at Haikou

On ..... (Date) by.....(Flight No) You are required to take delivery of the shipment at warehouse of Co.Ltd. Terminal, Meilan Airport, Haikou.

Air Waybill No.....Number Of Pieces.....Weight.....

Consignee's name and address.....

(A Copy of air waybill and invoices(s) attached The 1st notice was mailed on ____)

FREICHT CHARGES

The freight charges are to be paid by You in the amount mentioned herein

THE STANDARD OF COLLECTING STORAGE CNARGE

Storage charge CNY per day.....

Storage will be provided free of charge for 3days from the next day after mailing the 1st notice.

In case of exceeding the time limit, in seven days per l0 kg.....(CNY) a day. After seven days ,per l0 kg.....(CNY)a day.

CUST0MS PROCEDURES

You are required to obtain the Customs clearance before taking delivery of the shipment.

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NON-DELIVERY

In case the shipment is not delivered within l4 days after arriva1 or freight charges are not paid within the period. The carrier will take appropriate action to obtain shippers instruction as to disposition of the shipment.

SERVICE HOURS Taking delivery must against this notice

From 8 a.m. to 4 p.m. daily (except for special cargo).....

DELIVERY RECEIPT IN LIEU OF AIR WAYBILL N0.4 DELIVERYRECEIPT

Received shipment..... Number of Pieces..... Weight.....

By the undersigned in good order and condition.

Dated received..... Received unit(person)..... (Stamp)

Signature of handling consignee.....

Remarks.....(certificates)

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12.3 Procedures for Delivery

12.3.1 Taking Delivery of Airway Bill

12.3.1.1 The consignee should show valid identity certificate and related approval documents to the operator so as to receive the airway bill. The operator has the right to check the consignee's valid identity certificate and related approval documents.

12.3.1.2 The consignee can entrust his agent to take delivery of airway bill provided that the agent must show the entrusting letters from the consignee and from the agent's working place.

12.3.1.3 In taking delivery of airway bill, the consignee should sign in the cargo delivery registry book and write down his working place, airway bill No, time of taking delivery of airway bill, his telephone number and numbers of his valid identity certificates.

12.3.1.4 The operator should hand the original copy of airway bill to the consignee.

12.3.2 Taking Delivery of Dangerous Goods

12.3.2.1 Prior to delivering dangerous goods to the consignee, the operator should check valid identity certificates of the consignee and check if he has have customs clearance procedures(make sure there is a customs clearance stamp in airway bill),sanitation quarantine procedures, animal and plant quarantine procedures and commercial check procedures conducted.

12.3.2.2 In taking delivery of explosive goods, toxic substances in Class 6, Degree I and infectious substances, prior to delivery, the consignee should register in the local public security department located in the delivery place.

12.3.2.3 In taking delivery of radioactive substances, the consignee should have

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goods clearance procedures conducted in radiation sanitation protection station of the health bureau at the provincial or city level, and the local public security department located in the delivery place. The consignee should also show his working approval of radioactive isotope and *Certificate of Radioactive Material's Radiation Level and Surface Contamination Check*.

12.3.2.4 The consignee must pay off all required charges before taking delivery of dangerous goods. As to dangerous goods with its transport arrival charge required to be paid, the consignee should pay all arrival charges and procedural charges of arrival charges to the operator. Dangerous goods are kept and stored for free by one day after the arrival notice, and the consignee should pay storage charge to the operator in case of overdue delivery for more than 2 days.

12.3.2.5 During delivery, airway bill numbers, departures and destinations, should be checked and confirmed. Number of pieces of goods should be accounted and confirmed.

12.3.2.6 During delivery, in case of the consignee being in disagreement about outer packaging conditions of goods, number of pieces or weight, the operator should collaborate with the consignee to examine and confirm on the spot for the second time and fill in records of goods transport incidents as necessary, with the two parties' stamps or signatures.

12.3.2.7 The consignee must sign his name, telephone No and numbers of valid identity certificates in the original page of airway bill for proof of signing in delivery.

12.3.3 Delivery of Goods in Separate Consignment

12.3.3.1 Goods in separate consignment can be signed in by consignee batch by batch. In delivering goods batch by batch to consignee, number of pieces,

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weight and delivery time of this batch should be inscribed in airway bill. The consignee and working personnel dangerous goods warehouse should both sign for confirmation.

12.3.3.2 The consignee can take delivery batch by batch or accept them all together after all goods' arrival only if consent is acquired from customs and three kinds of check.

12.3.3.3 Radioactive substances, explosives, toxic substances assigned to Packing Group I and infectious substance mustn't conduct delivery and signing in procedures batch by batch. Contact departure airports in time to know conditions of transport goods batch by batch in detail. After all goods arrival of the batch-by-batch goods, delivery and signing in procedures can then be conducted and dangerous goods should be delivered to the consignee at a time.

12.3.3.4 After delivery of all goods, the two parties should sign in airway bill to confirm the delivery of all goods.

12.3.3.5 Various records of delivery of goods in separate consignment must be accurate, all-around and affixed with airway bill for later check.

12.3.4 Handling of Non-Delivery Goods

12.3.4.1 Goods meeting one of the following conditions is called non-delivery goods:

1) Goods not delivered by anyone for 14 days from the next day after the 1st notice is sent;

2) The consignee refuses to pay charges that should be paid. e.g. In case of damage to goods packings and inner contents, loss of partial goods or loss of dangerous goods, the consignee refuses to take delivery, pay storage charges or transport charges;

3) The consignee can't take delivery of goods because he can't complete

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delivery clearance procedures of customs, public security and sanitation quarantine departments;

4) In absence of consignee according to listed addresses in airway bill. e.g. The listed working place address of the consignee is not in detail. The telephone No. or fax No. is incorrect and there is no other additional information concerned.

12.3.4.2 Records of reasons why dangerous goods can't be delivered and signed in must be written in detail and keep and store all transport documents and materials.

12.3.4.3 As to non-delivery goods not delivered to the consignee 21 days after arrival at the destination station, dangerous goods should be placed into fixed positions in each branch warehouse of dangerous goods used specially for irregularity goods storage and label as irregularity goods annotated with causes. Dangerous goods under international transport not delivered and signed in 90 days after arrival at the destination station should be shifted to customs.

12.3.4.4 After handling of non-delivery goods, relevant documentations and handling situations should be recorded in detail for later check. The department taking out samples of imported goods should inform the departure station of the handling result, who thus instructs the result to the consignee.

12.3.5 Dangerous Goods Packages Opened by Customs and Other Authorities

After opened for checking by any authority, the packages must be resumed to original conditions for storage by eligible personnel before delivered to the consignee.

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12.4 Records of Transport Incidents

12.4.1 In taking delivery of dangerous goods, if the consignee put forward doubts due to being aware of damage, shortage, contamination and loss of them, he should fill in *Form of goods transport accident* in collaboration with the operator to record the real situation of dangerous goods when being taken delivery. Both the operator and the consignee should sign.

12.4.2 There should be three copies of *Form of goods transport accident*, with the first copy handed to the consignee, the second to the insurance company and the third reserved in accompaniment with the taking delivery page of airway bill.

12.4.3 Records of transport incidents/accidents must be kept for no less than 3 years.

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13 Transport Provisions for Dangerous Goods in Baggage

13.1 General Provisions

13.1.1 Acceptance of dangerous goods in baggage for transport should be strictly in conformity with laws, government provisions, orders or statues of pertinent states as well as provisions of pertinent operators, as appropriate.

13.1.2 All baggage must go through security check. Acceptance of baggage containing dangerous goods must be in accordance with the provisions of this chapter.

13.1.3 Dangerous goods carried by passengers or crew members in carry-on baggage or checked baggage may pose a certain degree of threat to flight safety. In spite of the small amount of the dangerous goods herein, passengers and crew members must strictly follow transport provisions for dangerous goods for safety concerns.

13.1.4 The baggage herein referred to in this manual includes checked baggage (transit baggage, rapidly–transported baggage included) and carry-on baggage of passengers and crew members as well as articles taken along.

13.1.5 Normally, dangerous goods are forbidden to be packed into or as checked baggage and carry-on baggage. They are also forbidden to be taken along by passengers.

13.1.6 In counters where check-in procedures are conducted and where baggage is accepted for transport, information to forbid dangerous goods transport must be labeled.

13.1.7 The acceptance staff must tell passengers information about dangerous goods in baggage.

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13.2 Provisions about Articles Taken along by Passengers and Crew Members

Some dangerous goods which possess mild hazard can be transported as checked baggage or carry-on baggage or carried in person in accordance with pertinent provisions. Passengers must explain the situation explicitly to the operator when purchasing tickets and checking-in if they have dangerous goods contained in checked baggage, carry-on baggage or articles carried in person. Upon conformity with the regulation after check, the dangerous goods can then be able to be transported as baggage. Otherwise, they must be subject to cargo transport after consignment procedures for dangerous cargo are performed in cargo counter.

Being carried by passengers or crew members, or placed in baggage for transport, the following dangerous goods (such as mis-transported, lost or rapidly transported baggage) from their owners are not subject to this provision. This kind of baggage mustn't contain dangerous goods. If any, service for solving the problem must be properly conducted. Contact the owner as soon as practical, inform him of the situation and perform relevant transferring operations under his permission.

Dangerous goods mentioned in subsections 13.2.2, 13.2.3, 13.2.4 shall be acceptable as luggage of crew member or passenger only when it's approved by our company. The department responsible for luggage checking-in or acceptance shall establish an approval process according to 1.4.2.2 of the DGR for luggage with dangerous goods, including the connecting flights and ensure that personnel (ticket booking staff, passenger services staff, the crew member, and flight crew member) who has contact with the passenger are well understand such process. When it's necessary, submit relevant information to the captain.

13.2.1 Forbidden Goods

13.2.1.1 Suitcase, Cash Box/Bag

Except the confidential equipments can be transported as checked luggage according to DGR Article 2.3.2.6, other confidential

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equipments such as insurance suitcase, cash box and bag with built-in lithium battery and pyrotechnic devices etc. are prohibited to be transported.

13.2.1.2 **Disabling Device**

Disabling device such as mace, pepper spray, etc. containing an irritant or incapacitating substance are prohibited in checked, carry-on baggage and in pocket by person.

13.2.1.3 **Medical-use small gaseous oxygen bottle (or air bottle) and Liquid Oxygen Devices**

Medical-use small gaseous oxygen bottle (or air bottle) and Liquid Oxygen Devices are prohibited in checked, carry-on baggage and in pocket by person.

13.2.1.4 **Electronic Gun-type Dry Powder Fire Extinguishers**

Electronic gun-type dry powder fire extinguishers are prohibited in checked, carry-on baggage and in pocket by person.

13.2.1.5 **Electroshock Weapons**

Electroshock Weapons (e.g. Tasers) containing dangerous goods such as explosives, compressed gases, lithium batteries, etc. are prohibited in checked, carry-on baggage and in pocket by person.

13.2.1.6 **Match sticks (including locofoco and safety match sticks)**

All kinds of matchsticks are prohibited in checked, carry-on baggage and in pocket by person.

13.2.1.7 **Lighters (including lighter fuel) and lithium-battery powered lighters**

Lighters, lighter fuel and lithium-battery powered lighters (e.g. Laser plasma lighter, Tesla coil lighter, Electric lighter, Electric arc lighter, dual-electric arc lighter) are prohibited in checked, carry-on baggage and in pocket by person.

For high-value lighters, passengers are permitted to carry the non-flammable components after removal of the flammable parts.

13.2.1.8 **Electric vehicle driven by lithium battery**

The carriage of lithium battery-powered electric vehicles, such as

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hoverboards, unicycles, scooters, bicycles, etc., in checked baggage, carry-on baggage, or on one's person is prohibited. (Electric wheelchairs/mobility aids used by passengers with reduced mobility due to disability, health, age, or temporary mobility issues are subject to separate provisions in this manual; see Section 13.2.2.4.)

13.2.1.9 **Self-heating Instant Foods, MEALS READY TO EAT (MRE)**

Self-heating instant foods mainly contains three parts: heat producer, activator (or activation device), and food. The heat producer is made from thermogenic chemical materials. There is no open fire, so it is also called flameless chemical heater. When producing heat, there is a risk of causing open fire, so MRE is not permitted in cabin use.

13.2.1.10 **Lithium batteries that may have safety defects**

The following items are prohibited from being carried on one's person, in checked luggage, or in carry-on luggage: waste lithium batteries, lithium batteries recalled by the manufacturer, damaged or bulging lithium batteries, etc. The Samsung Galaxy Note7 device with safety defects is also prohibited from being carried on one's person, in checked luggage, or in carry-on luggage.Carrying power banks without 3C certification, with unclear 3C marks, or of recalled models or batches on domestic flights is prohibited.

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13.2.1.11 **Avalanche rescue Backpack**

Avalanche rescue Backpack is prohibited in checked, carry-on baggage and in pocket by person.

13.2.1.12 **Others**

With the consideration and concerns for below situation: product weight, dims, shape, or nature is not safe, or product is fragile, perishable in air-transportation.

Products that are prohibited for import, export, pass-through by China or pass-through country’s law.Products that are prohibited for import,

export, pass-through by China or pass-through country's law.Products that are prohibited for import, export, pass-through by China or pass-through country's law.

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13.2.2 Goods Accepted with the Carrier's Approval, as Checked Baggage Only

13.2.2.1 Sporting Ammunition

Ammunition (Category 1.4S), excluding bombs and incendiary bombs. The gross weight of sports ammunition (only UN0012 or UN0014) for individual use must not exceed 5 kg (11 lb) in each person's allowance. Ammunition consigned by different passengers cannot be packed together inside one or more package. Passenger needs to provide MSDS, showing the ammunition meets above requirements. The acceptance staff can only proceed the next step upon finishing checking the MSDS.

13.2.2.2 Wheelchairs/Mobility Aids with Non-spillable Wet Batteries, Nickel-Metal Hydride Batteries or Dry Batteries

Battery-powered wheelchairs or other similar mobility aids for use by passengers whose mobility is restricted by either a disability, their health or age, or a temporary mobility problem(e.g broken leg), with non-spillable wet batteries which comply with Special Provision A67 or nickel-metal hydride batteries which comply with Special Provision A199 or dry batteries which comply with Special Provision A123. These batteries must meet the following requirements:

1) The mobility aid must be prepared for transport to prevent:
   (1) Unintentional activation; and
   (2) The non-spillable batteries are not permitted to contain any free or unabsorbed liquid.
2) HNA must fasten the mobility aids which contains batteries with straps or other devices, to protect the mobility aids, batteries, wiring, remote controller away from damage caused by luggage, mail or cargo shifting.
3) HNA must check:
   (1) The passengers has confirmed that the battery is a non-spillable wet battery that complies with Special Provision A67 or a nickel-metal hydride battery that complies with Special Provision A199 or dry battery that complies with Special Provision A123;

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(2) the battery terminals are protected from short circuits, e.g. by being enclosed within a battery container;

(3) The battery is one of the following two types:

Provide adequate protection against damage through the design of the walker and secure to the wheelchair or walker. Circuits must be disconnected according to manufacturer's instructions; Or remove according to manufacturer's instructions

4) A passenger may carry a maximum of:

one spare wet, non-spillable battery meeting Special Provision A67; or

two spare nickel-metal hydride batteries meeting Special Provision A199 or dry batteries meeting Special Provision A123.

5) The HNA must ensure that any battery(ies) removed from the wheelchair/mobility aid and any spare batteries are carried in strong, rigid packagings which must be carried in the cargo compartment.

To simplify the handling of wheelchairs and mobility aids with batteries, a label is helpful to identify whether or not a wheelchair has had the battery removed. The label is in two parts; Part A remains with the wheelchair and indicates whether or not the battery has been removed. In the particular case where the battery is separated from the wheelchair, Part B may be used to assist in identifying the battery and also in reconciling the battery and its wheelchair. See sample per below:

Battery-powered Wheelchair and Mobility Aid Label

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6) The pilot-in-command must be informed of the location of mobility aids with installed batteries, the location of removed batteries and the location of spare batteries.

7) It is recommended that passengers make advance arrangements with HNA.

13.2.2.3 Wheelchairs / Mobility Aids with Spillable Batteries

Battery-powered wheelchairs or other similar mobility aids for use by passengers whose mobility is restricted by either a disability, their health or age, or a temporary mobility problem (e.g. broken leg), with spillable batteries. These batteries must meet the following requirements:

1) HNA must secure, by use of straps, tie-downs or other restraint devices, a battery powered mobility aid with installed batteries. The mobility aid, the batteries, electrical cabling and controls must be protected from damage including by the movement of baggage, mail or cargo.

2) HNA must verify that::

(1) (a) the battery terminals are protected from short circuits, e.g. by being enclosed within a battery container;

(2) the battery is fitted, where feasible, with spill-resistant vent caps;

(3) the battery is either:

Provide adequate protection against damage through the design of the walker and secure to the wheelchair or walker. Circuits must be disconnected according to manufacturer's instructions; or

removed from the mobility aid following the manufacturer’s instructions when the mobility aid cannot be maintained in an upright position, and the mobility aids itself must be transported as checked bag, The removed battery must be carried in strong, rigid packagings marked with “ BATTERY,WET,WITH WHEELCHAIR” or

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" BATTERY,WET,WITH MOBILITY AID", and labeled with "Corrosive" and "Package Orientation" label.

To simplify the handling of wheelchairs and mobility aids with batteries, a label is helpful to identify whether or not a wheelchair has had the battery removed. The label is in two parts; Part A remains with the wheelchair and indicates whether or not the battery has been removed. In the particular case where the battery is separated from the wheelchair, Part B may be used to assist in identifying the battery and also in reconciling the battery and its wheelchair. See sample per below:

Battery-powered Wheelchair and Mobility Aid Label

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3) HNA must load, stow, secure and unload a mobility aid with a spillable battery in an upright position. If the wheelchair or mobility aid cannot be loaded, stowed, secured and unloaded always in an upright position or if the mobility aid does not adequately protect the battery, the HNA must remove the battery and the wheelchair or mobility aid can be transported as baggage without restriction. The removed battery must be carried in strong, rigid packagings as follows:

(1) packagings must be leak-tight, impervious to battery fluid and be protected against upset by securing to pallets or by securing them in cargo compartments using appropriate means of securement (other than by bracing with freight or baggage) such as by use of restraining straps,

brackets or holders;

(2) batteries must be protected against short circuits, secured upright in these packagings and surrounded by compatible absorbent material sufficient to absorb their total liquid contents; and

(3) these packagings must be marked “BATTERY, WET, WITH WHEELCHAIR” or “BATTERY, WET, WITH MOBILITY AID” and be labelled with the “Corrosive” label and with the “Package Orientation” label.

4) HNA must inform the pilot-in-command of the location of mobility aids with installed batteries and removed batteries.

5) It is recommended that passengers make ad-vance arrangements with HNA.

13.2.2.4 **Wheelchairs/Mobility Aids with Lithium Batteries**

Lithium ion battery powered wheelchairs or other similar mobility aids for use by passengers whose mobility is restricted by either a disability, their health or age, or a temporary mobility problem (e.g. broken leg), subject to the following conditions:

1) The batteries must be of a type which meets the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3.

2) HNAmust secure, by use of straps, tie-downs or other restraint devices, a battery powered mobility aid with installed batteries. The mobility aid, the batteries,Electrical wiring must be protected from damage including by the movement of baggage, mail or cargo.

3) HNA must verify:

(1) the battery terminals are protected from short circuits, e.g. by being enclosed within a battery container;

(2) the battery is either:

Provide adequate protection against damage through the design of the walker and secure to the wheelchair or walker. Circuits must be disconnected according to manufacturer's instructions; Or remove according to manufacturer's instructions.Each battery removed from the walker is prohibited beyond 300Wh.

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Note: When the lithium batteries remain installed in the mobility aid, there is no Watt-hour limit.

4) A passenger may carry a maximum of one spare lithium ion battery not exceeding 300Wh or two spare batteries each not exceeding 160Wh.

5) HNA must ensure that any battery removed from the mobility aid and any spare batteries are carried in the passenger cabin. The removed or spare batteries must be protected from damage (e.g. by placing each battery in a protective pouch).

6) HNA must inform the pilot-in-command of the location of the mobility aid with installed batteries, removed batteries and spare batteries.

7) It is recommended that passengers are advised to make prior arrangements with HNA.

13.2.2.5 **Camping Stoves and Fuel Containers that have Contained a Flammable Liquid Fuel**

Camping stoves and fuel containers containing flammable liquids can only be transported as check-in baggage.

1) the fuel tank of the camping stove and/or fuel container has been completely drained of all liquid fuel and action has been taken to nullify the danger.

2) The fuel tank and/or container must have the cap securely fastened and be wrapped in an absorbent material such as paper towel and placed in a polyethylene or equivalent bag.

3) The top of the bag must then be sealed or gathered and closed with an elastic band or twine.

Note To nullify the danger, the empty fuel tank and/or container must be allowed to drain for at least 1 hour, the fuel tank and/or container must then be left uncapped to allow any residual fuel to evaporate. Alternative methods, such as adding cooking oil to the fuel tank and/or container to elevate the flash point of any residual liquid above the flash point of flammable liquid and then emptying the fuel tank and/or container, are

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equally acceptable.

13.2.2.6 Security-Type Equipment

Security type equipment such as attaché cases, cash boxes, cash bags, etc. may be carried as checked baggage only if the equipment complies with the following:

1) Proper protection against accidental activation;

2) if the equipment contains an explosive or pyrotechnic substance or an explosive article, this article or substance must be excluded from Class 1 and in compliance with DGR3.1.7.1;

3) if the equipment contains lithium cells or batteries, these cells or batteries must comply with the following restrictions:

(1) for a lithium metal cell, the lithium content is not more than 1g;

(2) for a lithium metal battery, the aggregate lithium content is not more than 2 g;

(3) for lithium ion cells, the Watt-hour rating is not more than 20 Wh;

(4) for lithium ion batteries, the Watt-hour rating is not more than 100 Wh;

(5) each cell or battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3.

4) if the equipment contains gases to expel dye or ink, only gas cartridges and receptacles, small, containing gas with a capacity not exceeding 50 mL, containing no constituents subject to these Regulations other than a Division 2.2 gas, are allowed. The release of gas must not cause extreme annoyance or discomfort to crew members so as to prevent the correct performance of assigned duties. In case of accidental activation all hazardous effects must be confined within the equipment and must not produce extreme noise;

5) security type equipment that is defective or that has been damaged is forbidden for transport.

Passenger needs to provide Identification Report, MSDS or Production Specification, to prove the belonging meets the above requirements. The

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Baggage acceptance personnel must verify the documents before accepting.

13.2.2.7 Non-Infectious Specimens Packed with Small Quantities of Flammable Liquids

In checked or carry-on baggage non-infectious specimens, such as specimens of mammals, birds, amphibians, reptiles, fish, insects and other invertebrates containing small quantities of flammable liquids provided that the following requirements of Special Provision A180 are complied with:

1) specimens are:

(1) wrapped in paper towel and/or cheesecloth moistened with alcohol, an alcohol solution or a formaldehyde solution and then placed in a plastic bag that is heat-sealed. Any free liquid in the bag must not exceed 30 mL; or

(2) placed in vials or other rigid containers with no more than 30 mL of alcohol , an alcohol solution or a formaldehyde solution;

2) the prepared specimens are then placed in a plastic bag that is then heat–sealed;

3) the bagged specimens are then placed inside a another plastic bag with absorbent material then heat sealed;

4) the finished bag is then placed in a strong outer packaging with suitable cushioning material;

5) the total quantity of alcohol , an alcohol solution or a formaldehyde solution per outer packaging must not exceed 1 L; and

6) the completed package is marked “scientific research specimens, not restricted”, applying A180.

Passenger needs to provide an identification report with official stamp and issuing date from the Health Care Commission of China or other medical institutes with the same level, county, city level or state level, e.g Second-A hospital. The acceptance staff must verify the documents

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before accepting.

13.2.2.8 Internal Combustion or Fuel Cell Engines

Flammable liquid powered internal combustion or fuel cell engines, without batteries or other dangerous goods may be accepted in checked baggage only provided that the engine must comply with the following requirements of 4.4 Special Provision A70 of DGR per below:

1) the engine is powered by a fuel that does not meet the classification criteria for any class or division; or

2) the fuel tank of the vehicle, machine or other appar-atus has never contained any fuel, or the fuel tank has been flushed and purged of vapours and ad-equate measures taken to nullify the hazard;

3) the passenger has provided the operator with written or electronic documentation stating that a flushing and purging procedure has been followed; and

4) the entire fuel system of the engine has no free liquid and all fuel lines are sealed or capped or securely connected to the machinery or apparatus.

13.2.2.9 Permeation Devices

In checked baggage only permeation devices for calibrating air quality monitoring equipment. These devices must comply with the following requirements of Special Provision A41:

1) each device must be constructed of a material compatible with the dangerous goods it contains;

2) the total quantity of dangerous goods in each device is limited to 2 mL and the device must not be liquid full at 55°C;

3) Each permeation device must be placed in a sealed, high impact-resistant, tubular inner packaging of plastic or equivalent material. Sufficient absorbent material must be contained in the inner

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packaging to completely absorb the contents of the device. The closure of the inner packaging must be securely held in place with wire, tape or other positive means;

4) each inner packaging must be contained in a secondary packaging constructed of metal, or plastic having a minimum thickness of 1.5 mm. The secondary packaging must be hermetically sealed;

5) the secondary packaging must be securely packed in strong outer packaging. The completed package must be capable of withstanding, without breakage or leakage of any inner packaging and without significant reduction in effectiveness:

(1) the following free drops onto a rigid, nonresilient, flat and horizontal surface from a height of 1.8 m:

---------- one drop flat on the bottom;

---------- one drop flat on the top;

---------- one drop flat on the long side;

---------- one drop flat on the short side;

---------- intersecting edges; and

(2) a force applied to the top surface for a duration of 24 hours, equivalent to the total weight of identical packages if stacked to a height of 3 m (including the test sample).

Note Each of the above tests may be performed on different but identical packages.

6) the gross weight of the completed package must not exceed 30 kg.

Passenger needs to provide an identification report/MSDS to prove the belonging comply with the above requirements. The acceptance staff must verify the documents before accepting.

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13.2.3 Goods Acceptable with Operator Approval as Carry-on Baggage Only

13.2.3.1 Mercury Barometer or Thermometer

A mercurial barometer or mercurial thermometer carried by a representative of a government weather bureau or similar official agency. The barometer or thermometer must be packed in a strong outer packaging, having a sealed inner liner or a bag of strong leak-proof and puncture-resistant material impervious to mercury, which will prevent the escape of mercury from the package irrespective of its position. The pilot-in-command must be informed of the location of the barometer or thermometer.

13.2.3.2 Spare Lithium Batteries (excluding power banks / portable power sources)

Spare lithium batteries, including articles containing lithium-metal or lithium-ion cells or batteries whose primary function is to provide power to other devices, designed to be inserted into or attached directly to specific equipment. Prohibited as checked baggage, accepted only as carry-on baggage, subject to the following requirements:

1) no more than 2 lithium ion batteries with a watt-hour rating exceeding 100Wh but not exceeding 160Wh or 2 lithium metal batteries, with a lithium content exceeding 2 g but not exceeding 8 g. Lithium metal batteries are only permitted for portable medical electronic devices (PMED), such as automated external defibrillators (AED), portable oxygen concentrators (POC) and continuous positive airway pressure (CPAP);
Note: The POC must be a model approved by the FAA or other competent national authority.

2) Must be individually protected against short circuits (placed in original retail packaging or by other means of insulating the electrodes, e.g.,

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taping over exposed terminals or placing each battery separately in a plastic bag or protective case);

3) Must be of a type that meet the requirements of the UN Manual of Tests and Criteria, Part III, subsection 38.3. No more than two individually protected spare batteries per person may be carried (Li-ion Battery over 100Wh below160Wh or Lithium Metal Battery contains lithium over 2g below 8g).

4) Charging is strictly prohibited in the passenger cabin. They may be placed in carry-on baggage stowed under the seat in front, or in other designated stowage locations, such as the seatback pocket.

13.2.3.3 Power Banks / Portable Power Sources

A power bank/portable power source is a portable battery used to charge consumer devices such as mobile phones and tablets. Typically, the power pack consists of multiple batteries and is designed as a universal external power supply capable of powering multiple devices. Prohibited as checked baggage, accepted only as carry-on baggage, subject to the following requirements:

1) Each passenger may carry a maximum of two power banks. Power banks with a rated energy not exceeding 100 Wh do not require carrier approval; those with a rated energy exceeding 100 Wh but not exceeding 160 Wh may be carried only with carrier approval;

2) Must be individually protected against short circuits (placed in original retail packaging or by other means of insulating the electrodes, e.g., taping over exposed terminals or placing each battery separately in a plastic bag or protective case);

3) Must be of a type that meets the requirements of Subsection 38.3 of Part III of the United Nations Manual of Tests and Criteria;

4) Charging them or using them to charge or power other devices is strictly prohibited in the passenger cabin; they must remain completely switched off throughout the flight;

5) Should not be placed in the overhead bins; they may be placed in carry-on baggage stowed under the seat in front, or in other designated

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stowage locations, such as the seatback pocket;

6) Power banks without a China Compulsory Certification (CCC) mark, with an unclear CCC mark, or of a recalled model or batch are prohibited from being carried on domestic flights.

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13.2.4 Goods Acceptable with Operator Approval as Baggage (Checked or Carry-on)

13.2.4.1 Small Non-flammable Gas Cartridges

1) Small cartridges fitted into a self-inflating personal safety device, intended to be worn by a person, such as a life-jacket or vest:

(1) no more than two personal safety devices per person;

(2) the personal safety device(s) must be packed in such a manner that they cannot be accidently activated;

(3) limited to carbon dioxide or other suitable gas in Division 2.2 without a subsidiary hazard;

(4) cartridge(s) must be for inflation purposes;

(5) each device must be fitted with no more than two small cartridges; and

(6) not more than two spare cartridges per device.

2) Other non-self-inflating devices:

(1) no more than four small cartridges of carbon dioxide or other suitable gas in Division 2.2 without a subsidiary hazard, per person;

(2) the water capacity of each cartridge must not exceed 50 mL.

Note: For carbon dioxide a gas cartridge with a water capacity of 50 mL is equivalent to a 28 g cartridge.

13.2.4.2 Chemical Agent Monitoring Equipment

Instruments containing radioactive material not exceeding the activity limits specified in Table 10.3.C, i.e. chemical agent monitor (CAM) and/or rapid alarm and identification device monitor (RAID-M), securely packed and without lithium batteries, when carried by staff members of the Organization for the Prohibition of Chemical Weapons (OPCW) on official travel.

Passenger needs to provide an identification report/MSDS to prove the belonging comply with the above requirements. The acceptance staff must verify the documents before accepting.

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13.2.4.3 **Carbon Dioxide, Solid (Dry Ice)**

Carbon dioxide, solid (dry ice) in quantities not exceeding 2.5 kg per person when used to pack perishables that are not subject to these Regulations in checked or carry-on baggage, provided the baggage (package) permits the release of carbon dioxide gas. Each item of checked baggage containing dry ice must be marked:

"Carbon dioxide, solid" or "Dry ice"; and

with the net weight of dry ice or mark the net weight is less than 2.5 kg. If the packing irregular, baggage tag of dry ice(see below) can be attached:

图 B.1 干冰行李牌

Note Dry Ice itself cannot be transported as checked baggage or carry-on baggage.

13.2.4.4 Lithium Battery-Powered Electronic Devices

The Lithium battery powered electronic devices mentioned in this manual the equipment or apparatus for which the lithium cells or batteries will provide electrical power for its operation. These devices are permitted in checked and carry-on baggage with the approval of the HNA as follows:

1) (a) portable medical electronic devices (PMED), such as automated external defibrillators (AED), portable oxygen concentrators (POC) and continuous positive airway pressure (CPAP), containing lithium metal or lithium ion cells or batteries may be carried by passengers for medical use as follows:

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(1) for lithium metal or lithium alloy batteries, a lithium content exceeding 2 g, but not exceeding 8 g; or

(2) for lithium ion batteries, a watt-hour rating exceeding 100Wh, but not exceeding 160Wh;

(3) batteries must be of a type that meets the requirements of the UN Manual of Tests and Criteria, Part III, subsection 38.3.

2) portable electronic devices, such as power tools, video cameras and laptops containing lithium ion batteries as follows:

(1) lithium ion batteries with a watt-hour rating exceeding 100 Wh, but not exceeding 160 Wh;

(2) batteries must be of a type that meets the requirements of the UN Manual of Tests and Criteria, Part III, subsection 38.3.

Note For spare lithium metal batteries with a lithium content exceeding 2 g and lithium ion batteries with a Watt-hour rating exceeding 100Wh see Subsection 13.2.3 .2 of this Manual.

For electronic devices with lithium metal batteries with a lithium content not exceeding 2g and lithium ion batteries with a Watt-hour rating not exceeding 100Wh see Subsection 13.2.5.7 .

3) if devices are carried in checked baggage by the passenger or cabin crew:

(1) measures must be taken to protect the device from damage and to prevent unintentional activation;

(2) the device must be completely switched off (not in sleep or hibernation mode).

13.2.4.5 Insulated Packages Containing Refrigerated Liquid Nitrogen (Dry Shipper)

In checked or carry-on baggage, insulated packagings containing

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refrigerated liquid nitrogen fully absorbed in a porous material (dry shipper). The dry shipper must meet the requirements of Special Provision A152 to prevent the refrigerated liquid nitrogen from leaking and pressure in the container from going increased caused by improper direction of placing. If it meets the requirement, then it is not restricted by DGR.

13.2.5 **Goods Acceptable without the Operator's Approval**

13.2.5.1 Medicinal or Toiletry Articles and Aerosols in Division 2.2

1) Aerosols in Division 2.2, with no subsidiary hazard, for sporting or home use can only be transported as checked baggage.

the total net quantity of all such articles carried by each passenger or crew member under the provisions of 2.3.5.1 must not exceed 2 kg or 2 L and the net quantity of each single article must not exceed 0.5 kg or 0.5 L. Release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents.

2) **Toiletries (Hair Spray, Hair Gel, Perfume, including Aerosol)**

For checked baggage, maximum allowance per passenger is 0.5 kg or 0.5L. For carry-on baggage or personal belongings, maximum allowance for each kind of toiletry is 1 piece with volume below 100 ml and all toiletry should be placed in a separate bag with total volume below 1L, and accept security check with cap opened.

Proper protection actions should be taken over the aerosol’s valve, to avoid releasing the inner contents accidentally.

the maximum allowance per passenger for bring non-radioactive medicine, Toiletries and sport-use or home-use aerosol without subsidiary risk is 2 kg or 2 L.

3) **Non-radioactive medicinal (including aerosols)**

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the maximum allowance of net quantity for each single article per passenger must not exceed 0.5 kg or 0.5 L.

Release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents.

Diabetes mellitus patients or patients with other disease who must carry liquid medicine in person should accept security check and show the prescription from hospital to the inspector, or checked by liquid goods detector, then it can be brought in person.

Each passenger's maximum allowance to bring non-radioactive medicinal, toiletry articles and sport-use or home-use aerosol without subsidiary risk is 2 kg or 2 L.

13.2.5.2 Cylinders for Mechanical Limbs

Small cylinders of a gas of Division 2.2 worn for the operation of mechanical limbs. Also, spare cylinders of a similar size if required to ensure an adequate supply for the duration of the journey.

13.2.5.3 Cardiac Pacemakers

Radioisotopic cardiac pacemakers or other medical devices, including those powered by lithium batteries, implanted into a person or fitted externally should be permitted as carry-on baggage.

The device shall only be taken as medical treatment, implanted into a person or fitted externally.

Radioisotopic mechanical can only be taken as treatment means.

13.2.5.4 Medical/Clinical Thermometer

In checked baggage only, one small medical or clinical thermometer which contains mercury, for personal use, when in its protective case.

13.2.5.5 Alcoholic Beverages

Passengers should not carry alcoholic drinks on board (except for duty-free goods purchased in the isolation area or at the airport, provided with a shopping certificate and confirmed by safety inspection), but alcohol drinks can be delivered as checked luggage.

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When delivered as checked baggage, alcoholic drinks shall comply with the following requirements:

1) containing 24% or less alcohol by volume are not subject to any restrictions.

2) containing more than 24% alcohol by volume, Dangerous Goods.

3) containing between 24% and 70% alcohol by volume, then:

(1) If each inner package is below or equal to 5 L, it can be transported as checked baggage.

(2) If each inner package is over 5 L, it must be transported as cargo.

4) If the alcohol volume is over 70%, it is forbidden for air transport.

13.2.5.6 Hair Styling Devices

For hair styling devices containing hydrocarbon gas, no more than one piece per passenger or crew member could take, provide that the safety cover is securely fitted over the heating element. The hair styling devices must not be used when flying at all time. The gas refills for such hair styling devices are not permitted in checked-in or carried-on baggage.

13.2.5.7 Portable Electronic Devices (PEDs) (including medical devices) containing batteries, spare batteries, and power banks / portable power sources.

1) "Battery-powered electronic devices" in this manual refer to equipment that requires batteries to provide power for operation. Personal electronic devices (PEDs) containing batteries, carried for personal use by passengers or crew members, include medical equipment such as portable oxygen concentrators (POCs) and consumer electronics such as cameras, mobile phones, laptops, and tablets. For portable electronic devices capable of generating significant heat, the battery and heating

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components must be separated from the device, and the heating elements, batteries, or other components must be removed. These regulations also apply to dry-cell batteries, nickel-metal hydride batteries, lithium batteries, and sealed wet-cell batteries. Portable electronic devices should be placed in carry-on baggage; however, if the device is transported as checked baggage, it must be completely powered off (not in sleep or hibernation mode). This restriction does not apply if the device contains only lithium batteries and does not exceed the following limits: lithium content not exceeding 0.3g per device for lithium metal batteries, or rated energy not exceeding 2.7Wh per device for lithium-ion batteries.

2) Electronic cigarettes containing batteries including electronic cigars and other personal use vaporizers must be limited only it's in the hand luggage. It is not permitted to charge these devices and/or batteries on board the aircraft. And measures must be taken to prevent accidental activation.

3) Spare batteries and power banks/portable power sources must be individually protected against short circuits. This can be done by placing them in the original retail packaging or by other isolation methods, for example, taping over exposed terminals or placing each battery in a separate plastic bag or protective pouch, and they may only be carried in carry-on baggage.

Spare batteries and power banks are prohibited as checked baggage and may only be carried as carry-on baggage, subject to the following requirements:

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(1) Spare Batteries: Each person may carry a maximum of 20 spare batteries. However, the carrier may approve the carriage of more than 20 spare batteries. Charging them in the passenger cabin is strictly prohibited.

(2) Power Banks / Portable Power Sources: Each person may carry a maximum of 2 power banks. Power banks with a rated energy not exceeding 100 Wh do not require carrier approval; those exceeding 100 Wh but not exceeding 160 Wh may be carried only with carrier approval. Charging them or using them to charge or power other devices is strictly prohibited in the passenger cabin; they must remain switched off throughout the flight and should not be placed in the overhead bins. Power banks without a CCC mark, with an unclear CCC mark, or of a recalled model or batch are prohibited from being carried on domestic flights.

(3) May be placed in carry-on baggage stowed under the seat in front, or in other designated stowage locations, such as the seatback pocket.

4) Additionally, lithium batteries are subject to meet the following conditions:

(1) each installed or spare battery must not exceed:

For lithium metal battery packs or lithium alloy batteries, the lithium content does not exceed 2g; Or for lithium-ion batteries, the watt-hour value does not exceed 100Wh..

(2) batteries must be of a type that meets the require-ments of the UN Manual of Tests and Criteria, Part III, subsection 38.3;

(3) each person is limited to a maximum of 15 PED; however, HNA may approve the carriage of more than 15 PED;

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(4) articles containing lithium metal or lithium ion cells or batteries, the primary purpose of which is to provide power to another device, e.g. power banks, are permitted in carry-on baggage only. These articles must be individually protected to prevent short cir-cuits by placement in the original retail packaging or by otherwise insulating terminals, e.g. by taping over exposed terminals or placing each battery in a separate plastic bag or protective pouch;

(5) baggage with installed lithium batteries, with a lithium metal content exceeding 0.3 g or a Watt-hour rating exceeding 2.7 Wh:

A if the baggage is to be checked in, the lithium battery must be removed from the baggage and the lithium battery must be carried in the cabin; or

B the baggage must be carried in the cabin.

C Such luggage is prohibited when the lithium metal content of the lithium battery on the luggage exceeds 0.3g or watts of hours exceeds 2.7Wh and cannot be disassembled.

5) Additional requirements for non-spillable wet batteries:

(1) Batteries must meet the requirements of Special Provision A67 and must not contain any free or unabsorbed liquid;

(2) The voltage of each battery must not exceed 12 V and the Watt-hour rating must not exceed 100 Wh;

(3) Carry-on baggage only, limit up to two spare batteries per passenger. Each spare battery must be protected from short circuit by insulation of the battery terminals.

13.2.5.8 Fuel Cells Contained in Portable Electronic Devices

Fuel cells used to power portable electronic devices (for example

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cameras, cellular phones, laptop computers and camcorders) and spare fuel cell cartridges, under the following conditions:

1) Fuel cells and fuel cell cartridges may only contain flammable liquids, corrosive substances, liquefied flammable gas, water-reactive substances or hydro-gen in metal hydride;

2) Refueling the fuel cell box on the aircraft is prohibited,but installing a spare fuel cell box is permissible.;

3) The maximum quantity of fuel in any fuel cell or fuel cell cartridge must not exceed:

(1) for liquids, 200 mL;

(2) for solids 200 g;

(3) for liquefied gases, 120 mL for non metallic fuel cells or fuel cell cartridges or 200 mL for metal fuel cells or fuel cell cartridges;

(4) for hydrogen in metal hydride the fuel cell cartridges must have a water capacity of 120 mL or less.

4) each fuel cell and each fuel cell cartridge must conform to IEC 62282-6-100 Ed. 1, including Amend-ment 1 and must be marked with a manufacturer's certification that it conforms to the specification. In addition, each fuel cell cartridge must be marked with the maximum quantity and type of fuel in the cartridge;

5) no more than two spare fuel cell cartridges may be carried in checked baggage, carry-on baggage, or on the person;

(1) fuel cells containing flammable liquids, corrosive substances, liquefied flammable gas or metal hydride can be transported as carry-on, checked baggage or in person;

(2) fuel cells containing water reactive substances can only be transported

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as carry-on baggage or in person.

6) Fuel battery system with fuel and fuel battery cartridge (including the spare cartridge) can only be transported as carry-on baggage;

7) interaction between fuel cells and integrated batteries in a device must conform to IEC 62282-6-100 Ed. 1, including Amendment 1. Fuel cells whose sole function is to charge a battery in the device are not permitted;

8) fuel cells must be of a type that will not charge batteries when the portable electronic device is not in use and must be durably marked by the manufac-turer: “APPROVED FOR CARRIAGE IN AIRCRAFT CABIN ONLY” to so indicate;

9) in addition to the languages which may be required by the State of origin for the marks specified above, English should be used.

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13.3 Provisions of CAAC about Dangerous Goods in Baggage

Regulations for passenger and crew member carrying dangerous goods should refer to “Catalogue of articles prohibited to be carried or checked in by civil aviation passengers”and “Catalogue of articles restricted to be carried or checked in by civil aviation passengers” issued by the CAAC, Notice No. 6.

13.3.1 Forbidden Goods to be Carried or Checked in by Passenger and Crew Member

13.3.1.1 Gun weapon (Including Major components)

Device which can launch ammunition(including bullet and other articles) and cause severe injuries to people or which might be mistaken to be this kind. Including:

1) guns for military or office use, such as pistol, rifle, submachine gun, machine gun and baton gun.

2) guns for civil use,such as pneumatic gun, shot gun, shooting gun and injection gun.

3) Others, such as props gun, starting pistol, steel ball gun, guns from oversea as well as other guns made illegally.

4) Replica regarding above guns.

13.3.1.2 Dangerous Goods Classification

articles with danger which will cause severe injury to human body or jeopardize aircraft safety or transport order, including:

1) article or device with explosive or flammable nature or might be mistaken to be this kind.

(1) Ammunition: bombs, grenades, lighting bombs, incendiary bombs, smoke bombs, signal bombs, tear- evocative bombs, toxic-gas bombs,

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bullets (empty-bundle bullets, fighting bullets, testing bullets and coaching bullets) and so on.

(2) Dynamiting equipment: dynamites, detonators, fuses in igniting fire, fuses in inducing explosion, non-electrical explosion-inductive systems, dynamiting agents and so on.

(3) Firework manufactured products: ceremonial bombs, fireworks, firecrackers and so on.

(4) Mimics of the above articles.

2) Compressed, liquefied gases such as hydrogen, oxygen, butane stored in bottles;

3) Spontaneous combustion articles such as yellow phosphor, white phosphor, nitrocellulose(including films),oilpapers and their preparations;

4) Articles which are flammable in contact with water, including metals such as kalium, natrium, calcium carbide(electric stone), magnalium powder and so on;

5) flammable liquids such as petrol, coal oil, diesel oil, benzene, ethanol(alcohol), oil paint, watery material, retinol and so on;

6) flammable solids such as flashing powder, solid alcohol, batteryuloid;

7) Various non-organic ,organic oxidants, lighters (including the blue flame or cigar lighter), lighter fuels, matches(namely friction matches and safety matches) such as natrium peroxide, kalium peroxide, lead peroxide, peroxide acetate.

8) Toxic and harmful articles, including severely toxic articles such as cyanides, severely toxic pesticides and so on.

9) Corrosive articles, including vitriol, hydrochloric acid, nitric acid,

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liquid accumulators, sodium hydroxide, potassium hydroxide and so on.

10) Radioactive articles, including radioactive isotopes and so on.

11) Other items that contain one or more dangerous goods: such as briefs, cash boxes/bags containing dangerous goods such as lithium batteries and/or pyrotechnic materials except as permitted by DGR2.3.2.6, electric shock weapons (such as Tasers).

13.3.1.3 Restricted Instrument

Restricted instrument which can cause severe injury to human body or jeopardize aircraft safety or transport order, including:

1) restricted knife, such as dagger (with shank, cross guard and blood reservoir, blade angle below 60 degrees, either with single blade, twin blade or multi-blade), striking knife (with triple blade for mechanical processing), flick knife or blink dagger(knife-blade can be fixed or locked by the spring inside the shank) with self-lock device, other similar triangular-knife with single/twin blade(blade angle below 60 degrees and knife-blade length over 150mm), as well as all kinds of knife with single, twin or multiple blade with blade angle over 60 degrees and knife-blade length over 220mm.

2) Military/police apparatuses, such as spontoon, police defibrillator, military/police use dagger, handcuff, thumbcuff, fetter and tear ejector.

3) Other restricted instrument regulated by country, such as crossbow.

13.3.1.4 Other article

articles which will cause severe injury to human body or jeopardize aircraft safety or transport order, including:

1) causative agent of infectious disease, such as HBV, Bacillus Anthracis,

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Mycobacterium Tuberculosis, HIV.

2) kindling(including all kind of ignition device), such as lighter, match, cigar lighter and magnesium rod(flintstone).

3) power bank, lithium battery and Lithium-ion battery balancing car with capacity rating over 160Wh and other similar kind of product.

4) alcoholic beverage with alcohol volume over 70%.

5) Strong magnetic material, article with strong smell or might easily cause panic to the passenger, as well as article cannot be identified its nature might possess danger.

13.3.1.5 Other articles forbidden to be transported as per nation law, administrative laws and regulations.

13.3.2 Article restricted to be carried on or checked in by passenger or crew.

13.3.2.1 Article forbidden for carry-on baggage but allowed for checked baggage.

1) Sharp instrument

instrument with sharp edge or blade, which is made by metal or other material, with strength enough to cause severe injury to human body. Including:

(1) Daily cutting tool(with blade length over 6cm), such as kitchen knife, fruit knife, scissor, cutter and paper cutter.

(2) Daily cutting tool(no limit for its blade length), such as scalpel, butcher steel, carving knife, plane cutter and milling cutter.

(3) Knife, spear, sword, halberd, etc., which is used for martial arts art performance.

2) Blunt Instrument

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instrument without sharp edge or blade, but made by metal or other material, with strength enough to cause severe injury to human body. Including club(stretchable baton and nunchakus), bat, cue stick, cricket bat, hockey stick, golf club, alpenstock and knuckle-dusters(hand stitch).

3) other

other article which can cause severe injury to human body or jeopardize aircraft safety or transport order, including:

1) Instrument, such as drilling machine(containing roller bit), chisel, cone, saw, stud gun, nail gun, screw, crowbar, hammer, pincer, welding gun, wrench, axe, hatchet(emergency axe), vernier caliper, ice-axe and Ice pick.

2) Dart, slingshot, bow, arrow, Buzzer defense and other articles such as defibrillator, Mace gas, tear gas, pepper spray, Acid spray and animal repellant etc., which is not regulated or controlled by country.

13.3.2.2 Articles that could be Bring in Person Onboard or Check in with Limited Conditions

1) Bring in person onboard with limited conditions but could check in

(1) Passenger taking international or regional flights, liquid articles should be placed in a single bottle that is not exceeding 100 ML and bring in person onboard. All liquid bottles should be placed in a re-sealed clear plastic bag with no more than 1 L volume. The exceed part will need to be checked in.

(2) Passenger taking domestic flights, liquid articles are not permitted to bring in person onboard (not including toothpaste, shaving cream, necessary cosmetics when in flying). Necessary cosmetics when in flying must meet three conditions (one piece of each kind, in a bottle that the volume not exceeding 100 ML, accept open bottle security

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check). Toothpaste and shaving cream can only take one piece of each, and not exceeding 100 g (ML). When passenger in a same control area of airport transferring from international or regional flight to domestic flight, the duty-free liquid that he/she brings in person must meet three conditions (have purchase receipt, placed in sealed and damage-free clear plastic bags, pass the security check). If passenger must leave the same control area of airport and re-enter for taking domestic flight, the passenger must bring the duty-free liquids to checked-in baggage counter.

(3) The necessary liquid milk product for infant, diabetes mellitus patients or patients with other disease that needs liquid medicine can be brought in person after proper security check.

(4) Passenger who bought liquid articles in control area or in airplane can take them before exiting the control area of airport.

2) Not allowed to bring in person onboard but could check in with limited conditions

Alcoholic beverages are not allowed to bring in person onboard but could checked-in with limited conditions per below:

(1) The label is clear and complete, in retail package, each container is less than 5 L.

(2) If the alcohol concentration percentage is below or equal to 24%, then no restriction when checking in.

(3) If the alcohol concentration percentage is above 24% but less than or equals to 70%, each passenger can check in no more than 5 L.

3) Not allowed to be checked in but could bring in person onboard with limited conditions.

The portable power banks and lithium batteries are not allowed to be checked in. It must meet below requirements when bring in person onboard:

(1) The label is clear and complete, rated energy is less than or equal to

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100 Wh.

(2) When the rated energy is over 100 Wh but less than or equal to 160 Wh, the passenger needs to get approval from the Carrier, and each passenger can only bring up to two batteries.

Note Proper action must be taken to avoid short circuit, e.g. put in the original packaging or taping over exposed electrode or placing each battery in a separate plastic bag or protection bag, can only take it with carried-on baggage.

13.3.2.3 Articles restricted to be transported as per national law,administrative laws and regulations.

13.3.3 Reference Table for Dangerous Goods Carried by Passengers and Crew Members of Hainan Airlines

Except for the dangerous goods permitted as specified in the table below, no passenger or crew member may carry dangerous goods on board an aircraft, whether in checked baggage, carry- on baggage, or on their person. Any dangerous goods allowed in accordance with these provisions must be for personal use during the journey. The most appropriate entry description must be selected. Where multiple dangerous goods are contained, the provisions of all applicable entries must be satisfied.

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The captain must be notified of the loading locatio				
Allowed in or as portable luggage				
Allow in or as shipping baggage				
Should be approved by the operator				
Alcoholic beverages alcoholic beverages with a volume concentration above 24% but not more than 70% in containers no more than 5L, and the total net quantity carried by each person does not exceed 5L. Note: Alcoholic beverages with volume concentrations not exceeding 24% are not restricted. *Passengers should not carry alcoholic beverages in their cabin baggage, except for duty-free items purchased in the sterile area of the terminal or on board the aircraft, provided that proof of purchase is available and security screening confirms no suspicion.**(See this manual 13.2.5.5 for the differences)**	No	yes	ermitted under specific conditions*	no
Sports ammunition (only 1.4S NU0012 and UN0014 only), For use by sports teams only., with a gross weight of less than 5 KG. Ammunition carried by more than one person shall not be combined into one or more packages.**(For use by sports teams only; notify the captain of the loading position.See this manual 13.2.2.1 for the differences)**	yes	yes	no	yes
Avalanche rescue backpack Avalanche rescue backpack allowed one per person. Gas cylinder with 2.2 compressed gas. It can also be equipped with a fireworks trigger of 1.4S less than 200mg. The backpack must be packed in a way that is not accidentally opened. The airbag in the backpack must be equipped with a pressure reducing valve.	prohibit			
The Baggage with installed lithium batteries battery installed with lithium batteries is not removable and exceeds 0.3g lithium metal content or 2.7wh.	prohibit			
Baggage installed with lithium batteries Baggage with installed lithium batteries: -The battery is not removable. Lithium metal battery Lithium metal content should not exceed 0.3g or lithium ion battery should not exceed 2.7wh. -Battery is removable. If the battery must be removed when the baggage is delivered, the removed battery must be brought into the cabin.	no	yes	yes	no
Batteries, spare/loose, including lithium batteries, non-spillable batteries, nickel-mental hydride batteries and dry batteries portable electronic devices batteries are only allowed to carry passengers in hand luggage. The main function is as a power supply of products. These batteries must be individually protected to prevent short circuits. Lithium metal battery: the lithium metal content shall not exceed 2g. Lithium-ion battery: the rated watt hour shall not exceed 100Wh. Each person can carry a maximum of 20 spare batteries. * The operator can approve to carry more than 20 batteries. Sealed cell: The voltage shall not exceed 12V and 100Wh. Each person can carry a maximum of 2 spare batteries.	no *	no	yes	no
Camping stoves and fuel containers that have contained a flammable liquid fuel All liquid fuel has been completely drained, and measures have been taken to render the item non-dangerous.	yes	yes	no	no
Chemical Agent Monitoring Equipment carried by official personnel of the No Chemical Weapons Organization (OPCW) on official travel.	yes	yes	yes	no
Disabling devices contain irritating and incapacitating substances, such as tear gas, pepper spray, etc., which are not carried in delivery luggage and hand luggage.	prohibit			

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Dry ice (carbon dioxide, solid) is used for fresh and perishable food preservation not subject to the restrictions of these rules. No more than 2.5kg per passenger can be used as portable or delivered luggage, but luggage (packaging) can allow the release of carbon dioxide gas. The delivered luggage must be marked with "dry ice" or "solid carbon dioxide" and its net weight, or with dry ice less than or equal to 2.5kg.	yes	yes	yes	no
E-cigarettes containing batteries (including e-cigars, e-pipes, and other personal vaporizers) must be individually protected from accidental initiation.	no	no	yes	no
Electro shock weapon (such as Tasers) contain dangerous goods such as explosives, compressed gases, lithium batteries, which are prohibited to carry luggage or carry luggage or carry-on.	prohibit			
Fuel cells containing fuel , powering portable electronic devices (such as cameras, mobile phones, laptops and small video cameras, etc.)	no	no	yes	no
Fuel cell cartridges, spare supplies portable electronic devices.	no	yes	yes	no
Gas cartridges, small, non-flammable mounted on automatically inflatable personal safety equipment such as carbon dioxide or other item 2.2 gas on a life jacket or vest for individuals, with no more than 2 tanks per unit. Each passenger shall carry no more than 2 pieces of equipment and no more than 2 spare small gas tanks per piece. No more than 4 gas tanks with a water capacity of up to 50ml for other equipment.	yes	yes	yes	no
Gas cylinders, non-flammable, non-toxic for operating mechanical prosthetic cylinders. And similar sized spare cylinders to ensure use on the trip.	no	yes	yes	no
Hair styling equipment containing a hydrocarbon gas cartridge If the heater has a tight safety cover, each passenger can bring a passenger or crew up to one. This hair styling equipment is forbidden to be used on aircraft at any time, and its spare inflatable tank are not allowed to be carried in hand or delivered luggage. Hair styling equipment containing a hydrocarbon gas cartridge	no	yes	yes	no
Insulated packagings containing refrigerated liquid nitrogen（dry shipper） containing frozen liquid nitrogen is completely adsorbed into the porous substance, and the interior substance is only non-hazardous.**(Carrier approval is required,See this manual 13.2.4.5 for differences)**	yes	yes	yes	no
Internal combustion or fuel cell engines must meet the A70.**(Carrier approval is required,See this manual 13.2.2.8 for differences)**	yes	yes	no	no
Lithium Batteries: Portable electronic devices (PED) containing lithium mental or lithium ion cells or batteries includes medical devices such as portable oxygen collectors (POCs) and consumer electronics such as cameras, mobile phones, laptops and tablets. The lithium content of lithium metal batteries shall not exceed 2g, and the watt hours of lithium ion batteries shall not exceed 100wh. Devices must be protected from damage and inadvertent activation. Those in checked baggage must be completely switched off. Each person is limited to a maximum of 15 PED. * The operator may approve carrying more than 15 PEDs.	no *	yes	yes	no
Lithium battery: spare / scattered, see battery, spare / scattered	/	/	/	/
Lithium battery-powered electronic devices for portable electronic devices (including medical use) for watts more than 100wh but not more than 160wh. Lithium metal content of more than 2g but no more than 8g for lithium metal batteries for portable medical electronic devices. .Devices must be protected from damage. Devices in checked baggage must be completely switched off.	yes	yes	yes	no
Lithium batteries, spare, loose consumer electronics and portable medical	yes	no	yes	no

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electronics (PMED) use 100Wh for lithium ion batteries greater than 100 Wh but not 160Wh, or lithium metal batteries containing over 2g but not 8g for portable medical electronics (PMED). Up to 2 spare batteries are allowed only to be carried in hand luggage. These batteries must be individually protected against short circuits.				
Matches, safety (one small packet) or a small cigarette lighter Personal use non unadsorbed liquid fuel and non-liquefied gas. Lighter fuel or fuel filling tanks are not allowed to be carry-on, nor to be put in delivery luggage or hand luggage.**(Carrier approval is required and must be carried as checked baggage,See this manual 13.2.1.6 for differences)** Note: "instant rub" matches, "blue flame", "cigar" lighters or lithium battery powered lighters without safety helmet / accidental start protection are prohibited.	prohibit			
Mobility Aids: Electric wheelchair with sealed wet battery, nickel metal hydride battery or dry battery or other similar walker.	yes	yes	no	yes
Mobility Aids: a wheelchair or other similar electric walker with unsealed batteries or lithium-ion batteries.	yes	yes	no	yes
Mobility Aids: wheelchair with lithium battery or other similar electric walker, if designed not to provide adequate protection for the battery see (DGR 2.3.2.4.3).	yes	no	yes	yes
Electric vehicle driven by lithium battery: The carriage of lithium battery-powered electric vehicles, including but not limited to hoverboards, unicycles, scooters, and bicycles, is not permitted.**(See this manual 13.2.1.8 for differences)**	prohibit			
Non-radioactive medicinal or toiletry articles (including aerosols) such as hair gel, perfume, Cologne, and alcohol-containing drugs; and non-flammable, non-toxic (Division2.2) aerosols, no secondary risk, sports or household. The total net quantity of non-radioactive drugs or cosmetics and item 2.2 non-flammable and non-toxic aerosols shall not exceed 2 kg or 2 litres, and the net quantity of each single item shall not exceed 0.5 kg or 0.5 litres. Aerosol valves must be protected with a lid or by other means to prevent accidental opening of the valve to release the contents. *Non-flammable, non-toxic aerosols (Division 2.2) are acceptable as checked baggage only. See this manual 13.2.5.1 for differences.	no	yes	yes *	no
Oxygen or air, gaseous, cylinders are used for medical use, and the gross weight of the cylinders shall not exceed 5 kg.**(See this manual 13.2.1.3 for the differences)** **Note: liquid oxygen devices, as are air bottles.**	prohibit			
Permeation devices must comply with A41.**(Carrier approval is required and must be carried as checked baggage,See this manual 13.2.2.9 for the differences)**	yes	yes	no	no
Radioisotopic cardiac pacemakers or other devices, including those implanted in vivo or in vitro and powered by lithium batteries.	no	Take it on your body		no
Security-type equipment is described in DGR 2.3.2.6	yes	yes	no	no
Security-type attache cases, cash boxes, cash bags in addition to meet the requirements of the security equipment, equipped with lithium battery and / or pyrotechnic materials and other dangerous goods, is completely prohibited.	prohibit			
Specimens, non-infectious packaged with a small amount of flammable liquid must comply with A180.**(Carrier approval is required and must be carried as checked baggage,confirming that the specimen is non-infectious,See this manual 13.2.2.7 for the differences)**	yes	yes	no	no
Thermometer, medical or clinical contains mercury, personal use is allowed to carry one one, placed in the protective box.	no	yes	no	no

Unauthorized use prohibited

Thermometer or barometer, mercury filled is carried by the government weather bureau or other similar official agencies.	yes	no	yes	yes

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13.4 Baggage Acceptance

To strictly follow the transportation provisions for dangerous goods in baggage, the Carrier should make itself noticeably clear about the responsibilities. Based on this knowledge, the Carrier should conduct propaganda to passengers proactively, to avoid possible incidents.

Posters of dangerous goods transportation must be posted in baggage acceptance area to inform the passengers of the provisions in this chapter about dangerous goods transported as baggage and related information.

Baggage handling staff must be trained with regulations and knowledge of dangerous goods baggage transportation.

Passenger, carried-on baggage, and checked-in baggage must pass security check conducted by the airport security department before entering controlled areas.

13.4.1 Marketing and Sales Department Responsibilities

13.4.1.1 Responsibilities of Passenger Ticket Sales Staff:

Be responsible for publicizing related provisions of the company regarding carriage of dangerous goods in baggage, enquiring passengers whether there is dangerous goods in baggage. If any, enter the information about dangerous goods in sales system.

13.4.1.2 Operation Process and Requirements of Sales Work:

1) When booking seats and selling passenger tickets, the ticket salesmen shall provide information to the passengers about the types of dangerous goods prohibited from air transport. When a ticket is sold via the Internet, the carrier shall provide the passenger with text or image information about the types of dangerous goods that are prohibited from carrying on the aircraft, and ensure that the ticket purchase

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procedures can be completed only after the passenger indicates that he has known the restrictions on dangerous goods in the luggage.

2) When special passengers show up, such as hunters, shooting athletes, hikers, campers or mountain climbers, ticket sales staff should voluntarily ask them if they carry dangerous goods in their baggage. In case that the types and quantities of dangerous goods carried by them do not meet the transport provisions of dangerous goods contained in baggage, it is recommended that tell passengers to send the baggage as dangerous goods cargo.

3) In case passengers carry dangerous goods in baggage that need the Carrier's approval for transportation, passengers should declare to the passenger tickets sales department and must meet requirements of dangerous goods contained in baggage. Otherwise, it is recommended that tell passengers to send the baggage as dangerous goods cargo.

13.4.2 Baggage Acceptance Staff

13.4.2.1 Responsibilities of Baggage Acceptance Staff:

Be responsible for publicizing related provisions of dangerous goods transportation to passengers, verifying information of passengers' baggage containing dangerous goods that provided by marketing and sales department, accepting checked-in baggage from passengers according to related requirements of the Carrier in relation to passengers' baggage containing dangerous goods, sending information about baggage containing dangerous goods to the captain and load control department. The check-in staff must take proper training to be able to identify that no passenger carries forbidden dangerous goods in baggage.

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13.4.2.2 Operation Process and Requirements of Baggage Acceptance Work:

1) Notify Passengers

(1) Check-in staff or service vender staff should place clear posters showing embargo baggage and baggage with limitation near counter area. The content of posters must show: ①Signs and markers of dangerous goods; ②Shipping name and quantities of dangerous goods that forbidden for transportation; ③Shipping name and quantities of dangerous goods that with limitation for transportation.

(2) The airport agency should publicize information about dangerous goods that forbidden to be carried or consigned by passengers through radio broadcast or electric screen.

2) Inquiry

(1) Check-in staff should ask passengers if they seem to carry dangerous goods. If the class or quantity of dangerous goods carried by passengers does not meet with the provision 13.3 in this manual, Check-in staff should suggest the passenger to send the baggage as dangerous goods cargo. Boarding registry staff must refuse to accept baggage containing dangerous goods which exceeds the limits.

(2) Service staff of VIP Reception Room should remind VIPs or the accompanies to check if they carry dangerous goods designated in this manual.

(3) Check-in staff may ask passengers of related questions based on his/her experience according to different situations of passengers and characteristics of transported baggage, eg:

A For patients, campers, hikers, and climbers, ask them if they carry coal

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gas pots, oxygen bottles, kerosene furnaces, or liquid fuels.

B For shooting athletes, ask them if they carry ammunition and if packaging and quantities comply with related provisions in this manual.

C For commercial sales representatives, ask them if they carry chemical medicines or aerosol products.

3) Confirmation

(1) When finding dangerous goods contained in baggage in the consignment of passengers' baggage, the check-in staff should assist security check staff in identifying if the content of the checked-in baggage is allowed in the scope of allowable consignment.

(2) Baggage without accompany (including aircraft spares of the company, non-accompanied baggage of the company staff) must have conditions of their contents identified by the transactor. Ask the transactor to fill in transport document when necessary.

(3) The service staff should confirm with the VIP to make sure no dangerous goods contained in the baggage.

4) Packing Inspection

Check-in staff or vender's staff must check if the packing of dangerous goods are in accordance with the requirements in *Dangerous Goods Transport Manual* of HNA during acceptance.

5) Transportation Documentation Inspection

To validate the transportation documents according to pertinent provisions for Baggage Transport in the Chapter 8 of *Ground Service Manual*.

6) Transaction

(1) In case that articles forbidden to be carried in baggage as defined in

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13.3 and required to be sent as cargo in baggage consignment, explain the situation clearly to passengers and request them to take dangerous goods out and apply to transact cargo transport procedures at HNA's Cargo Department;

(2) Check-in staff or vender's staff should refuse to accept passengers' checked baggage containing dangerous goods forbidden explicitly by the state for transport and immediately inform security check and public security staff for processing;

(3) After airport security check staff ensures that safety clearance can be given to passengers' checked baggage, baggage tags and related certificates can be returned to passengers or the commissioned persons.

7) Information Passing-over (in case of transporting dangerous goods)

(1) Check-in staff or vender's staff should make records and provide corresponding information to the captain and crew members before passengers' boarding the aircraft. The information includes passengers' names, seat numbers, natures, and quantities of their checked/carried articles.

(2) Send related information about baggage transport to the transit and destination airports.

(3) After Check-in staff checks and confirms related information provided by tickets sales department, dangerous goods requiring the company's consent can be accepted in the same acceptance procedures as in "a" provided that the actual conditions correspond with the information and are in accordance with provisions of the company in relation to baggage containing dangerous goods.

13.4.2.3 Acceptance of Transit Baggage

1) The acceptance staff confirms baggage according to information about

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baggage containing dangerous goods provided by departure airports of inbound flights.

2) Upon receiving baggage containing dangerous goods, send data to load control department immediately.

3) Handing over with monitoring and loading staff.

13.4.2.4 Operation Procedure in Case of Emergency

1) Definition

Human injuries, or death, or property loss caused by damaged dangerous goods packaging, inner contents spattering, loss, sprinkling and leakage and fire during ground transportation of baggage.

2) Information Reporting

(1) Units and their personnel handling dangerous goods air transport on behalf of the company shall promptly report any dangerous goods accidents, incidents, or occurrences to the relevant departments, including the company's Operations Control Center and the Safety Supervision Department.

Operations Control Center 24-hour Duty Phone: 0898-65987101/7102

Safety Supervision Department Headquarters Duty Email: ajbzbzb@hnair.com

Safety Supervision Department Headquarters Duty Officer: The Duty Officer's mobile phone number can be found on the daily Operations homepage.

(2) Immediately arrange for the baggage to be offloaded. Based on the baggage tag on the checked baggage, identify the passenger's name, seat number, and contact number to notify the passenger, and inform the airport police, fire department, security check, and other relevant

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units for response.

3) Disposal for Sprinkling and Leakage

(1) Before the arrival of professional personnel, the detecting personnel for sprinkling and leakage or the personnel implementing precautionary measures should:

Eliminate all fire-ignition sources.

Prevent from touching or spanning leaking articles.

Have all operating equipments earthed.

Evacuate nearby passengers, personnel as soon as possible. In semi-closed or closed zones such as elevators and boarding bridges, guide passengers to evacuate into upper windward direction.

Assist professional personnel in insulating accident spots according to safety provisions.

(2) In case of fire, provide fire extinguishing personnel with species, quantities of dangerous goods and lists of checked-in articles' quantities.

(3) It is forbidden to touch dangerous goods directly by skin before protective measures are taken.

(4) Cover flammable liquids with sands or other inflammable materials. The collected remainders should be prevented from flowing into sewers to avoid pollution. Spots for destroying them should be safe and hollow.

(5) Flammable solid may be collected for deep burial. Sprinkling and leakage articles which can reacts in contact with water can not be dealt with by using water. However, the swept spot can be swashed by a lot of water.

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(6) Oxidizers in sprinkling and leakage manner should be swept up gently, bottled otherwise, placed in proper positions such as lavatories.

(7) See *Quick Check Manual of Dangerous Chemicals Emergent Handling* and 8.5 Baggage Emergency Operation (Dangerous Goods) of the company's *Ground Service Manual.*

(8) When Hainan Airlines acts as a non-dangerous goods ground handling agent at the Haikou, Beijing, and Taiyuan bases, the following manuals shall be used for handling:

Haikou Passenger Service Center Working Manual 7.12 Emergency Response Plan for Lithium Battery Fires;

Beijing Base Working Manual 2.19.8 Handling of Abnormal Dangerous Goods Transport Events and Information Reporting Procedures;

Taiyuan Base Ground Support Center Working Manual 5.18.4.12 Emergency Management.

13.4.2.5 Checklist Filling and Documentation

1) Document Filling

Check-in staff or vender's staff should fill in related work lists (transportation lists of aircraft spares, dangerous goods) in the situations of **5.1-5.4**;

The content in the document must be clear and in detail.

2) Preservation

Transportation lists are documented by the handling department according to requirements.

13.4.3 Load Control Personnel

13.4.3.1 Responsibilities of Load Control Personnel

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Upon receiving notification from baggage acceptance personnel regarding baggage containing dangerous goods, load control personnel shall check whether the baggage compartment on the load sheet meets the requirements. If adjustment is necessary, it shall be handled according to the cargo hold adjustment procedures. After flight takeoff, based on the actual loading situation, they shall send an LDM telegraph to the transit station and the destination station.

13.4.3.2 Operational Procedures and Requirements for Load Control Work:

1) Upon receiving notification from baggage acceptance personnel regarding baggage containing dangerous goods, load control personnel shall check whether the baggage compartment on the load sheet meets the requirements. If adjustment is necessary, it shall be handled according to the cargo hold adjustment procedures.

2) Before flight departure, load control personnel shall update load-related information based on dangerous goods change notifications (including nature of articles, weight, and compartment changes, etc.) reported by various units.

3) After flight takeoff, load control personnel must input the actual loading details of the dangerous goods, as reported by the loading supervision personnel, into the LDM telegraph and transmit it to the transit station and the destination station.

13.4.4 Baggage Loading and Unloading Staff

13.4.4.1 Responsibilities of Baggage Loading and Unloading Staff

Handle the baggage containing dangerous goods according to related provisions in this manual and loading sheet; notify numbers of baggage containing dangerous goods to load control department; notify

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information about transit baggage containing dangerous goods to load control department and hand the goods over to the loading-supervising staff.

13.4.4.2 Operation Procedure and Requirements of Baggage Loading and Unloading Work:

1) Accept checked-in and transit baggage containing dangerous goods accepted by baggage acceptance staff according to related provisions in this manual.

2) Conduct operations according to related provisions in this manual and designate positions of baggage containing dangerous goods stipulated in loading sheets.

3) After loading, the loading staff should notify the number of ULD which loaded with dangerous goods to the Load Control Department.

13.4.5 Loading Supervision Staff

13.4.5.1 Responsibilities of Loading Supervision Staff

Checking dangerous goods according to the related provisions in this manual and IATA *DGR*, to unload the dangerous goods that do not conform to the provisions. Supervising and coordinating the handling procedures of dangerous goods related to flight operations according to the loading sheet, including operation inspection of dangerous goods prior to loading and to confirm if loading positions comply with requirements and so on. Signing the *Notice of Special Cargo to Captain* in the corresponding position and handing over with the captain and keep one copy. Notifying the actual loading conditions to the Load Control Department.

13.4.5.2 Operation Procedure and Requirements of Loading Supervision Work:

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1) For all dangerous goods being loaded, check with related provisions in this manual for compliance and unload those incongruent dangerous goods immediately.

2) Make sure the loading positions of all dangerous goods are conforming to the requirements.

3) Supervise and guide the loading or unloading staff to load according to the loading sheet. Guide them to use loading and unloading devices on the aircraft for handling and correct any mishandling immediately.

4) Make sure all dangerous goods are correctly loaded, then sign the *Notice of Special Cargo to Captain*, and hand over to the captain.

5) Notify the actual loading situations to load control department.

13.4.6 Crew Member

Refer to Chapter 8 in *Cabin Attendant Manual* for details.

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13.5 Notification and Publicization to Passengers

13.5.1 Strictly observe provisions regarding baggage containing dangerous goods, notify and publicize to passengers. This will not only benefit flight safety, but also enhance sense of safety for passengers.

13.5.2 In order to let the passenger and other airlines know better the related provisions of our company, the following methods should adopted:

13.5.2.1 External publicizing company's policies of dangerous goods transport management and related provisions in documents, website, or booking systems.

13.5.2.2 Printing related provisions on passengers' tickets. Posting up poster, explanations, slogans, etc. in ticket offices, terminal buildings and baggage-acceptance counters.

13.5.2.3 Marketing sales personnel and baggage acceptance personnel should actively publicize to passengers the related transport provisions of dangerous goods.

13.5.2.4 Widely publicize to passengers the related provisions by means of multiple media such as radio, newspapers and magazines.

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13.6 Special Baggage Notice to Captain

For items that require approval from the operations personnel、notification to the captain and required to take security measures before transportation, the relevant personnel of the company or the airport agent/operator shall perform their duties in accordance with the requirements of the Special Baggage Notice to Captain

13.6.1 The ground operator/crew shall notify the captain in writing of any dangerous goods carried by passengers.

13.6.2 Regarding dangerous goods carried by passengers into the cabin,the captain shall notify the cabin crew to carry out necessary verification checks and place them in a safe location and make disposal plans

13.6.3 When an aircraft changes crew at an intermediate stop but accompanied baggage (requiring notification) continues on the same aircraft, the captain of the preceding sector must sign the Special Load Notification for Baggage (or relevant section of NOTOC covering baggage) and leave it in a conspicuous and secure fixed location within the flight deck. Upon boarding, the next crew shall retrieve and confirm the document from this fixed area, then sign in the "Relieving Captain" signature block..

13.6.4 Within 24 hours after the end of the flight operation, the local service personnel of the HNA resident unit or all the airport local service agent / supervisor of the commission shall send the Special Baggage Captain Notice to the company, and the local service management Department shall regularly keep the captain notice of the baggage of the related flights involving the transport of dangerous goods.

13.6.5 《Special Baggage Notice to Captain》 and other relevant documents shall

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remain for at least 24 months

13.6.6 Special Baggage Notice to Captain of Hainan Airline's sample,as table below.

海南航空 HAINAN AIRLINES

海南航空特种行李机长通知单

Special Baggage Notice to Captain of Hainan Airlines

航班号/Flight:	日期/Date:	飞机注册号/Aircraft Registration:	始发站/Departure Station:	经停站/Via:	目的站/Arrival Station:

危险品/Dangerous Goods

品名/Content	业务代码 IRG Code	旅客姓名/Name 座位号/Seat No	件数/Pieces 重量/Weight 行李牌号/Bag Tag No	装载信息/Loading Information	
□轻药（包装单项毛重≤1.4kg轻药：UN0012 AUN0014）(Ammunition(UN No:0012 or 0014 only))	3L			箱板号ULD ID: 装载位置/Position: 更改后的装载位置/Changed Position:	□客舱内(Cabin Baggage) □托运(Checked Baggage)
□能够飞客舱气压调节的干燥飞行仪表温度计 (Mercury barometer or thermometer carried by a representative smelter bureau or similar agency)	8L			箱板号ULD ID: 装载位置/Position: 更改后的装载位置/Changed Position:	□客舱内(Cabin Baggage) □托运(Checked Baggage)
□装有密封型电池或锂金电池组干电池的轮椅/助行器 (Wheelchairs or other similar battery-powered mobility Aids with spillable batteries or nickel-hydrogen batteries or dry batteries) □已拆卸下的用于轮椅/助行器的密封型电池或锂金电池组干电池 (Spillable or nickel-hydrogen batteries or dry batteries for wheelchairs or other similar mobility Aids)	密封型电池：8L 锂金电池：9L 干电池：无			箱板号ULD ID: 装载位置/Position: 更改后的装载位置/Changed Position:	□托运(Checked Baggage)
□装有非密封型电池的轮椅/助行器 (Wheelchairs or other similar battery-powered mobility Aids with non-spillable batteries) □已拆卸下的用于轮椅/助行器的非密封型电池 (Non-spillable batteries for wheelchairs or other similar mobility Aids)	8L			箱板号ULD ID: 装载位置/Position: 更改后的装载位置/Changed Position:	□托运(Checked Baggage)
□装有锂电池的轮椅/助行器 (Wheelchairs or other similar battery-powered mobility Aids with lithium batteries)	9LF			箱板号ULD ID: 装载位置/Position: 更改后的装载位置/Damaged Position	□托运(Checked Baggage)
□已拆下的用于轮椅/助行器的锂电池 (Lithium batteries for wheelchairs or other similar mobility Aids)	9LF			箱板号ULD ID: 装载位置/Position: 更改后的装载位置/Changed Position:	□客舱内(Cabin Baggage)
□其他 (Other)	/				
批准员签字/Authorization:					

其他特种物品/Other Special Goods

品名/Content	旅客姓名/Name 座位号/Seat No	件数/Pieces 重量/Weight 行李牌号/Bag Tag No	装载信息/Loading Information	
□宠物运输/Pet Carriage)			箱板号(ULD ID): 装载位置/Position: 更改后的装载位置/Changed Position:	□托运 (Checked Baggage)
□导盲犬、助听犬、辅助犬(Service Dog)			箱板号(ULD ID): 装载位置/Position: 更改后的装载位置/Changed Position:	□客舱内(Cabin Baggage)
□独立Gang			箱板号(ULD ID): 装载位置/Position: 更改后的装载位置/Changed Position:	□客舱内(Cabin Baggage) □托运 (Checked Baggage)

温度要求/Temperature Requirements: □加温要求/Heating Required for* □(特定温度范围/Specify) □降温要求/Cooling Required for* □(特定温度范围/Specify)

填写人签字: Prepared By:	监装主管人签字: Loading Supervisor's Signature:	机长签字: Captain's Signature:	复查机长签字: Alternate Captain's Signature:

第一联（白）：填写人联；第二联（白）：装载人联；第三联（蓝）：机长联；第四联（粉）：配载联（共四联）

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14 Dangerous Goods Operation Regulations

14.1 Working Procedures

The dangerous goods transport is implemented and supervised by the Operation standards Department operation certification center of Ground Service Management Department.

14.1.1 *Dangerous Goods Training Program*

The Cargo Management Center of the Ground Service Management Department is responsible for organizing dangerous goods training for cargo position personnel. Personnel who fail the dangerous goods training cannot participate in the transport of dangerous goods. Refer to the *Dangerous Goods Training Program* for relevant procedures and requirements.

14.1.2 Dangerous Goods Transport Management and Agent Management and Supervision Procedure.

14.1.2.1 Responsible for dangerous goods transport, including implement, contract signing and coordination with other units.

14.1.2.2 The Transport Training Office of the Operations Standards Department's Operations Certification Center shall promptly revise this manual based on changes or new entries in regulatory documents such as the *Technical Instructions* and the "Dangerous Goods Regulations." After the manual revision is completed, the designated protocol counterpart unit is responsible for promptly distributing it to the company's dangerous goods acceptance departments and agency units for study and implementation.

14.1.2.3 The Operation standards Department operation certification center shall order new DGR from IATA in November of each year.

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14.1.2.4 The Cargo Management Center of the Ground Service Management Department is responsible for monitoring the dangerous goods transport situation within its department and that of its agents, and reporting any irregularities occurring during dangerous goods transport according to company procedures.

14.1.2.5 The Cargo Management Center, ground service Management Department shall supervise the agents to implement dangerous goods transport according to government laws and policies of HNA;

14.1.2.6 After updates to company transport standards, the Ground Service Management Department and all Bases/Branch Companies are responsible for providing valid copies of the company Dangerous Goods Transportation Manual and related documents to their respective contracted agent units within 20 working days and supervising their implementation.

14.1.2.7 The Operation standards Department operation certification center and agents must accept dangerous goods according to related policy and regulation. Once illegal transportation of forbidden dangerous goods being spotted, HNA issues strict punishment in terms of government laws and regulations.

14.1.2.8 HNA Holdings co does not have its own cargo station, so it is not involved in the construction, management and use of dangerous goods warehouses.

14.1.2.9 The Ground Service Management Department and all Base/Branch Companies are responsible for supervising agent units through quality audits, routine inspections, and operational checks to ensure compliance with company manual standards. Supervision items include, but are not limited to, qualification filing, personnel training, standard setting, quality control, and information transfer. Quality audits of each agent unit shall be conducted at least once every three years. Routine inspections and operational checks shall be integrated into daily work with no fixed frequency, ensuring agents provide

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services according to CAAC requirements and mutual agreements.

14.1.2.10 The Cargo Management Center, ground service Management Department shall check the posting of dangerous goods transport notice in public areas related to cargo transport.

14.1.2.11 The Cargo Management Center, ground service Management Department shall participate in emergency response of dangerous goods accident/incident;

14.1.2.12 As a permanent institution for dangerous goods transport unit, the Cargo Management Center, ground service Management Department shall organize and coordinate with any affairs related to dangerous goods transport.

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14.2 Shipper's Qualification Management

14.2.1 Shipper's Qualification

To ensure the safety of aircraft and personnel, the shipper must fulfill relevant legal liability and obligation and be qualified in the following aspects:

14.2.1.1 The shipper shall make sure that all personnel involved in the handling of acceptance, signing dangerous goods transport document has been trained and qualified as required by the *Provisions on the Administration of the Transport of Dangerous Goods by Civil Aviation*(Transportation Order No.4 from Department of Transportation ,2024), Ministry of Transport and *Technical Instructions*.

14.2.1.2 The shipper shall be able to fulfill his responsibilities listed in 1.5.1 of this manual.

14.2.1.3 The DG shipper shall report to the Cargo Management Center, ground service Management Department for qualification record 3 days before delivering his first dangerous goods consignment, See 14.2.4 of this manual. Shipper management unit should be responsible for monitoring the effectiveness of the qualification of the shipper, and report to the Cargo Management Center, ground service Management Department should there be any change, expire or invalid.

14.2.1.4 Only the shippers who have been evaluated as qualified by the Operation standards Department operation certification center can transport dangerous goods on HU flights.

14.2.2 Shipper's Qualification Management

14.2.2.1 The Operation standards Department operation certification center shall establish and regularly update the record of dangerous goods shipper's qualification, ensure the validity of qualification of dangerous goods shipper.

14.2.2.2 Foreign shippers must comply with relevant regulations of qualification issued by local civil aviation authorities.

14.2.3 Supervision and Penalty

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14.2.3.1 The ground service freight management center shall in accordance with the *Regulations on the Management of Dangerous Goods Transportation in Civil Aviation* (Order No. 4 of the Ministry of Transportation in 2024), Chapter 9 and Section 1.5.1 of this manual, dynamic management of dangerous goods shippers of our company is implemented.

14.2.3.2 Management of Misconduct

For shippers with a first-time violation record, timely warning measures should be implemented. For shippers with a second-time violation record, corrective actions within a specified period and fines should be imposed. During the rectification period, stricter inspection measures should be applied (the number of packages opened for inspection must not be less than 30% of the total). For shippers with a third-time violation record, further penalties such as suspension of services or termination of cooperation should be enforced. The Cargo Management Center of the Ground Service Department should establish and regularly maintain a list of shippers with misconduct. For details, refer to Section 15.13 Integrity Management in the *Cargo Transportation Manual*.

14.2.3.3 In accordance with the *Regulations on the Management of Dangerous Goods Transportation in Civil Aviation* (Order No. 4 of the Ministry of Transportation in 2024), Chapter 9 and Section 1.5.1 of this manual, dynamic management of dangerous goods shippers of our company is implemented. For those who violate the provisions of Chapter 2 of the *Regulations on the Management of Dangerous Goods Transportation in Civil Aviation* (Order No. 4 of the Ministry of Transportation in 2024), by transporting prohibited dangerous goods by air or transporting restricted dangerous goods without meeting the relevant laws, regulations, regulations or requirements of the "Technical Specifications"; For those who violate the requirements of Articles 28, 29, 30, 31, 32, 42, 59, and 60 of the same regulations, the company will report to the authority upon discovery, and its qualification as a dangerous goods consignor will be revoked.

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14.2.3.4 The consignor shall compensate the company for any economic losses caused during the transportation.

14.2.4 Addendum

Qualification Records for Dangerous Goods Shipper

Name	Gender	ID Card NO.	Company	Phone NO.	NO. /Type of Certificate	Expiry Date of Certificate

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14.3 Dangerous Goods Handling Procedure

The cargo department's operation needs the coordination of our company and the airport agent. Since the actual situation is different in different areas, each cargo base or branch company can establish their own working procedures based on local situation.

14.3.1 Time Limit for Acceptance

Principally, the shipper must take the dangerous goods being shipped to airport cargo office at least two hours before takeoff of flight.

14.3.2 Dangerous Goods Acceptance

The acceptance personnel shall identify the nature of the shipment before accepting it, and if the personnel cannot identify the shipment, the shipper should take it to the identification institutions designated by our company.

14.3.3 Identification of shipper's qualification

14.3.3.1 The acceptance personnel shall verify and confirm the information of shipper by referring to the *Qualification Records Table for Dangerous Goods Shipper*.

14.3.3.2 Shipper's shall be rejected if he's not listed in the *Qualification Records Table for Dangerous Goods Shipper*. In case of emergency, the shipper can apply for his qualification in accordance with *Management of Shipper's Qualification*.

14.3.3.3 After verifying for the qualification, related information about this shipment should be registered in the D*angerous Goods Shipper Recording List*, and be well reserved.

14.3.4 Check dangerous goods according to the *Dangerous Goods Acceptance Checklist* (one original with two copies)

14.3.5 Entering related information of dangerous goods on *the Dangerous Goods Transport Record*

14.3.5.1 Entering the proper shipping name and UN/ID code for dangerous goods

14.3.5.2 Entering the primary and subsidiary hazard and packaging group

14.3.5.3 Entering packaging and aircraft type ensuring the packing instruction code and the maximum net weight

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14.3.5.4 Searching and entering the Special Instruction and Emergency Response Code.

14.3.5.5 Searching and entering the packing type and the maximum net weight of inner and outer packaging according to Packing Instruction Code.

14.3.6 Dangerous Goods Acceptance

14.3.6.1 Table-maker should complete the air waybill according to requirements and hand over all related documentations to airport W&B department.

14.3.6.2 The director and acceptance inspector of outbound office should both sign on the *Dangerous Goods Shipper Recording List* and hand over the list to the cargo stowage department.

14.3.6.3 After cargo inspection, if the time is within two hours before takeoff, the sorter should drive the cargo to apron. During ground transport of dangerous goods, the separation requirements for different dangerous goods must be strictly followed.

14.3.6.4 If the designated flight is cancelled or delayed and cargo has been inspected, shipper must be informed immediately. If continuing the transport, put the cargo into dangerous goods storehouse and move it to cargo storehouse separation area two hours before takeoff. The cargo needs to be inspected again before entering the separation area. If requested to cancel the shipment, handle in accordance with Section 10.2.2.8 in this manual.

14.3.7 Completion and Hand over Requirements of Document

14.3.7.1 Airport weight and balance staff shall sign the documentations (declaration, air waybill and acceptance checklist) handed over by the acceptance counter according to designated flight.

14.3.7.2 Cargo weight and balance staff should complete the *Special Load Notification for Captain* in terms of declaration list and air waybill: including loading station, flight number, outbound date, registration number, completed by, signature of inspector, unloading station, air waybill code, proper shipping name, class or division, UN or ID code, subsidiary hazard, packaging number, net weight or transport index, packing group, emergency handling code, ULD

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identification code and loading location.

14.3.7.3 Cargo load planning personnel shall prepare the Cargo and Mail Manifest based on the Shipper's Declaration, Air Waybill, and Acceptance Check List, and mark "DG" or "Dangerous Goods" in the remarks column of this manifest. After completion, it shall be sent to the loading supervisor together with the Air Waybill and the Notification to Captain.

14.3.7.4 While signing the load sheet, the loading supervision personnel must also sign the "Notification to Captain" to confirm the loading position. They shall then give this "Notification to Captain" to the captain for signature and feedback the information from the captain-signed "Notification to Captain" to the Load Control Unit.

14.3.7.5 Load planner should mark “DG” in the “Remarks” column when making the manifest, and dispatch DG telegram to the destination after takeoff.

14.3.8 Entering or Exiting Dangerous Goods Storehouse

14.3.8.1 Entering of dangerous goods

1) When accepting dangerous goods, warehouse administrator should check the outer packaging and verify the content (according to this manual).

2) Place the dangerous goods in designated area according to its nature.

3) Personnel should sign the *Log of Entering or Exiting Dangerous Goods,* and handover to the handler or the acceptance person.

14.3.8.2 Dangerous goods warehouse

1) Dangerous goods packaging should be stored in exclusively designed storehouse or designated area. The management department of dangerous goods storehouse should set up full and effective regulations and measures and ensure a good fireproofing, anti-thief, anti-mouse, waterproof and anti-freeze.

2) The dangerous goods should be stored in different dangerous goods storehouses and different areas in terms of hazard class or division.

3) Dangerous goods storehouse should keep tidy, dry and clean.

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4) Dangerous goods storehouse for radioactive materials of Class 7 must have firm walls and doors and, to some extend, have function of reducing radiation.

5) No fire and no smoking in storehouse and adjacent area.

6) Dangerous goods storehouse should put segregation table and emergency phone numbers on obvious area, external or internal.

14.3.8.3 Dangerous goods warehouse facilities

1) Dangerous goods warehouse and placement area must have safe and enough illumination facilities and effective fire fighting facilities so as to response quickly when emergency happens.

2) Each warehouse should have some ventilation facilities, such as ventilator, in order to dispel the chemical smell due to the storage of large amount of dangerous goods.

3) Dangerous goods warehouse should equip exposure suit and gas defense mask or other necessities so as to response in time when dangerous goods leakage or accident happens. Gas defense masks mainly include: filtrated gas defense mask and isolated oxygen or air mask.

4) Dangerous goods storehouse should equip personal exposure suit. Exposure suits often used mainly include: work clothes, work caps, boot, rubber gloves, and respirator and so on.

5) Dangerous goods storehouse should ensure water source and some sands so as to response quickly when emergency happens.

6) The designated area for dangerous goods in general storehouse should also meet above facilities.

7) Dangerous goods warehouse should equip necessary alarm equipment.

14.3.8.4 Dangerous goods warehouse management

1) Staffs of dangerous goods warehouse must receive training and pass the test for the post. Staffs of dangerous goods warehouse must receive professional training for fireproofing and firefighting and be familiar with dangerous goods

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nature or emergency response.

2) Recheck two certificates of staffs working in warehouse.

14.3.8.5 Storage and separation of dangerous goods

1) Operators must move and place dangerous goods packaging according to principles as handle with care and keep upright.

2) The placement of incompatible dangerous goods packages must meet separation principle.

3) Dangerous goods in storehouse should be placed according to requirements like "handle with care", "arrows up", "marking and label outward" and principles like big one up, heavy one up and wood box and iron box above paper box. General speaking, the height of the cargo should not exceed 4 floors or 3 meters.

4) Special requirements for some dangerous goods storage

(1) Steel cylinder of compressed gases can be placed upright on the shelves or lie down on the dry ground but can not be upside down. When lying down, the steel cylinder of compressed gases must be blocked by triangle wood to prevent movement. When several steel cylinders are placed together, the directions of their bottoms and bottlenecks must be the same and prevented from pointing at crowed place. When the temperature of the storehouse is more than 35°C, cooling measures must be taken.

(2) Liquid nitrogen tin must keep upright and arrow up. If it has a large amount, place in a close space and take care of ventilation to prevent suffocation.

(3) Packaging of Organic Peroxides and Self-Reactive Substances must be protected from direct sunlight and all sources of heat and be placed in adequately ventilated areas.

(4) The number of any group of packages, overpacks, and radioactive material exclusive use consignments containing fissile material stored in any storage area during transit must be limited so that the total sum of the criticality safety indices for the group does not exceed 50. Each group must be stored separately,

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maintaining a distance of at least 6 meters from other groups of such packages, overpacks, or radioactive material exclusive use consignments containing fissile material.

14.3.8.6 Isolation principles are described in 11.2.3 of this manual.

14.3.8.7 Exit of warehouse for dangerous goods

1) The personnel should arrange for the exit of dangerous goods.

2) After the dangerous goods being delivered from the warehouse, the delivering personnel must register the flight No., date, piece, weight, class, warehouse number and takeoff time.

3) When loading, storehouse and stowing staffs should check flight number, air waybill number, piece, weight, staff's signature and aircraft type in order to avoid loading on the wrong aircraft or loading cargo only for cargo aircraft onto passenger aircraft.

4) For dangerous goods contained in unit load device, storehouse staffs are responsible for the supervision of loading.

5) For dangerous goods in bulk compartment, weight and balance staff is responsible to mark notice on transfer list for outbound cargo.

6) After dangerous goods being delivered from the warehouse, the weight and balance personnel should deliver the Notification to Captain to the balance office. Stowing personnel should report dangerous goods loading situation to the balance office and then the balance office will enter the loading position on the *Special Load Notification to Captain*, and mark dangerous goods loading position with special notice on the loading notification.

7) For dangerous goods loaded in container, the loading and unloading personnel should mark the dangerous goods loading position and special notice on the loading notification. For dangerous goods in bulk compartment, the loading and unloading personnel should load the dangerous goods according to special loading notice on loading notification and stablized the dangerous goods as required.

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14.3.8.8 Unloading and deliver to the warehouse

1) Preparation before unloading: prepare tools according to cargo information after receiving DG telegram from the departure airport and be familiar with emergency response for the transported dangerous goods.

2) Unloading of dangerous goods: when shipping dry ice, the loading and unloading personnel cannot enter the cargo compartment until the air is clear.

3) Entering the warehouse

(1) Count and verify the cargo piece and weight

(2) Transport the cargo to specific dangerous goods area for warehouse registration and inform the acceptance department to pick up the goods.

(3) If there is any leakage, complete the *Cargo Abnormal Transport Record* as required and report to the dispatcher on duty for disposal.

4) Cargo delivery: staff for picking up the goods should inform the consignee to pick up the goods according to the manifest information. There are two ways for informing the consignees: telephone notice and written notice. Consignment notice should include: air waybill number, arrival date, cargo piece, weight, cargo name, government procedure and free storage term.

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14.3.9 Requirements for Transport of Dangerous Goods between Warehouse and Apron

14.3.9.1 During the ground transport and handling of dangerous goods between the cargo warehouse and the apron, as well as between the apron and the cargo warehouse, all ground service agents responsible for the transportation of dangerous goods at airports must comply with the loading and unloading principles outlined in Section 11.1 of this manual. This includes implementing damage prevention, segregation, and securing measures. During transport and handling, goods should be handled with care, properly secured to prevent slipping, and segregated according to the relevant requirements in Sections 11.2.3 and 14.3.8.5 of this manual.

14.3.9.2 If leakage, damage, or other abnormalities are discovered during transport, the ground service agent unit shall terminate transport, immediately notify the airline representative, relevant airport units, and the local warehouse, and handle the situation according to emergency response requirements.

14.3.10 Reservation of Dangerous Goods Transport Record

14.3.10.1 Dangerous goods transport records include:

1) Dangerous goods shipper's records include: R*ecord for Dangerous Goods Shipper, Dangerous Goods Shipper Record List* and so on.

2) Dangerous goods transport documents include: air waybill, shipper's declaration, checklist, airport notice and so on.

3) Dangerous goods warehouse records include: *entering or exiting log of dangerous goods, dangerous goods warehouse inspection record, dangerous goods warehouse clearance record*, *dangerous goods refusing application records.*

4) Dangerous goods accident/incident record, including dangerous goods incident report

5) Other related documentations for dangerous goods transport

14.3.10.2 Storage life

Except for the air waybill and the special load notification to captain, which must be retained for no less than 36 months, other documents related to the air transport of dangerous goods must be retained for no less than 24 months.

14.3.11 Dangerous goods transport procedures in different area

Refer to dangerous goods transport procedures of each cargo office or bases.

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15 Dangerous goods emergency disposal procedures

15.1 General

15.1.1 Definition

Dangerous goods transport event mentioned in this Section refers to Dangerous goods accident, Dangerous goods incident, and Dangerous goods irregularity.

15.1.1.1 Dangerous goods accident

An occurrence associated with and related to the transport of dangerous goods by air which results in fatal or serious injury to a person or major property damage;

15.1.1.2 Dangerous goods incident

An occurrence other than a dangerous goods accident associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in injury to a person, property damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained. Any occurrence relating to the transport of dangerous goods which seriously damage an aircraft or its occupants is also deemed to be a dangerous goods incident.

Dangerous Goods Incident can be classified into Severe Incident and General Incident.

Severer Incident refers to incident cause severe damage to air transport.

General Incident refers to incident do not cause severe damage to air transport.

15.1.1.3 Dangerous goods irregularity

Refer to event which does not constitute a dangerous goods accident or incident, but related to dangerous goods air transport, in violation of *the Civil Aviation Transport Management of Dangerous Goods*.

15.1.2 This Section illustrates basic knowledge for dangerous goods emergency

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response and response procedures and methods for ground staff when dangerous goods emergency happens. Activate the emergency rescue procedures when dangerous goods accident happens or the incident cannot be effectively controlled. When dangerous goods accident and incident happens in flight, emergency response procedures for crew member are regulated in the Section 12 in the *Flight Operation Manual*.

15.1.3 Staffs related to dangerous goods transport should learn and master emergency response procedures. When dangerous goods emergency happens, implement effective response according to this procedure, and ensure personnel, equipment and surroundings avoid damage or control the damage to the least so as to maintain normal safe operation.

15.1.4 Purpose and requirements for dangerous goods emergency response procedures

15.1.4.1 Purpose

Identify dangerous goods hazard. In case of emergency occurring in dangerous goods transport, effective response can be carried out according to this procedure or activate the function of each department in terms of the Company's *Emergency Response Manual*. It is the highest principle of response to guarantee safety of person and aircraft. Avoid or reduce person death, property loss, environment contamination and negative effect on company image and immaterial asset resulted by the incident.

15.1.4.2 Implement requirements

1) All staffs related to dangerous goods transport should have enough trainings and recurrent trainings for emergency response procedure with training files.

2) Carry out periodical drilling in terms of emergency response procedure in order to make staff be familiar with procedures and find deficiency. Record

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the deficiency found in drilling and makes improvement for it.

3) When dangerous goods emergency happens, principally, it should be disposed by professional person. Personnel having not received trainings for this procedure and dangerous goods knowledge should avoid dangerous goods rescue.

15.1.5 The emergency disposal of dangerous goods shall strictly abide by the applicable laws, government regulations, orders or requirements of the country in the course of transportation and the provisions of this chapter

15.1.6 No matter in which part of the transport or where the dangerous goods transport event happen, HU should report to authority of the state where the event happened and the state of the operator.

15.1.7 For substances or articles transported even under a special provision by "non-restricted items", in the event of the leak, spill, fire or other incident / accident related to the article, still must comply with reporting requirements.

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15.2 Basic Knowledge and Emergency Equipment

15.2.1 Cargo Compartment Category

According to CCAR.25.857, the cargo compartment of the airplane is divided in to 5 categories: A, B, C, D and E. For cargo aircraft, it doesn't have passenger cabin, so only C, D, E are taken into consideration for the designing of cargo compartment.

15.2.1.1 A Class: The cargo or baggage compartment refer to the cabin which meets the following requirements:

1) The existence of the fire is easy to be found by flight crew members who are in their working positions.

2) Easy to get access to any positions of this compartment during flight.

Note: *Generally, A class cargo compartment is mini-type cargo cabin, which may be between cockpit and passenger cabin, or near the galley area, or in the rear of the aircraft.*

15.2.1.2 B Class: B class cargo or baggage compartment refers to the cabin which meets the following requirements:

1) There are enough aisles for the flight crew members to take the contents of the portable extinguisher to spray any part of the cabin effectively.

2) When utilizing aisles, no dangerous amount of smoke, flame or agent enters into the cabins with flight crew or passengers in it.

3) There is an independent approved smoke detective sensor or fire detective sensor system, which can give warning to pilots or flight engineers who are on positions.

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Note: *B class is much bigger than A class cargo cabin, and may be located in the place far away from cockpit.*

15.2.1.3 C class: C class cargo or baggage compartment refers to the cabin which does not meet the requirements of A class or B class cabin, but it meets the following conditions:

1) There is an independent smoke detective sensor or fire detective sensor system, which can give warning to pilots or flight engineers who are on positions.

2) There is an operatable and approved unmovable fire extinguishing system or controlling system at the cockpit.

3) There are the actions w chapter hich can prevent dangerous amount of smoke, flame or agent from entering into any cabin with flight crew or passenger in it.

4) There are the actions which can control the ventilation and air extracting, which can make all the agents to control any possible fire in the cabin.

Note: *The volume of C class cargo compartment, generally, is bigger than A class or B class. Normally, this kind of compartment is located under the deck of wide body aircraft. There may be two kinds of fire extinguishing systems in C class cargo compartment. The second time of spraying extinguishing agent will be after the first time spraying for initial fire controlling.*

15.2.1.4 D class compartment shall meet the following conditions:

1) The fire warning in the cabin will be totally confined in the cabin with no dangers to the safety of the airplane or the people on the airplane.

2) There are the actions which can prevent dangerous amount of smoke, flame or agent from entering into any cabin with flight crew or passenger in it.

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3) The ventilation and extracting can be controlled in every cabin, which will ensure that any possible fire in the cabin can not develop to exceed safety limit.

4) Take the high temperature influence on the important parts of the airplane into consideration. For the cabins with a volume of 14.2 cubic meters (500 cubic feet), 42.5 cubic meters (1500 cubic feet)/hour air flow is acceptable.

5) D class cargo compartment is not equipped with fire detective or fire extinguishing system but designed to control fire by strictly limiting the supply of oxygen. D class cargo compartments on most jet transportation aircraft are located under the deck of passenger cabin. However, we should be aware that some of the dangerous goods may produce oxygen themselves, so, we can not deduce that the fire in D class cabin will extinguish them.

15.2.1.5 Class E Cargo Compartment: A compartment on the aircraft used only for the carriage of cargo. Requirements are:

1) Has an approved, independent smoke or fire detection system that provides a warning at the pilot or flight engineer station;

2) There are actions to cut the ventilation air flow of cargo cabin or within cargo cabin. The operational apparatus of these actions are access to the flight crew in the cockpit.

3) Has means to exclude hazardous quantities of smoke, flames, or noxious gases from the flight crew compartment;

4) In case of any loading situation, the required flight crew emergency exit should be access to.

Note:*E class cargo compartment normally is consisted of the whole main cabin of the cargo aircraft. Regular passenger airplane is equipped with C class or D class cargo cabin under the passenger cabin. All-cargo airplane normally has an E class main cargo compartment and D class and/or C class cargo compartment under the deck.*

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15.2.2 Extinguisher

The agents of most extinguishers on board are consisted of halid, dry powder, Carbon dioxide (CO_2) or water, but not all these substances are required to set on the same airplane. The usage guides of these extinguishers are in operational manuals; meanwhile, it is described on the skin of extinguishers. When water is used as fire extinguishing material, consider the other hazards water bring.

15.2.3 Oxygen Equipment on Board

In pressurized aircraft, both fixed and portable oxygen equipment is provided for use by crew members and passengers. The equipment provided to the flight crew is typically equipped with an airtight oxygen mask capable of delivering 100% oxygen.In normal situations, aircraft may carry portable smoke protection mask. The airplane is equipped with portable medical mask, and the flight crew can obtain oxygen from portable oxygen cylinder with medical mask installed. Extra passengers use drop-off masks can also be provided to cabin crew who are in the cabin, galley or lavatory area. No matter it is passenger use drop-off mask or medical mask, they are both designed to allow low flow oxygen to pass, and supplied through the air door or hole on the side of mask to inhale air. These masks are not gas-sealed. Therefore, in case of any toxic gas or smoke, it will be inhaled by passengers or flight crew from the air valve or hole on the mask.

15.2.4 Emergency Disposition article on Board

HNA will provide each airplane with emergency disposition article on board for flight crew use in case of dangerous goods accidents, and give the equipment training to flight crew members in case of unsafe incidents of the dangerous goods. The emergency disposition of the dangerous goods normally include:

15.2.4.1 Several large high quality polyethylene bag

15.2.4.2 Packing rope;

15.2.4.3 Rubber gloves.

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15.3 Determination and report for DG transport event

15.3.1 Determination of DG transport event

Emergency condition of dangerous goods can be classified as accident or severe incident, general incident and irregularity according to the degree of actual or potential danger of it to air transport.

15.3.1.1 DG accident

1) Human death or severe injury

Human death refers to human die in 30 days since the occurrence of this accident.

2) Severe damage to property, which is over 300 million of direct loss of revenue.

3) Severe damage to environment, refers to the sudden environment event listed in State Contingency Plan for Sudden Environment Event.

15.3.1.2 DG Severe Incident

1) During the flight, the cockpit, cabin or cargo compartment is on fire or smoke,even if the fire was extinguished.

Except for situations that if smoke or fire is caused by the Lithium Batteries carried by person onboard or containing in the flight supplying, and the crew members have handled properly in time, no damage and/or minor wound is caused to human.

2) Giving rise to severe transport incident

3) Other similar situation as above mentions.

15.3.1.3 DG general symptom

1) Human minor injury

2) Environment damage but do not constitute an sudden environment event listed in the Contingency Plan for International Sudden Environment Event.

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3) DG that forbidden to be transported under any circumstance listed in the TI.

4) DG that must be approved or exempt by Civil Authority Department before transporting.

5) Except the flight, the cockpit, cabin or cargo compartment is on fire or smoke, even if the fire was extinguished.

Except for situations that if smoke or fire is caused by the Lithium Batteries carried by person onboard or containing in the flight supplying, and the crew members have handled properly in time, no damage and/or minor wound is caused to human.

6) Ground fire cause by DG.

7) General incident caused by DG breakage, leakage, etc.

8) Aircraft Ground symptom caused by DG breakage, leakage, etc.

9) Other situation similar as above mentions.

15.3.1.4 Any of the following circumstances caused by the air transport of dangerous goods shall be judged as a general event of dangerous goods

1) Dangerous goods breakage, spillage, smoke, liquid leakage, radioactive leakage or failure to maintain the integrity of packaging, etc., but do not constitute dangerous goods accident symptoms.

2) Untrue transporting documentations is provided.

3) DG transporting documentations are not filled in according to the TI of ICAO.

4) DG NOTOC is not provided to the Captain according to the TI.

5) DG is not packed according to the TI.

6) DG is not marked or labeled according to the TI.

7) DG is not loaded, segregated, isolated or stabilized according to the TI.

8) DG, which must be approved by the operator, is carried in baggage without permit.

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9) Undeclared or miss-declared DG is transported in cargo or mail.

10) DG, which is forbidden to be transported as baggage in the TI, is transported in baggage.

11) Other situation similar as above.

15.3.2 DG transport event report

15.3.2.1 DG transport event can be classified as emergency DG transport event and non-emergency transport event.

15.3.2.2 The followings are DG emergency event

1) Aircraft damage or human casualty caused by air transport of DG.

2) Fire and smoke caused by DG.

3) DG breakage, leakage, etc. that needs emergency disposal.

4) Other situation similar as above.

15.3.2.3 Event does not be classified as emergency event is non-emergency event.

15.3.2.4 Reporting of events of air transport of dangerous goods states that:

1) In case of air transport of dangerous goods, the party concerned shall report within the company according to the incident reporting process of 5.4 of *Safety Management of Dangerous goods Manual*; the Safety Supervision Department shall immediately verify the basic elements of the event and make a preliminary judgment on the nature of the event.

2) In case of a dangerous goods emergency incident, depending on whether the company is acting as a carrier or ground handling agent, the Safety Supervision Department or the company unit acting as an agent for external businesses shall immediately connect with local Civil Aviation Administration where the incident occurred,(If happened in flight, connect with the first landing airport.) by telephone as initial report. The initial report must contained the time, location, the event description, casualties, measures taken, the current site

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situation, the flight number, and save the written report.

3) In case of a dangerous goods emergency incident, depending on whether the company is acting as a carrier or ground handling agent, the Safety Supervision Department or the company unit acting as an agent for external businesses shall, within 12 hours after the incident, submit the Dangerous Goods Air Transport Incident Information Report via the Dangerous Goods Air Transport Incident Reporting System, ensuring compliance with regulatory requirements. The report shall be primarily filed with the local CAAC office (Civil Aviation Administration of China) where the incident occurred, with copies forwarded to: the regional CAAC administration of the incident location; the regional CAAC administration with jurisdiction over the company; the local CAAC regulatory office of the company's location.

4) In case of a non-emergency dangerous goods incident(15.3.1.4 except 9), 10)), depending on whether the company is acting as a carrier or ground handling agent, the Safety Supervision Department or the company unit acting as an agent for external businesses shall, within 48 hours after the incident, submit the Dangerous Goods Air Transport Incident Information Report via the Dangerous Goods Air Transport Incident Reporting System, ensuring compliance with regulatory requirements. The report shall be primarily filed with the local CAAC office (Civil Aviation Administration of China) where the incident occurred, with copies forwarded to: the regional CAAC administration of the incident location; the regional CAAC administration with jurisdiction over the company; the local CAAC regulatory office of the company's location.

15.3.2.5 Regulations on Reporting Overseas Dangerous Goods Air Transport Incidents

For dangerous goods air transport incidents occurring outside China, in addition

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to reporting in accordance with the regulations of the authorities in the country where the incident occurred, the following reporting requirements shall apply:

1) Initial Reporting

The SSD (Safety Supervision Department) duty officer shall immediately notify the Transportation Division of the local CAAC office with jurisdiction over the company's location via telephone, providing the following details: Incident time and location; description of the incident; casualty information; measures already implemented; current on-site status; flight number.

2) The SSD shall Submit the Dangerous Goods Air Transport Incident Information Report (Appendix 15-1) through the Dangerous Goods Air Transport Incident Reporting System within 24 hours after the incident, in strict compliance with regulatory standards. Primary recipient: The local CAAC office with jurisdiction over the company's location. Copies submitted to: the same local CAAC office (for internal records); the regional CAAC administration with jurisdiction over the company's location. retain one hard copy of the report for archival purposes.

3) For non-emergency incidents (excluding Items 9) and 10) of Clause 15.3.14), the SSD shall Submit the Dangerous Goods Air Transport Incident Information Report via the reporting system within 48 hours after the incident. Primary recipient: The local CAAC office with jurisdiction over the company's location. Copies submitted to: The regional CAAC administration with jurisdiction over the company's location.

4) Incidents Involving (15.3.1.4 except 9), 10))

The SSD duty officer shall document such incidents in the shift handover log. The SSD Dangerous Goods Management Center shall compile all logged incidents on a monthly basis; Submit a consolidated report every month via the reporting system, reference (Appendix 15-1), Include the total number of incidents from the previous month.

15.3.2.5 Regulations on Reporting Overseas Dangerous Goods Air Transport Incidents

For dangerous goods air transport incidents occurring outside China, in addition

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15.3.2.6 Dangerous goods air transport incidents,

If occurring during flight:

The carrier shall be responsible for reporting.

If occurring in other phases:

Onboard the aircraft: The carrier shall report.

On the ground or during cargo-handling operations: The ground service agent, airport authority, or carrier performing ground handling duties shall report.

15.3.2.7 Suspected air transport incidents of dangerous goods shall also be reported in accordance with the terms of the event.

15.3.2.8 For the reported incidents, if the relevant enterprises and institutions obtain new information, they shall timely use the dangerous goods air transport incident reporting system to supplement the report.

15.3.2.9 All units shall truthfully report the information of dangerous goods air transport incidents in accordance with relevant regulations, and shall not conceal, lie or late report.

15.3.2.10 For dangerous air transport incidents belonging to the category of safety event information reporting, the Safety Supervision Department shall be reported to the competent unit in accordance with the information notification requirements of 6.3 forced report management request of 0313 operating procedure of forced report of the *Safety Management Procedure Manual.*

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15.4 The Report and Disposal for Abnormal Transportation

15.4.1 Definition.

This section mainly describes the air dangerous goods accident or accident symptoms, ground staff disposal regulations. See chapter 12 of the *Flight Operations Manual* for the emergency handling of aircrews. The aircraft emergency response disposal form can be seen ICAO《 Table 4-1 of the Guide to Emergency Response to aircraft accident symptoms related to dangerous goods (Doc9481). Table 4-1

15.4.2 Emergency Management of Dangerous Goods in Air.

15.4.2.1 general principles

In the event of an incident involving dangerous goods in an airborne aircraft, the actions taken are controlled and coordinated for the following purposes:

1) To deal with the emergency situation to avoid the state out of control and damage to the environment;
2) Minimize the impact on crew, passengers and aircraft;
3) Towards effective approaches and measures;
4) Responsibility for these actions rests with the company's emergency command centre;
5) Company Emergency Command Center shall immediately apply for priority landing through the AOC duty report to the Regional Air Authority;.
6) In the event of an emergency while on flight and if circumstances permit, the pilot-in-command shall, in accordance with the provisions of the Technical Rules, immediately notify the relevant air traffic control department of information containing dangerous goods on board in order to notify the airport.

15.4.2.2 Flowchart of Aerial Dangerous Goods Incident Report

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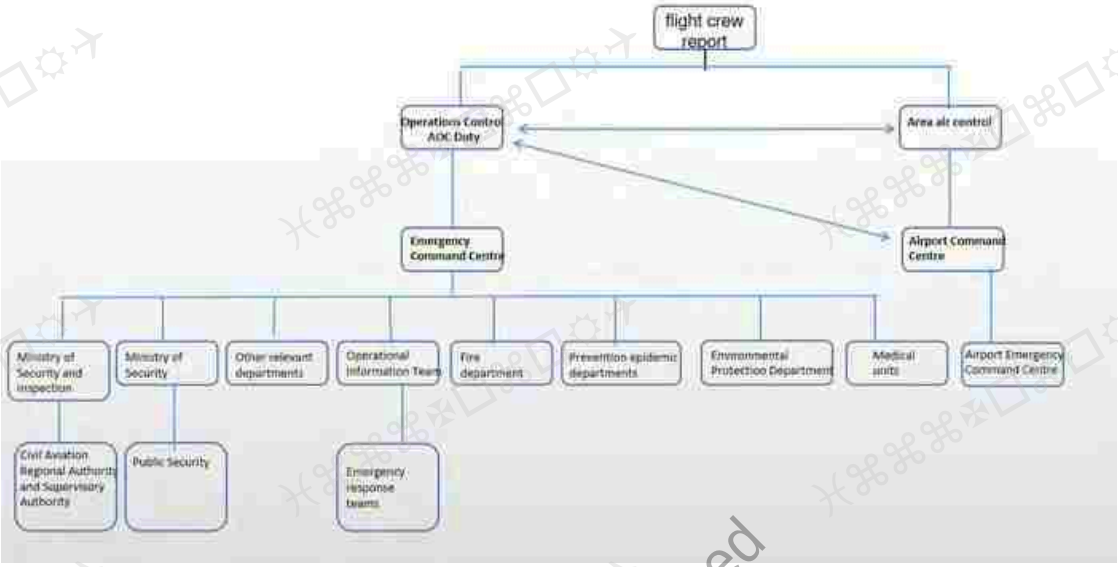

15.4.2.3 Emergency Management Procedures for Dangerous Goods in Air

1) Receive emergency status information

According to the development of the situation, the emergency manager requires the company Chief duty officer duty to immediately report this information to the company's general duty leader and members of the emergency command center. And decided to start the emergency procedures, the company's emergency command center began to work.

2) Activate emergency procedures

According to the development of the situation, the emergency manager requires the company Chief duty officer duty to immediately report this information to the company's general duty leader and members of the emergency command center. And decided to start the emergency procedures, the company's emergency command center began to work.

3) The company's emergency operations center is operational

Be fully responsible for the organization and command of emergency, make quick arrangements for emergency disposal, and activate the company's emergency response organization in time. The emergency Manager reports to

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the Civil aviation Authority of China on the emergency incident and the rescue work carried out. Contact social functions or professionals to seek necessary assistance.

4) Classification of emergency incidents and response levels

(1) emergency

Unexpected and irregular operating conditions, which cannot be operated through normal procedures, and safety conditions that cannot be maintained, may cause or have caused serious loss of life and property. The company classifies emergency events into three categories: security, service, and operation according to the nature of the harm and impact caused by emergency events. It is divided into three levels, red, orange and yellow, according to different degrees. When different types of emergency incidents occur, the emergency handling process and disposal checklist of the headquarters operation information team, news and public relations team, family assistance team, aircraft disposal team, incident investigation team and logistics support team are formulated respectively. The classification and classification of emergency incidents are applicable to all emergency response units at the airport field level and the headquarters level.

(2) Safety emergency

(3) Safety emergency refers to the sudden occurrence of aircraft during operation or in the active area of the airport, which causes or may cause casualties, aircraft damage, property loss, resulting in the company's normal operation or significant impact on the company's reputation. According to the two evaluation indicators of aircraft damage and casualties, it is divided into three response levels: red, orange and yellow.

5) Dangerous goods emergencies (air or ground) are classified according to the

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emergency classification. For example, dangerous goods leak during air or ground support, fire, smoke, damage, or leak occur during air or ground support. For details, see the Emergency Handling Manual 1.4.1 Emergency Classification Index Example.

6) According to the emergency classification and response level, the initiation and disengagement of dangerous goods emergencies are referred to the Emergency Handling Manual 1.5 Emergency response initiation, disposal and release procedures.

7) The contact number of the company's emergency response Leading team is listed in Appendix C of the *Emergency Plan Operations Manual*.

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15.4.3 Emergency response initiation, disposal and release procedures

<table>
<tr><td colspan="3">generalized flowsheet</td></tr>
<tr><td colspan="2">Disposal points</td><td>Focus on the injury situation of passengers, and cooperate with the emergency response plan for the injury and death of passengers</td></tr>
<tr><td colspan="2">Personnel assembly</td><td>1. Immediately assemble to the emergency command deputy center;
2. Use the checklist folder of the unit on the shelf of the secondary center;
3. Scan the QR code through wechat to obtain the disposal checklist;
4. Sign in through the "disposal and coordination group" of the Tianwen system.</td></tr>
<tr><td colspan="2">Information notification</td><td>1. Internal information notification group of the department;
2. Real-time information notification in the "AOC Decision Assist Disposal Team" group.</td></tr>
<tr><td colspan="3">Process of each department</td></tr>
<tr><td>department</td><td>job content</td><td>operation declaration</td></tr>
<tr><td>Chief duty officer</td><td colspan="2">Such as the flight did not fall to the ground, the chief attendant to ensure flight safety priority as the primary goal, organization AOC decision auxiliary support team all staff (technical support + AOC support seats + department attendant), to ensure the flight safety as the primary goal, responsible for the flight emergency monitoring, coordination, information</td></tr>
</table>

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	reporting work, to do a good job of air support under emergency state. Experts from flight, signing and maintenance systems shall talk and provide core disposal opinions. If they cannot provide them, they shall report for instructions step by step according to the following process requirements: 1. Flight system: Technical Support-Chief Flight-Vice President of Operation; 2. Maintenance system: Technical support-Chief Engineer-Vice President of Maintenance; 3. Signing system: technical support- -general signing division- -general manager of transportation control Department Then the chief duty officer shall summarize and submit the leaders on duty of the company according to the technical support feedback of flight, signing and maintenance systems	
	The chief O organizes the AOC Decision Assistance team on behalf of the AOC Decision Assistance team to upgrade or downgrade the current emergency response level and make recommendations to the company emergency manager.	
	When the leaders of the company's emergency command center are in place, the chief attendant shall hand over and report the emergency work according to the principle of the highest leader.	
Duty Manager	Arrange the AOC control shift to complete the following work:	Notify the backup personnel for support;
	Make work handover with AOC control team	
	Urge AOC information	The latest emergency disposal progress in the

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	communicators to report the latest emergency response progress in real time	"XX Disposal Coordination Group" group and "Aviation Company Operations Information Team Disposal Group" shall be notified in a timely and rolling manner, and the disposal progress shall be summarized in the above two groups.
	The approval AOC information communicator shall report the emergency response information to units other than the company	According to the situation (or request for instructions from the emergency command center) to inform the external units (such as the local airport authorities, the monitoring center, the emergency office of the general administration, the local government, the Hainan Provincial Emergency Management Department, the air traffic control unit, etc.) of the emergency response information.
Sign the shift	Log in the system and report the preliminary emergency response progress	Using the main computer in the emergency command secondary center, open the Flight Operations Monitoring System(search for the corresponding aircraft) and project the display on the screen of the emergency command deputy center; then start to report the preliminary information of the current event
	Information verification: basic information Special information	basic information: [Operation network] Flight number, segment, aircraft number, type, number of passengers in two cabins, number of crew, name of responsible captain [ACARS] Information on the position, height and remaining oil quantity in the last position of the aircraft;

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		[Performance / Intelligence Duty] Understand the available landing ground information near the current location of the flight, and understand whether the flight route of the flight involves special procedures Special information(Applicable to Dangerous Goods Emergency Response): [Unit on duty] Learn about the dangerous goods treatment situation and the current operation status of the aircraft from the crew on duty; [Freight duty] verify dangerous goods information on board (including but not limited to dangerous goods name, UN number, quantity, weight, installed position, etc.) through freight duty, contact professionals with freight duty to provide the type, precautions and handling methods of dangerous goods of the unit; Special Information (Applicable to In-Flight Fire Emergency Response): [Flight Crew] Establish contact with the operating crew to obtain: Current fire situation onboard (including but not limited to: fire/smoke location, actions taken, fire containment status, casualties,

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		aircraft damage). Operational status.
	Disposal measures	Applicable to Dangerous Goods Emergency Response： 1. Communicate with the aircrew to understand the current dangerous goods treatment situation and the current operating status of the aircraft; 2. Contact the dangerous goods transportation professionals through the freight duty, and provide the types, precautions and treatment methods of the dangerous goods of the unit; 3. Keep in touch with the unit to understand the intention of the unit and the measures taken; 4. Closely monitor the flight trajectory, altitude and oil volume of the aircraft; 5. Check whether the flight involves special procedures such as pressure release or floating drop, and verify the availability of airports related to the special procedures; 6. According to the emergency degree, the remaining oil on the plane and the operating conditions of the destination airport, Technical Support Team shall cooperate with the crew to judge whether the oil discharge in

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		the air or overweight landing is needed; 7. According to the standby landing site information provided by the parties of the AOC decision assistance team (including intelligence / performance duty, ground service department, safety supervision department, aviation safety department, aviation doctor duty officer, etc.), comprehensively evaluate the available standby landing site and follow-up disposal plan; 8. Technical Support Team inform the crew of disposal suggestions, assist the crew to select pre-landing airport and alternate landing airport, and provide weather and notices of pre-landing airport and standby landing site; verify the expected landing time and pay attention to the crew to check the landing weight; Applicable to In-Flight Fire Emergency Response: ① Establish contact with the crew to assess fire control status and operational conditions. ② Based on fire severity, the AOC Shift Dispatcher coordinates with regional ATC to optimize routing (e.g., direct flight) for

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		expedited landing. ③ Continuously monitor aircraft trajectory, altitude, and fuel status. ④ Verify if depressurization/drift-down procedures apply and confirm diversion airport availability. ⑤ Technical Support Teamcollaborates with the crew to evaluate: Fuel jettison necessity Overweight landing feasibility (based on urgency, remaining fuel, and destination conditions). ⑥ AOC Decision Support Team (incl. Operations Performance, Ground Services, Safety Oversight, Medical, etc.) assesses diversion options and contingency plans. ⑦ Technical Support Team advises the crew on: Primary/diversion airport selection Weather/NOTAMs for selected airports Landing weight verification.
	Before the AOC group gathers the head teacher to the emergency command sub-center, perform his	① Urge the AOC information reporter to report the latest emergency response progress in real time; ② Urge the AOC data collectors to complete

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	duties in the sub-center	the data collection work
Information notification officer	Information information in the "XX Disposal Coordination Group" (priority) and "Operation Information Group Disposal Group" group	The notification includes, but is not limited to,: State of the plane Aircraft position Unit intention The remaining amount of oil Available for landing Follow-up disposal plan Emergency response progress, related pictures (aircraft, air route, scene photos) and other relevant information
	According to the Administrative Measures for the Determination and Reporting of Air Transport Events of Dangerous Goods , the following situations are dangerous goods emergencies:	Applicable to Dangerous Goods Emergency Response： 1. Damage to the aircraft or casualties caused by the air transport of dangerous goods; 2. Dangerous goods are in fire or smoke; 3. Dangerous goods damage, overflow, liquid leakage, radioactive leakage, packaging remains incomplete, etc., need mobilize external social resources for mergency response operations; 4. Other circumstances similar to the above provisions.
	If the AOC informant communicates with the crew in the previous process to confirm that the flight carries lithium-ion batteries or if the AOC instructor has learned that the flight carries lithium-ion	Applicable to Dangerous Goods Emergency Response： 1. Contact HNA cargo attendant to confirm whether there is a declared lithium battery goods for transportation. If so, know the product name, quantity, loading location and the explosion degree.

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	batteries from any other source, the dispatcher of the affected flight is required.:	2. It is suggested that the flight crew on duty should jointly carry out the emergency disposal procedures for lithium battery. 3. Understand the disposal situation from the unit irregularly and make good records.
	Shall be responsible for keeping in touch with the flight crew of the aircraft concerned, the airport departments within the area to which the aircraft belongs, and the air traffic control units, for the purpose of understanding and verifying the facts of the event.	The knowledge includes, but is not limited to,: 1. Flight number, flight segment and aircraft type of the aircraft involved 2. The current position of the aircraft 3. Dangerous Goods Emergency Response: Confirm the special name for transport of dangerous goods and the United Nations number / category / item and explosives and any identified secondary hazards. In-Flight Fire Emergency Response: Current fire status and location onboard the aircraft 4. Damage to the aircraft 5. Current operating condition of the aircraft 6. Whether there were any casualties on the plane 7. Oil-remaining amount of the aircraft 8. The intention of the flight crew and the proposed measures to be taken 9. Applicable to Dangerous Goods Emergency Response:Confirm the location of dangerous goods stored on the aircraft 10. Other event description
	The AOC Information Officer is responsible for, in the event that the danger has not been resolved / fire has not been extinguished	1. Update the emergency command center of the landing airport of the latest incident 2. Contact the landing airport to reserve an

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	or the fire remains uncontrolled, verifying and determining the landing airport based on the flight crew's assessment, and completing preparations before emergency landing.	open space, make personnel evacuation, and prompt the emergency command center of the airport, the fire protection and the airport public security to make emergency preparations 3. Contact local aviation control agencies to make emergency preparedness 4.Applicable to in-flight fire emergency response:Contact local medical institutions and prepare for medical rescue procedures 5. Report the latest incident progress to the Operation Monitoring Center of the Civil Aviation Administration. 6.Applicable to Dangerous Goods emergency response:Coordinate with relevant counterparts at the airport to ensure the verification of critical information during the collection, reporting, and dissemination of information regarding hazardous material emergencies, maintaining accuracy and consistent messaging.
	Check with AOC about the information that can be released to the external cooperative disposal unit (every 30 minutes	After the approval of the AOC and the head teacher, the event information shall be notified to the following units: 1. The airport authority and aviation administration department of the site (if RCC exists at the airport, the RCC shall be notified for notification) 2. Operation monitoring of the General

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	depending on the event)	Administration (01064012907) 3. Emergency Response Office of the local government (Hainan Provincial Emergency Management Department 0898-65333006 / Haikou Municipal Emergency Management Bureau on duty 0898-68723771) 4. Code-sharing partners and escrow agreement units 5.If search and rescue assistance is involved, notification shall also be made to the Rescue Coordination Centre (RCC) of the State of occurrence. The information to be notified shall include the following items, or part thereof (the following information is automatically collected by the system or retrieved from the operational network flight information link): (1) The time and place of the incident (2) Flight number, the nationality of the aircraft, the registration mark and the operator (3) Aircraft type, category, call sign, and nature of the mission (4) The last take-off point and the planned landing site (5) On-board passengers / crew list (it shall be further updated to ensure the accuracy of the list) (6) Personnel and casualties, and the damage degree of the aircraft (7) Brief passage of the accident (8) Geographical characteristics and weather conditions of the accident site (9) Measures already taken (10) Number, color, type of life jackets, life rafts and pyrotechnic distress signals on aircraft; details of emergency medicine and drinking water; type and frequency of radio distress equipment (11) manifest / cargo list / dangerous goods

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		transport list (including special cargo captain notice and dangerous goods transport declaration form) (12) Other relevant information
	Establish video connection with AOC head teacher for request with relevant units of Civil Aviation Administration (every 30 minutes)	After the approval of the AC head teacher, the company will establish and docking with the operation monitoring Center of the Civil Aviation Administration of China through the video conference system of the General Administration, and join the special video conference and inform the company of the relevant situation
Data collector	For yellow-level emergency responses, the system shall automatically complete information collection without the need for manual collection. For orange-level and above emergency responses, information collection shall be conducted in accordance with Section 4.2.4, AOC Information Collector Handling Checklist, of the *Emergency Response Manual*.	
intelligence / Performance	Information verification: basic information Special information	basic information: [Technical Support Team] Flight number, flight segment, aircraft number, aircraft type, location; [Technical Support Team] Specific types of emergency, such as an equipment failure in the air Special information: [Technical Support Team] Understand the subsequent disposal plan of the aircraft;

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	Disposal measures	1. Information duty According to the latest location of the aircraft, verify the information of the available standby landing site near the location of the flight, and make a standby landing route suitable for the situation as required; 2. Performance duty According to the route direction, evaluate the route pressure release and drop procedures according to the need; 3. Performance duty According to the disposal plan, evaluate the landing performance in flight according to the needs; 4. Information duty is responsible for providing airport flight charts, navigation notices, airport and air route restrictions information, and navigation database support; 5. Performance duty to handle other performance requirements proposed by units and signings;
	information feedback	Report the evaluation results to the chief, AOC class teacher, AOC signed shift and other duty officers
Flight department	Verify the flight-related information and notify it	① [Operation network] Flight number, segment, aircraft number, type, number of crew members, personnel list, technical level ② Information summary, notification to: "AOC Decision Assist disposal Team" group

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t		in Tianwen
	Establish direct contact with the aircrew as required and provide aircraft technical support as appropriate	Applicable to in-flight fire emergency response: Focus on communicating with the flight crew to understand the aircraft's fire containment status and current operational condition.
	Schedule: List of procedures for air emergency handling manual	1.Applicable to Dangerous Goods emergency response: FOM 12.5 Air emergency handling procedures for air transport Quick inspection guide for Flight department dangerous goods operation Dangerous Goods Transportation Manual 15.4 Emergency disposal procedures of dangerous goods in the air 2.Applicable to in-flight fire emergency response: FOM 12.3 Fire Response B787 SOP 20.5 *Fire/Smoke/QRH Chapter 8* A330 Abnormal Procedures Guide 12.4 (Engine Fire/Severe Damage) A330 FCTM Lithium Battery Fire in Cockpit
Cabin department	Notice responsible unit	Within 10 minutes, inquire the information of the crew group and notify the crew and quality management center to participate in the disposal.
	Query summary information	Within 30 minutes, through the "Cabin Duty Expert Team" to collect detailed crew information, including the executive number, name, crew, gender, technical qualification, technical qualification time, total flight time, fill in "XX on XX XX HUXXXX (XX-XX) emergency crew information", sent to day smell "AOC decision auxiliary disposal team" group.
	Coordinated consultation and handling	①Applicable to in-flight fire emergency response: According to the physical status

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		and location of dangerous goods described by the crew members, the duty attendant depends to the situation, ask the standard business experts of the cabin management department to inquire the manual, sort out the relevant air emergency handling process of the flight attendants, and negotiate together. Applicable to in-flight fire emergency response:The duty officer shall decide as warranted, requesting the Standards Specialist from the Cabin Management Department to consult the manual, compile relevant flight attendant handling procedures for in-flight emergencies, and jointly deliberate on the response. ② The team leader of the cabin crew operating the flight shall be clearly designated and notified as the specified point of contact for the cabin crew after the flight lands. ③The Hainan Airlines In-flight Emergency Incident Report Form shall be obtained from the team leader of the cabin crew in order to ascertain the basic information of the passengers involved and the main handling procedures of the incident.
Air security department	information gathering	Through department on duty group to collect detailed security information, including name, the air protection team, gender, technical level qualification, technical level qualification for time, total flight time, training qualified situation, resources scheduling conform to the situation. The information shall be promptly communicated to the "AOC Decision Support Disposal Team" group on Tianwen and to the departmental emergency administrator.
	Coordinated consultation and handling	Based on the nature of the event and the handling requirements, contact the security

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		team to obtain the cabin situation and provide timely support.
main tenance depar tmen t	Information verification and notification	(1) [Operation network] Flight number, flight segment, aircraft number and aircraft type (2) Maintenance technical support to communicate with the unit as needed: 1. Whether the aircraft is damaged 2. The current operating status of the aircraft is £ ③ Information summary, notification to: "AOC Decision Assist disposal Team" group in Tianwen
	Provide technical support based on aircraft injuries	① According to the decision requirements of AOC (or emergency command center), establish direct contact with the air crew, and communicate with the crew to understand the nature of the fault and the current operating status of the aircraft. (In order to enable the flight crew to focus on handling the emergency, the maintenance specialist shall first consult with Flight Technical Support and the AOC Duty Manager to ascertain the currently known circumstances, and jointly discuss the information that needs to be obtained from and communicated to the crew, so as to reduce the number of satellite communication

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		calls with the crew and minimise the interference of such calls with the crew's emergency response.) ② If the aircraft is damaged or faulty, the maintenance technical support shall provide necessary assistance to the unit; ③ Understand the maintenance capability of the landing airport and timely notify the aircraft special inspection, and timely feedback the implementation and implementation to the AOC.
	information gathering	Collect and organize the following materials, and summarize them to the AOC data collector of the Operation Control Department (Email you within 15 minutes to: FOC _ qpfxx @ hnair.com、FOC_jhkzx@hnair.com) 1. Number, color and type of life jackets, life rafts and fireworks distress signals of the aircraft involved. 2. The type and frequency of the radio distress equipment involved.
Ground servi	Query passenger information	Within 15 minutes, search for the following information: ① Query the passenger information through the operation network or the departure system, including the number of passengers,

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ce depar tmen t		important passengers, special passengers, foreign passengers and passenger luggage information. ② Keep relevant information confidential, and summarize and report to the "AOC Decision Assistance Disposal Team" group in Tianwen
	Confirm the support capability of the standby landing site	If the flight decides to alternate flight ① Understand the ground support capability of the standby landing site within 15 minutes. ② By contacting the station or the airport, we will know the support capacity of the standby landing site, including special vehicle support, fire protection, first aid, public security, transit passenger connection, passenger placement information, etc. ③ If an international flight, understand the entry and exit requirements of passengers, customs, border defense and quarantine.
	Guarantee notice	① The duty officer of the local service management department informs the pre-landing station or the airport local service to cooperate with the emergency response work of the airport and the public security personnel. ② Notice the first responsible person of the incident / standby landing station to timely return the site disposal pictures
Safet y super visio n depar tmen	Information verification and notification	① Applicable to Dangerous Goods emergency response: Proceed immediately to the AOC Emergency Response Center for check-in and collect the following information: Flight [Date] ([Aircraft Type]) operating [Departure Airport]-[Destination Airport], during [Flight Phase], [Fire/Smoke Location], [Cause of Fire/Smoke], [Fire Warning Duration], [Presence of Open Flame], [Fire

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t		Extinguisher Deployment Status], [Flight Crew Actions], [Cabin Crew Actions], [Aircraft Damage & Personnel Injuries], [Deferred Defects], [Dispatch Release Basis]. Note: If fire/smoke originates from passenger belongings, provide complete item details including name, manufacturer, and model. For power banks, specify rated energy. Applicable to in-flight fire emergency response: Assess: In-flight fire status Impact on flight operations Casualty status Probable cause Relevant ATC jurisdiction ② Immediately telephone-report the incident to the Safety Oversight Department leadership for external notification instructions. For *CCAR 396 Non-Urgent Incident* cases: Notify Risk Management Center to report to CAAC within 48 hours. For CCAR 396 Urgent Incident cases: Domestic: Immediately notify local CAAC Regional Administration and Hainan Regional Administration International: Immediately notify Hainan Regional Administration Concurrently alert company leadership via phone/WeChat with continuous updates ③ Add Dangerous Goods Management Center personnel to the emergency response group. They shall: Supplement and submit reports to CAAC per CCAR-276 requirements

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		Proceed to incident investigation team assembly point based on emergency level Coordinate with airport counterparts to verify critical information during hazardous material incident data collection/reporting, ensuring accuracy and message consistency
Air healt h cente r	Ground-to-air support	① Understand the number of injuries on board, the injuries and the site condition; or evaluate the possibility of injury according to the emergency event notified by the emergency office of the company; ② In case of casualties, the aviation doctor shall assist the AOC of the Transportation control Department to report the injuries on the plane to the airport emergency center or the local hospital in professional terms, and explain the required medical support provided on the ground; ③ When the crew encounter medical operation problems, such as: the use of airborne equipment, the disposal of patients' on-site injuries, etc., the air doctor timely gives operation guidance on the ground; ④ If there are casualties involved, the emergency administrator of the department shall collect the relevant information of the number of casualties, injuries, and disposal results, and keep them for 3 years.
Party and mass work depar tmen	Receiving the basic event information	Basic information: participate in the conference call, according to the AOC duty director, assistant reported flight basic information (including but not limited to: flight, segment, model, number of passenger number, crew, abnormal situation, disposal), public opinion monitoring start situation, ask for instructions chief attendant if any public opinion do telephone and WeChat report.
		Special information: confirm the emotional

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t		situation of passengers involved in the flight, whether there are video pictures circulating or media coverage
	Report on the start of public opinion monitoring	① Start the public opinion monitoring work, and report the latest disposal progress of the event to the AOC decision assist team group and the news PR group management group in real time until the end of the emergency disposal; ② According to the impact of the event in advance to formulate the caliber of external response backup.
	Information submitted	According to the situation, urge the emergency administrator to fill in the Sensitive Public Opinion Report of Aviation Shares in the AOC decision auxiliary disposal team of Tianwen system and follow up and report according to the public opinion.
	Continuous tracking	Keep the information linkage with AOC. If there is any sensitive public opinion occurring, , response strategies and the sensitive public opinion and relevant response strategies in the news and public relations team disposal group and AOC decision auxiliary disposal team.
Marketing Commission	Extract all passenger information on the affected flights	1. Email (sent to: cccc @ hnair.com) and telephone (on duty: 0898-67201876) inform the service command and dispatch seat to retrieve the passenger information of the flight; 2. Report the obtained passenger information to the group of "AOC Decision Assistance Team"
	Cooperate with the on-site support unit to formulate the passenger follow-up travel support suggestions as required	Email (sent to: cccc @ hnair.com) or telephone (duty telephone: 0898-67201876) inform the service command and dispatch seat to arrange the flight support team and cooperate with the on-site support unit to formulate the follow-up travel support

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		suggestions for passengers
	A 9,5071,600 emergency service line was opened according to the situation	The 95071600 emergency service special line will be opened according to the emergency level
purchase department	Join the purchasing department emergency response group	Quickly join the emergency wechat group of the purchasing department by actively contacting the emergency administrator, inform the company's check-in results and the progress information of the emergency event, and inform the emergency information to Haikou AOG Aviation material support seat to carry out emergency support.
	Carry out emergency support work (support and make information notification as needed)	① Participate in company consultation, collect aviation material demand, provide aviation material guarantee plan to AOC, and help the company to make decisions; ② Timely inform the department of the progress of emergency response, and provide auxiliary decision-making for the purchasing department to formulate the guarantee plan; ③ Verify the collection progress of the accident time, flight number, aircraft number, brief description of the accident and the progress of filing with the insurance company; ④ Notify and assist Haikou AOG aviation material support mat, docking Marine technical maintenance mat, obtain specific aviation material demand number and quantity information, formulate and report the aviation material support plan according to 1.4 AOG Aviation Material Support Work Procedure and report, track the required equipment to the materials in time and resume flight operation as soon as possible; verify the repair record of faulty equipment and report the verification results.In the event of a fire accident, priority shall be given to

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		verifying the availability of fire extinguisher bottles and smoke detector spare parts.
HNA freight	Information notification	Call the manager / deputy manager of the freight management Center and the manager of HNA Freight and Freight Control Center by telephone, and then establish a wechat group for continuous information notification. After receiving the incident information, the cargo control seat shall also inform the HNA cargo emergency response execution team, the flight departure station, the supervision and support room of the expected landing airport, the relevant aviation operators and the cargo functional departments (if required) Applicable to Dangerous Goods emergency response: The comprehensive notification process consists of three phases: Initial immediate reporting of basic hazardous material information Secondary reporting of essential details for emergency response (e.g., handling agent, air waybill) Final phase: Supporting the parent company's investigation by providing required data during the event inquiry. 【Flight Irregularity Information Notification】 Date: DD MMM YYYY (e.g., 01 JAN 20XX) Flight: HUXXXX Route Segment: XX-XX Station: XX Reporting Unit: Cargo Control Position Nature: Hazardous Materials Emergency Brief Incident Description: [Details] Subsequent Handling: [Actions taken]
	information gathering	① If an emergency is related to the cargo, the

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		cargo control seat shall immediately communicate the supervision support room of the place of origin to confirm the name, number and weight of the cargo and collect the cargo manifest, and the wide-body machine shall collect the quantity of the front and back cabins and the cargo loading details of the bulk cargo compartment. If the flight contains dangerous goods (including lithium batteries), it shall collect including but not limited to cargo mail manifest, air waybill, special cargo captain notice, dangerous goods declaration form, dangerous goods collection and transportation inspection list, and feed back to the emergency response team within 30 minutes; ② International return flight: If an emergency is related to the cargo, the cargo control seat shall immediately obtain the name, the number, and the weight of the cargo through FFM telegram, special WeChat group and other channels, and feed back to the emergency response team within 60 minutes. If the flight contains dangerous goods (including lithium batteries), it shall be collected simultaneously, including but not limited to cargo manifest, air waybill, special cargo captain notice, dangerous goods declaration form, dangerous goods collection and transportation inspection list, and feedback to the emergency response team within 30 minutes. ③ Collect information regarding the consignor, handling agent, and cargo acceptance procedures for the affected shipment—including consignor qualification documents, Air Transport Cargo Identification Reports, lithium battery

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		package inspection records, etc. (Applicable to hazardous material emergency response)—to provide evidentiary support for potential subsequent investigations. ④ Applicable to hazardous material emergency response: Upon obtaining hazardous material information, proactively contact and assist Operations Control in notifying the incident airport of the dangerous goods details.
	Ground-to-air support	① Add the Manager of the Ground Service Department's Cargo Management Center to the emergency response group.If the flight carries dangerous goods (including lithium batteries), under the guidance of the cargo management center, cooperate with the flight department to provide necessary information and support to the crew (such as the loading location, emergency disposal code, etc.), and take the support for the flight crew as the first priority of emergency response. ② If the flight carries dangerous goods (including lithium batteries), after confirming the pre-landing site, immediately notify the local cargo personnel, ask them to rush to the scene, and cooperate with the airport authorities and public security and fire organs to prepare for emergency response. ③ If the flight carries dangerous goods (including lithium batteries), contact the shipper according to the situation to obtain the necessary information and technical emergency handling support.
	Follow-up processing	Applicable to Dangerous Goods emergency response: ① The Cargo Control Position shall instruct the originating station’s Cargo

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		Division/Route Manager to handle the cargo based on flight status and actual emergency response conditions. ② If the emergency involves cargo: Domestic: After unloading, the Cargo Control Position notifies the local Cargo Division, which facilitates communication with the airport cargo terminal for storage. International: The Cargo Control Position alerts the Airline Ground Service Department, which coordinates with the local GHA (Ground Handling Agent) for cargo storage. Applicable to in-flight fire emergency response: Based on actual emergency response conditions, contact overseas support personnel to arrange scheduled post-transport handling for cargo/mail (particularly special cargo) and manage cargo damage.

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15.5 Report and Disposal of General Dangerous Goods event on Ground

15.5.1 General

This chapter expounds the principle of emergency disposal in the course of storage, handling, loading and unloading of dangerous goods carried by the company in the ground warehouse, and is the guiding document for the handling of dangerous goods on the ground. All departments of the company shall refer to this document and formulate emergency procedures for dangerous goods ground events in accordance with the specific tasks and production conditions of the department. In the event of abnormal ground transportation and dangerous goods event at the external station, the dangerous goods transported by the company shall be handled in accordance with the emergency procedures of the local airport or agent.

15.5.2 Emergency disposal of dangerous goods event on the ground

15.5.2.1 In the event of a dangerous goods event on the ground, the personnel on the scene shall immediately report to the company's emergency command center, and shall understand, assess and assess the hazards and losses through the dangerous goods label, container identification, waybill, dangerous goods event phenomenon or informed person, while avoiding the possible chemical reaction or fire or explosion of many items

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1) In the event of a dangerous goods event on the ground, the personnel on the scene shall immediately report to the company's emergency command center, and shall understand, assess and assess the hazards and losses through the dangerous goods label, container identification, waybill, dangerous goods event phenomenon or informed person, while avoiding the possible chemical reaction or fire or explosion of many items.

2) If loaded, it should include container identification number, actual loading position on board.

3) To ensure safety, separate event packages from other packages or property.

4) Avoid contact with packaging contents.

5) After receiving the report of the dangerous goods event, the duty officer shall immediately identify the location of the event and the traffic route, contact the airport emergency department or the nearby medical, environmental protection and epidemic prevention department in time, and invite the airport and relevant departments to participate in the disposal or rescue workt.

6) Dangerous goods contact body or clothing: rinse with plenty of water, remove contaminated clothing, do not eat or smoke, hands away from mouth and nose, seeking medical assistance:

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7) In the process of disposal, the disposal of dangerous goods events, the site involved in the detailed records of personnel, after the emergency disposal work should be timely collection of relevant information, do a good job of text reporting.

15.5.2.2 **Dangerous Goods Damaged or Leaked Disposal Procedure**

1) Evacuation and identification of safe areas.

Personnel in contact with damaged and leaking dangerous goods should be evacuated from the site and controlled. Set up dangerous zones and send patrols to prevent non-emergency personnel from entering the scene

2) Immediate emergency response

Field personnel immediately report to the company emergency command center, emergency manager according to the actual situation to start the company emergency handling procedures. Emergency Command Center through personnel reports, documents and other channels to understand the location of the incident and dangerous goods categories. Opening of communication lines, arrangement of personnel responsible for answering the telephone, to the relevant fire, police, radiation protection, explosion or medical rescue departments to convey relevant information

15.5.2.3 Call emergency medical services.

1) Move the victim to a place with fresh air.

2) Call emergency medical services

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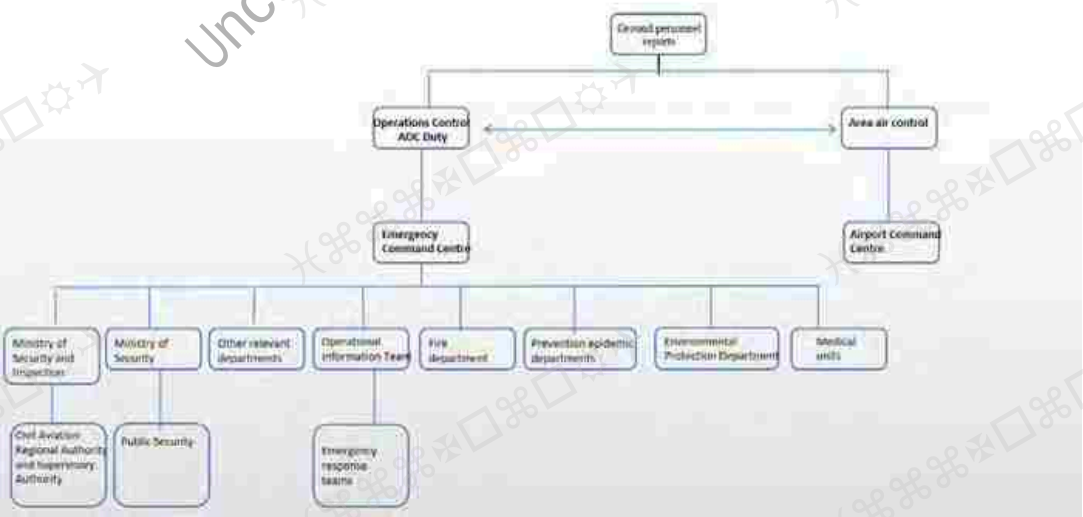
3) If the victim is unable to breathe, artificial respiration should be given; if the victim is swallowing or inhaling the substance, do not use mouth-to-mouth breathing; give artificial respiration in the form of a pocket mask fitted with a one-way tube or other corresponding respiratory medical device; and give oxygen if the victim has difficulty breathing.

4) Contaminated clothing and shoes and socks should be removed or isolated. Once the hazardous substance is reached, rinse skin and eyes with running water for at least 20 minutes, shower or rinse with soap and water.Keep the victim warm and quiet

5) Exposure (inhalation, ingestion or skin contact) to the dangerous goods may result in late reactions

6) Ensure that medical personnel are aware of the substance and take defensive measures to protect themselves

15.5.2.4 Flowchart of Dangerous Goods Incident Report



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15.5.2.5 Emergency disposal measures for leakage or fire of dangerous goods

Emergency disposal measures for leakage or fire of Class 9 dangerous goods

Hazard classification Sub-items and allocations Packing Group / Radiation Level	Three-word code	Dangerous Goods Description	Hazard description	Emergency response measures
1.3C 1.3G	RCX RGX	Explosives (cargo aircraft only)	Fire or minor explosion hazard and/or minor jet hazard	Inform fire department of fire fighting
1.4B 1.4C 1.4D 1.4E 1.4G	RXB RXC RXD RXE RXG		Fire or no other significant danger	
1.4S	RXS	Explosives Risk	Less risk of fire	
2.1 2.2 2.2 2.3	RFG RNG RCL RPG	Non-flammable non-toxic gases cryogenic liquefied gas Toxic gases	Leakage can cause high pressure cylinders to explode Cryonics High pressure cylinders will explode and release gas	Notify fire department to extinguish fire, evacuate cargo to ventilate area at least 25m distance

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3	RFL	flammable liquid	Release of flammable gases	Notify the fire department to extinguish the fire under no circumstances Extinguish water
4.1 4.2 4.3	RFS RSC RFW	Flammable solids Spontaneous combustion Easy to release Gas Quality	Flammable, combustible and exposed to air Combustion Combustion in water contact	Notify the fire department to extinguish the fire and under no circumstances shall it be extinguished with water
5.1 5.2	RO X ROP	Oxidants Organic Peroxide Goods	Contact with combustible and other substances A violent reaction	fire fighting should be notified Extinguish water
6.1 6.2	RPB RIS	Toxic substances infectious substances	When swallowed, inhaled or communicated After skin absorption, will Damage to health makes people and animals feel Disease	In isolated areas Professional needs No guidance, no Contact At least 25 per cent Meter distance
7 I 7 II /III	RR W RRY	Radioactive material - White Radioactive material - Yellow	Radiation hazards, damage Health	Distance

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8	RCM	corrosives	Damage to skin and metals	Notify Fire Department Door fire, Avoid skin contact Touch
9	RSB MAG ICE RM D	Polymerization of five particles Magnetic substances Dry ice Miscellaneous Dangerous Goods	A small amount of flammable Liquidity Impact on navigation systems cause low temperature or suffocation Other Dangerous Goods Not covered by nature	Avoid skin contact Touch No need for emergency services Rationale. Lithium Battery Emergencies: Refer to Appendix G. Sodium-Ion Battery Fires: Notify the fire brigade to extinguish the fire. Under no circumstances use water for firefighting.

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15.6 Guidelines for the Emergency Treatment of Dangerous Goods

15.6.1 Disposal for Class 1—Explosives

When handling explosives, implement no spark test. When working on the ground, handle with care, no shake and collision in order to prevent explosion. The iron tools cannot be used to heavily beat. Mechanical tools should have anti-fire device.

15.6.1.1 Damage

1) In the vicinity of broken package fireworks is strictly prohibited, clear all flammable sources (no smoking, flash burn, sparks or flammable direct area), all of the equipment used to handle packages must touch the ground.

2) Do not touch or approach damaged packages. Radio transmitter can not be used within 100 meters (330 feet) of electronic detonators.

3) In the absence of professional guidance, cleaning or handling the scene is not allowed.

15.6.1.2 When explosives is fired and may threaten other explosive packages, handle it in terms of following regulations:

1) Immediately inform fire police and illustrate the explosives on the spot and the class and amount of these explosives;

2) When informing fire police, illustrate firefighting equipments on the spot;

3) Move other explosive packages beyond safe distance.

4) When cargo fires, do not extinguish fire when it extends to the goods. Goods may explode! Suspension of traffic and clean up the site, isolate from at least 500 meters around, if the goods have been exposed to heat, do not move the goods or transport vehicles.

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5) Fire caused by the tank: rinse fire area with plenty of water, if the water supply is insufficient, use carbon dioxide, dry powder or clay, if possible and without risk, use unmanned water controller or monitor nozzles to extinguish the fire from maximum distance, to prevent the big fire extending to the cargo area, even if fire extinguishers get ready, but also pay special attention to tire fire may cause resurgence.

15.6.1.3 Notices

1) For division 1.4 explosives, except extinguisher with halogen extinguish agent, any extinguisher can be used. For division 1.1, 1.2,1.3,1.5 explosives transported in special situation, government competent authority should designate the specific extinguisher in advance.

2) When accident happens to explosives in 1.4S compatibility group, the affected area of explosion and spout is very small and it will not disturb to take firefighting or other emergency measures; If the big fire endangers the cargo area and the cargo area contains packaging affixed with 1.4S label and explosives of 1.4S classification, it should be isolated from the surrounding at least 15 meters (50 feet). Fighting with the fire by general measures in a reasonable distance.

3) For division 1.4 explosives not in 1.4 compatibility groups, outer fire is hard to arouse instantaneous explosion of the content in package.

15.6.2 Disposal for Class 2—Gases

15.6.2.1 Damage

1) If there may be leakage of package, persons should avoid inhaling leaked gas nearby. If flammable or non-flammable gas package has leakage in storehouse or indoors, open all the windows and doors to make enough circulation for air, and then move the cargo to outdoors by professional persons. If the toxic gas package is leaked, it should be

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handled by professional persons with gas defense mask.

2) No smoking, no fire and no electrical switch shall be turned on near the damaged flammable gas package and no vehicles shall be nearby.

3) Keeping isolation of 100 meters from the overflow or leakage zone.

4) Wear fully compressed anti-steam protective clothing to prevent burns, do not flush against the sources of leakage directly, using water mist fire extinguishers, to reduce the steam and change the direction of steam flow, to avoid leakage material exposed to dirty water, for chlorine silane compounds can not be water fire-fighting, use AFFF anti-alcohol as the medium expansion foam to reduce vapors.

5) If possible, turn the leaking device, so that gas flows rather than the liquid.

6) Prevent the leaked material flow into the sewers, ventilation systems and a fixed area, isolate this region until the gas disappears

15.6.2.2 When the fire is caused by gas which may threaten the package of flammable or toxic gas, measures below must be taken:

1) Immediately inform the fire police declaring the package of flammable or toxic gas.

2) When informing fire police, declaring the firefighting equipments existed in the spot.

3) Small fire: Use dry foam, CO_2 extinguisher;

4) Big Fire: use water spray, fog or anti-alcohol foam, in the absence of dangerous, move the container away from the fire area, the damaged cylinder should be handled by professional staff.

5) Fire caused by the tank: extinguish the fire as far away as possible, or use unmanned fire belt pole or monitor nozzles for extinguish, rinse

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with plenty of water to cool the device until the fire goes out, do not direct water on the fire source or safety devices to prevent freezing, if the security ventilation sound get bigger or tank colors, then immediately evacuated, keep far away from the burning tank.

15.6.2.3 First aid

1) Move the victim to a place with fresh air.

2) Call emergency medical services

3) If the victim is unable to breathe, artificial respiration should be given; if the victim is swallowing or inhaling the substance, do not use mouth-to-mouth breathing; give artificial respiration in the form of a pocket mask fitted with a one-way tube or other corresponding respiratory medical device; and give oxygen if the victim has difficulty breathing.

4) Contaminated clothing and shoes and socks should be removed or isolated. Once the hazardous substance is reached, rinse skin and eyes with running water for at least 20 minutes, shower or rinse with soap and water.

5) The cloth frozen on the skin should be thawed first and then removed, contact with liquefied gas, first freeze with warm water, for burns, should be immediately washed with cold water for a long time,Don't move clothes that stick to burned skin.

15.6.2.4 Notices

1) If there is gas spill at the placket of uncompressed package with cold liquefied gas, it is normal to release visible vapors and form lower temperature near the package, it should not be considered as accident. The package should be loaded in terms of *DGR*;

2) Person appears toxic symptom resulted by gas inhalation near the

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leaked package should be sent to medical center for first aid immediately.

3) When exposed to cooling and low temperature liquid, many materials become brittle and easily explode with no sign.

4) Fires caused by Hydrogen (UN1049), Deuterium (UN1957), cryogenic liquid hydrogen (UN1966) are difficult to detect, because the burning flame is not visible. The compression mixture (UN2034) of hydrogen and methane burns, there is no flame.

15.6.3 Disposal for Class 3—Flammable Liquids…

15.6.3.1 Damage

1) No smoking, no fire and forbid to turn on any electrical appliance near flammable gas package with leakage;

2) If flammable liquid is leaked in storehouse or cargo compartment, inform firefighting department and clear leaked flammable liquid. The aircraft cannot take off before cargo compartment is clear;

3) Move the leaked package to outdoors.

4) Set the isolation zone at least 50 meters away from splash or spill area, when a wide range of leakage occurs, evacuate at least 300 meters in the first downwind direction.

5) Ensure that the wearing of protective clothing against the steam to prevent being burnt by the leakage of spilled liquid; all of the equipment used to process packages must touch the ground. Remove any combustible materials (firework, spark or flame are prohibited in the vicinity), do not touch or approach to the leakage of flammable liquid, use baric foam to reduce pressure steam generation.

6) To ensure their own safety, plug up leaks and prevent flammable liquid into drains, sewers, basements or corners.

7) Minor leakage: use dry soil, sand or other non-flammable material to absorb spilled material, after its absorbed put them into the container together, deal with the aftermath, collect absorption material by

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cleaning tools not producing sparks.

8) Serious leakage: embank to protect the leakage of liquid material for follow-up treatment, water spray can reduce vapors, but not able to stop the burning in an enclosed space.

15.6.3.2 When flammable liquid is fired and may threaten flammable liquid package, measures below must be taken:

1) Immediately inform fire police and illustrate there is flammable liquid package on the spot and explain the nature and amount of the package(including UN or ID number of flammable liquid, proper shipping name and packing group);

2) When informing fire police, illustrate firefighting equipments on the spot;

3) Move flammable liquid packages beyond safe distance.

4) Small fire: dry powder fire extinguishing agent, CO2, water spray, or Alcohol resistant foam.

5) Big fire: Use water spray, fog, or alcohol-resistant foam. When using water for extinguishing, use water foam or water spray, and do not direct water to fire. The water for the fire should be handled to prevent other substances contaminating, do not let the water leakage inside the container.

6) Fire caused by the tank: the implementation of fire in the distance as far as possible, or use controlled fire belts leading or monitor nozzles leading fire belt. After extinguishing, use a lot of water to cool the container. If the security ventilation sounds bigger or storage tank color has changed, then immediately evacuate. Keep far away from the burning tank. For the big fire, use controlled fire belts leading or monitor nozzles; If you do not have the condition, immediately evacuate from the area and let it burn.

15.6.3.3 First aids

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Same with Section 15.5.2.3

15.6.3.4 Notices

1) If the package and the leaked liquid is fired, the extinguish agent cannot be incompatible with flammable liquid. In such condition, water is forbidden for firefighting. Extinguish fire according to method designated by firefighting department.

2) These substances have very low flash point; the use of water mist fire may be invalid.

15.6.4 Disposal for Class 4—Flammable Solids; Substances Liable to Spontaneous Combustion; Substances Which, in Contact with Water, Emit Flammable Gases

15.6.4.1 Damage

1) No smoking, no fire near damaged package;

2) Keep heat away from damaged package;

3) For water-flammable damaged package, avoid contacting with water and be covered by waterproof cloth.

4) Set the isolation zone at least 25 meters away from splash or spill area, when a wide range of leakage occurs, evacuate at least 100 meters in the first downwind direction.

5) Ensure the wearing of protective clothing against the steam to prevent being burnt by the spilled liquid. Remove any combustible materials (firework, spark or flame prohibited in the vicinity), do not touch or approach leaked material. Do not touch damaged containers or spilled material unless there is special protective clothing. Plug up leaks when

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their own safety is ensured.

6) Use water spray to reduce the production of steam, do not rinse with water leakage or overflow area directly or get the water into the container. Isolate flammable materials (masks, paper, etc.) and spilled materials. For chlorinated silane overflow or leakage, use AFFF to reduce steam.

7) Minor spill: use dry soil, dry sand or other non-combustible material to cover overflow area, and cover with plastic film at the same time to reduce the spread or rain contact; use clean spark free tool to concentrate materials and put them into simple containers for follow-up treatment; prevent access to water areas, sewers, basements or other restricted area.

8) Powder spill: cover with plastic film or a tarpaulin to reduce the proliferation and maintain powder dry. Without expert guidance, do not clean and process the scene.

15.6.4.2 When flammable Solids; Substances Liable to Spontaneous Combustion; Substances which, in Contact with Water, Emit Flammable Gases is fired and may threaten the package, you must;

1) Immediately inform fire police and illustrate there is flammable solid (Substances Liable to Spontaneous Combustion; Substances which, in Contact with Water, Emit Flammable Gases)or package on the spot and explain the nature and amount of the package(including UN or ID number of flammable liquid, proper shipping name and packing group);

2) When informing fire police, illustrate firefighting equipments on the spot;

3) Move this kind of packages beyond safe distance.

4) SMALL FIRE: Use dry powder, soda ash, lime or sand to extinguish fire.

5) Big FIRE: Use dry sand, dry powder, soda ash or lime to extinguish fire or evacuate from the fire area

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6) Metal coating or metal foil (such as aluminum foil) on fire: aluminum foil fire should be handled as combustible metal fire, use dry sand, graphite powder, dry sodium oxide for fire fighting, G-1 ® or Met-LX ®.

7) Metal or powder fire (aluminum, lithium, magnesium, etc.): Use dry powder, dry sand, sodium chloride powder, graphite powder or Met-L-X powder; for lithium, lithium h-X powder or copper powder can also be used.

8) Fire caused by the tank: the implementation of fire in the distance as far as possible, or use of controlled fire belts leading or monitor nozzles. Do not allow water into the container, or with such substances. If the security ventilation sounds bigger or tank colors, then immediately leave. Away from the tank fire. Water to extinguish burning metal produces hydrogen, particularly when the fire occurred in a closed environment (such as: buildings, warehouses, etc.), is a very dangerous explosion hazard.

15.6.4.3 First aids

Same with 15.5.2 .3.

15.6.4.4 Notices

1) If the package is fired, the extinguish agent cannot be incompatible with the content. For Division 4.3 Substances which, in Contact with Water, Emit Flammable Gases, water is forbidden for firefighting. Extinguish fire according to method designated by firefighting department.

2) If chlorosilane fire, don’t use water for fire-fighting, use AFFF. Do not use dry powder, soda ash or lime to extinguish the flame of

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chlorosilanes (regardless of size), because they may release large amounts of oxygen to cause an explosion.

3) For dealing with the splash objects of xanthogenate, UN3342, and sodium sulfite (hydrosulfite / hydrogen sulfur) UN1384, UN1923 and UN1929, use of a large number of water for fire-fighting to prevent reaction with air. For some material that does not work, because its combustion does not require air.

15.6.5 Disposal for Class 5—Oxidizing Substances and Organic Peroxides

15.6.5.1 Damage

1) No smoking, no fire and forbid near package with leakage;

2) Other dangerous good(even packed already) and all flammable materials(such as paper, chipboard and so on) cannot be near to package with damage and leakage;

3) Keep heat away from Organic Peroxides package;

4) If the spill is solid, isolate at least 25 meters from leak area, if it is liquid, isolate at least 50 meters from leak area. For a wide range of overflow, consider evacuation of at least 250 meters.

5) Ensure combustibles (such as wood, paper, oil, etc.) away from the spill area (material), if there is no fire of leakage, use bulging bladders, inflatable protective clothing to protect themselves, unless wearing a protective Clothing, do not touch damaged containers. If not wearing appropriate protective clothing, do not contact with damaged equipment and leak material. Use water spray to reduce vapors or make changes of the direction of the gas distribution. When their own safety is ensured,

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plug up leaks and prevent leaked material into the water, pond, sewer or closed area.

6) Small leakage: for minor dry material overflow, use a clean shovel to put the spilled materials on the clean, dry container and cover loosely; and then move the container out of the overflow area; minor liquid spills, use non-combustible materials such as vermiculite or sand to absorb goods and put them into the container for subsequent processing; for oxidant reacting with water, use dry sand, dry mud or other non-flammable material to cover the surface of the material, plus a layer of film to prevent the spread or contact with water; for the peroxide, use a clean tool without mars to pick up inert, damp non-combustible materials, and loosely tile on the plastic containers for post-processing

7) A wide range of leakage: pay attention before liquid overflows again for further processing, prevent spills into drains, sewers, basements and an enclosed area, in the absence of professional guidance should not clean or handle the scene.

15.6.5.2 When Oxidizing Substances and Organic Peroxides is fired and may threaten Oxidizing Substances and Organic Peroxides package, must

1) Immediately inform fire police and illustrate there is Oxidizing Substances and Organic Peroxides package on the spot and explain the nature and amount of the package;

2) When informing fire police, illustrate firefighting equipments on the spot;

3) Move Oxidizing Substances and Organic Peroxides packages beyond safe distance.

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4) SMALL FIRE: For the oxidant, use water for fire fighting. Do not use dry powder or foam extinguisher for fire fighting; carbon dioxide or Halon effect is limited; oxidant reacting with water, use dry powder fire extinguishers, soda ash or lime; for the peroxide, it is best to use water mist fire extinguisher, if not to use dry powder fire Agent, carbon dioxide or regular foam.

5) Big Fire: For the oxidant, use water in long-distance; oxidant reacting with water, use dry sand, dry powder fire extinguishers, soda ash, lime or evacuate the area to let fire burn; for the peroxide, it is best to use water mist fire extinguisher. If the goods have been heated, can not move cargo or vehicle.

6) Fire caused the tank: extinguish fire from maximum distance or use unmanned water control or monitor nozzles. Irrigate containers with large water until the fire goes out, and let it cool. Keep far away from the tank in the fire. For large area of fire, use unmanned water control or monitor nozzles for fire fighting; if not feasible, immediately evacuate from the fire area.

15.6.5.3 First aids

1) Same with 15.5.2 .3.

2) Immediately remove the material from the skin.

3) Contaminated clothing in a fire hazard when dry.

4) For organic peroxides, it needs specialized medical personnel to remove the solid fusible material from the skin.

15.6.5.4 Notices

When Organic Peroxides packages are near heat source, even if the

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package is in good condition, the chemical nature of Organic Peroxides will be unstable and has explosion hazard. In case of fire, move this package to safe place and let firefighting department handle it.

15.6.6 Disposal for Class 6—Toxic and Infectious Substances

15.6.6.1 When toxic substance package has damage, smell or small spill, it should be handled in terms of following regulations:

1) Persons on the spot should avoid contacting leaked package with skin and avoid inhalation of toxic vapors;

2) Persons moving leaked package must wear professional rubber gloves and wash hands by running water in 5 minutes after finish work;

3) When toxic liquid or solid powder is leaked in the storehouse or cargo compartment, inform safety and quarantine department and clear contaminated storehouse or cargo compartment and other cargo and luggage by quarantine staff. Aircraft cannot take off before cleared.

4) Put leaked packages separately into storehouse;

5) For the leakage of Division 6.1 toxic substance, if person contacts toxic substance accidentally, no matter whether there is toxic symptom or not, the person should be sent to medical center for inspection immediately and explain the proper shipping name of the toxic substance to doctor. In case of emergency, inform the nearest medical first aid department immediately.

6) Telephone numbers for above first aid departments should be marked on the storehouse, office and places where accidents for emergency may happen.

7) Isolate around from the overflow or leakage area for at least 100 meters

8) Do not touch the hazardous container and leak substances, unless

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wearing the correct protective clothing; to prevent leakage under the premise of ensuring safety; prevent leakage of material into the water, basement, sewer or other restricted areas. Cover with plastic film to prevent the spread, use dry soil or other non-combustible material to absorb, cover, and then loaded up with container, do not let water into the container or mix with the leak material. Use equipment for compressing foam to remove water vapor, for CHLOROSILANES, use AFFF medium expansion stable alcohol foam to remove the steam. When using steam or water spray to reduce or remove vapor, it will be released into the atmosphere, so pay attention to prevent contacting with such leaked Material.

9) Use carbon dioxide, dry powder, dry soil and a stable alcohol foam to monitor the water, waiting for treatment after fire; Do not let it spread.

15.6.6.2 If there is damage or small leakage of infectious substance package, you must:

1) For leaked package, you'd better not move or move it as little as possible. If it must be moved from the aircraft, only one person should carry it in order to reduce infectious possibility.

2) Persons moving leaked package cannot contact it with skin and must wear professional rubber gloves when working.

3) For the liquid, form a circular area as the center of leak or spill material with a radius of 50 meters (150 feet); For solids, form a circular area as the center of leak or spill material with a radius of 25 meters (75 feet), to prohibit any person to enter, and isolate the region with a rope.

4) Report to environment protection department and safe epidemic

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prevention department in time, and explain the following situations:

(1) Information of the package on the shipper's dangerous goods declaration. Name list of person contacting the leaked package. Locations passed by the leaked package. (i.e.: the area affected by this package).

(2) Inform principals of cargo management department.

(3) Remove the contamination of cargo compartment, other cargo, luggage and transport equipment according to requirements of environment protection department and safe epidemic prevention department. Inspect person contacting the infectious substance. Dispose their clothes and this package.

(4) Inform shipper and consignee. The package cannot be transported without approval from epidemic prevention department.

(5) Use soil, sand or other non-flammable material to absorb spills. Use a damp towel or cloth to cover the damaged package or spill, and use bleach or disinfectant to maintain its moisture. Only under the guidance of experts, can clean-up or treat the site

(6) Use appropriate equipment for fire fighting; do not use water cannons to disperse the spill.

15.6.6.3 First aids.

1) Same with 15.5.2.3.

2) For the small piece of skin contact, should try to avoid infecting undamaged skin.

3) In the event of burns, immediately use cold water for a long time as possible to let it cool; and do not force to move the clothing stick to the

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skin.

4) For infectious substances, further measure is to contact the local drug control center.

15.6.6.4 Notes

1) Most of the foam extinguishing agent will react with toxicity and produce corrosive / toxic gases.

2) For Acetyl chloride (UN1717), only use dry powder or carbon dioxide fire extinguishing agent

15.6.7 Disposal for Class 7—Radioactive Material

15.6.7.1 Damage

1) Before unload damaged package from the aircraft, prepare loading position in order to inspect and clear contamination.

2) Anyone cannot be near to damaged package except persons for inspection and movement.

3) Consult the Shipper's Dangerous Goods Declaration. Take measures according to explanation in "ADDITIONAL HANDLING INFORMATION"column.

4) Damaged packages should be put in the coffers of radioactive material designed by airport. If there is no dedicated warehouse, should be placed outside, away from the damaged package at least 25 meters, and prohibit any person to close to it, and isolate the region with rope and mark out the danger sign. For large leak, first consider evacuating the staff 100 meters from downwind position of the incident place. When a large number of substances being involved in the fire, should evacuate the persons 300 meters around incident area.

5) Inform environment protection department and (or) radiation protection

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department. Test the contamination of cargo, aircraft and environment and make decisions.

6) Remove contamination of cabin, other cargo and luggage, and transport equipment according to requirements of environment protection department and (or) radiation protection department. Aircraft cannot take off before the contamination is cleared.

7) Inform principals of cargo department to investigate the accident.

8) Use sand, earth or other non-flammable compatible material to cover spills. If the spill is powder, then cover with plastic sheets or tarps to drop to the lowest diffusivity

9) Wet surface of undamaged package and slightly damage of packages can not be said to have failed. Contents inside are rarely liquid. Most of the liquid packages contain inner package or absorbent material. If there is radiation pollution caused by infiltration of liquid, then this kind of pollution must be minimal. Contents are generally a metal tank; it is easy to see if there is a leak. If goods compartment indeed leaked from the package, do not touch, stay away from and wait for the radiology expert advice.

10) In the case of smoke absence, leaked irritating fog and residues will gather up in the leakage area, reduce steam with a water mist fire extinguishers, but do not use water to aim at container of leaked material. For small spill, residues can block it; embank above the overflow point to prevent the overflow of residues.

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15.6.7.2 According to regulations of IATA and international atomic energy, radiation amount of any surface of the aircraft is not more than 5μ Sv/h, and the un-fixed radioactive contamination cannot exceed the standard in the following table, otherwise, the aircraft must be stopped for using.

Table 15-1 Highest Allowance for Un-fixed Radioactive Contamination on Cabin Surface

Contamination	Highest allowance Bq/cm^2
Radiation β and γ and low α radiation	0.4
All other α radiation	0.04

15.6.7.3 Person affected by radioactive contamination should be sent to safety medical department for inspection.

15.6.7.4 Fire fighting

1) The presence of radioactive material does not affect the fire fighting procedures and should not affect the way of fire fighting.

2) Do not move damaged packages; remove the undamaged package from the fire area.

15.6.7.5 First aids

1) Same with 15.5.2.3

2) Transfer the staff to a place without radioactive material contamination.

3) Radiology should be given priority consideration for treatment.

4) Contaminated clothing of wounded staff only has small damage on the medical staff, equipment and other infrastructure.

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15.6.8 Disposal for Class 8—Corrosives.

15.6.8.1 Persons on the spot should avoid contacting package with leakage and spilled corrosives with skin and inhalation of its vapors.

15.6.8.2 Persons moving leaked package must wear professional rubber gloves.

15.6.8.3 If the corrosives are spilled on the structural part of the aircraft, wash this part as soon as possible. Person for washing should wear rubber gloves and avoid contacting corrosives with skin. In case of such accident, immediately inform maintenance department of proper shipping name of the corrosives so as to make good cleanout in time.

15.6.8.4 Other dangerous goods (even packed already) cannot be put near this leaked package.

15.6.8.5 Inform the duty personnel of the Freight Branch of Sales & Marketing Department to investigate and handle the accident.

15.6.8.6 When leakage happens, if the cleanout is not enough and the structural parts also have some corrosive substance, it will affect the intension of the structural parts. For carefully inspect the structural parts, use chemical neutralization agent if required.

15.6.9 Disposal for Class 9—Miscellaneous Dangerous Goods…

15.6.9.1 Check whether the aircraft is damaged.

15.6.9.2 Inform the duty personnel of the Freight Branch of Sales & Marketing Department to investigate and handle the accident.

15.6.9.3 Inform related competent department.

15.6.9.4 Emergency treatment of lithium battery

1) For emergency response procedures for lithium battery fires, see Appendix G.2.4.

2) When damaged, use mud, dry sand or other non-flammable material to absorb, leaked batteries and contaminated absorbent materials must be

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placed in metal containers.

3) First aids, same with 15.5.2.3.

15.6.10 Other Requirements

15.6.10.1 If the package of transfer shipment is damaged, send telegram to inform departure station to pay all the charge for re-packing. After receiving the confirmation, handle it in terms of instructions of departure station.

15.6.10.2 The tools for handling damaged dangerous goods and accidents should be disposed by professional technical department.

15.6.10.3 If undeclared dangerous good is found during transport, unload it at nearest station and inform related situations to operator's state and the competent authorities of the country where the accident occurred, and notify shipper or consignee, and handle it in terms of related aviation regulations.

15.6.10.4 Transfer incident that hiding dangerous goods for human and aircraft damage to public police department. Meanwhile, inform south aviation authority and its supervision units.

15.6.10.5 Dangerous goods wrongly declared which are found during transportation should be unloaded at the nearest terminal, and report to operator's state and the competent authorities of the country where the accident occurred, notify the owner or consignee and dealing with it according to the relevant Civil Aviation rules.

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15.7 Common Dangerous Goods Emergency Actions (Classified by poisoning material)

15.7.1 Acetylene(乙炔)

The inhaling of Acetylene mainly will cause the damage of Nerve system. Move the sufferer to the area of fresh air. For the sufferer who breathes hardly, supply oxygen.

15.7.2 Carbon Dioxide(二氧化碳)

Move the poisoning person to the area of fresh air, lie down and keep warm. If respiration crocked up, use mouth to mouth breathing immediately or supply oxygen.

15.7.3 Butane(正丁烷)

Move the sufferer out of the area immediately for oxygen supplying and pay attention to warm keeping. If breathing stops, use mouth to mouth breathing and give other related treatment. Burnt wound should be protected by clean clothes. Move the sufferers to the area of fresh air and send them to hospital for curing.

15.7.4 Methane(甲烷)

Move the sufferer who inhaled Methane out of the contaminated area, and supply oxygen and keep warm. For the sufferers who stop breathing, use mouth to mouth breathing to them and give the other related treatments.

15.7.5 Chlorodifluoromethane(氟里昂 22)

Move the sufferer to the area of fresh air.

15.7.6 Coal Gas(煤气)

Move the sufferer to the area of fresh air immediately, and keep calm

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and warm, and then take him/her to hospital for curing. If the sufferer stop breathing because of respiration backbone anesthesia, but the heart still beats, mouth to mouth breathing must be carried on until the breathing is back to normal.

15.7.7 Ethylene G1ycol(乙二醇)

Wash with clean water after the contact of Ethylene Glycol and use soap to clean it.

15.7.8 Ethyl Alcohol(乙醇)

Move the sufferers who inhaled the vapor out of contaminated area immediately, and give aftercare to them for resting and warming, and then take them to hospital for curing. When eyes stimulated, wash with water, if serious, take them to hospital for curing. Poisoning person who take orally should drink plenty of water, if serious, he/she should be taken to hospital for curing.

15.7.9 Ether(乙醚)

When eyes stimulated, wash with water, if serious, take them to hospital for curing. Poisoning person who take orally should gargle immediately, and should be taken to hospital for curing.

15.7.10 Butterball(丁醛)

Move the sufferers who inhaled the vapor out of contaminated area immediately, and give aftercare to them for resting and warming. When eyes stimulated, wash with water, if serious, take them to hospital for curing. Wash with water for skin contact, and then use soap to wash it thoroughly. Poisoning person who take orally should gargle immediately, and should be taken to hospital for curing.

15.7.11 Varnish(凡立水)

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Burnt wound should be protected by clean clothes. Pay attention to body warming and send them to hospital for curing.

15.7.12 Acetone(丙酮)

Move the sufferers who inhaled the vapor out of contaminated area immediately, and give aftercare to them for resting and warming, and then take them to hospital for curing. When eyes stimulated, wash with water, if serious, take them to hospital for curing. Wash with water for skin contact, and then use soap to wash it thoroughly. Poisoning person who take orally should gargle immediately, and should be taken to hospital for curing.

15.7.13 Propionaldehyde(丙醛)

Move the sufferers who inhaled the vapor out of contaminated area immediately, and give aftercare to them for resting and warming. When eyes stimulated, wash with water, if serious, take them to hospital for curing. Poisoning person who take orally should gargle immediately, and should be taken to hospital for curing.

15.7.14 Crude Oil(石油)

Wipe the leaked liquid on the skin off, and then take off contaminated clothes and use soap water to wash private parts. Wash with water for 15 minutes when eyes contact with crude oil, and then go to the next curing step. Burnt wound should be protected by clean clothes. Pay attention to body warming and send them to hospital for curing.

15.7.15 Toluene(甲苯)

Move the sufferers who inhaled the vapor out of contaminated area immediately, and give aftercare to them for resting and warming. When eyes stimulated, wash with water, if serious, take them to hospital for

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curing. Wash with water for skin contact, and then use soap to wash it thoroughly. Poisoning person who takes orally should gargle immediately, and should be taken to hospital for curing.

15.7.16 Formaldehyde Solution(甲醛溶液)

Move the sufferer to the area of fresh air immediately. Wash with water when contact with skin, then use alcohol to scrub it away, lastly wipe glycerin on.

15.7.17 Paints(油漆类)

Move the sufferer to the area of fresh air immediately, and give aftercare to them for resting and warming. If serous, give medical treatment to them. Burnt wound should be protected by clean clothes. Pay attention to body warming and send them to hospital for curing.

15.7.18 Benzene(苯)

If the personnel's faces were found not normal, move the sufferer to the area of fresh air, and give aftercare to them for resting and warming, and take them to hospital for curing. Poisoning person who take orally should gargle immediately, and should be taken to hospital for curing.

15.7.19 Pitch(柏油)

Move sufferer to the area of fresh air, and give aftercare to them for resting and warming. When he/she has difficulties in breathing, supply oxygen. Wash it with water for 15 minutes; if serious, send him/her to hospital for cure.

15.7.20 Kerosene(煤油)

Move sufferer to the area of fresh air, and loose his/her clothes. When he/she has difficulties in breathing, supply oxygen. When breathing stop, use mouth to mouth breathing. Wash with water when contact with

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skin, and use soap to wash it thoroughly. For eye contact, wash it with water for 15 minutes; if serious, send him/her to hospital for cure.

15.7.21 Sodium Hydride(氢化钠)

Move the inhaled sufferer out of contaminated area, and give aftercare to them for resting and warming. Wash with water when contact with eyes. Wash with water first when contacting with skin, then use soap to wash thoroughly. Wash with a great deal of water when contacting with skin. Poisoning person who take orally should gargle immediately and drink, and then receive medical treat.

15.7.22 Sodiun1(钠)

Wash with water when contact with eyes, and receive medical treatment. When burnt, receive medical treatment as soon as possible.

15.7.23 Phosphorus(黄磷)

Move the sufferer out of contaminated area, and give aftercare to them for resting and warming. Serious sufferer should receive medical treatment. Wash with water when contact with skin, but do not make inunction. Poisoning person who take orally should gargle immediately and drink, and then receive medical treat.

15.7.24 Naphthalene(萘)

Move the inhaled sufferer out of contaminated area, and give aftercare to them for resting and warming. Wash with water when contacting with eyes. Wash with water first when contact with skin, then use soap to wash thoroughly. Wash with a great deal of water when contact with skin. Poisoning person who take orally should gargle immediately and receive medical treat.

15.7.25 Nitrocellulose(硝化棉)

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When poisoning, take the sufferer to hospital for treatment immediately.

15.7.26 Celluloid(赛璐珞)

Move the sufferer to the area of fresh air. Supply him with oxygen and help him to breathe. Maintain his/her body temperature. Serious sufferer need to receive medical cure.

15.7.27 Buty1phenol(丁基苯酚)

Wash with soap or water when contact with skin. If you eat it by error, drink a great deal of water immediately and receive medical cure.

15.7.28 Militant(禾大壮)

Wash with water when contact with eyes and skin. When poisoning, drink a great deal of water for vomiting in order to alleviate poisoning.

15.7.29 Dichlorodiphenyltrichloroethane(滴滴涕)

Wash with soap or water when contact with skin.

15.7.30 Sodium Hydroxide(氢氧化钠)

Wash with a great deal of water when contact with skin. Poisoning person who take orally should gargle immediately and receive medical treat.

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15.8 Reporting of Dangerous Goods Violations

Dangerous goods air transport violation refers to any act that violates the regulations on the Administration of Civil Aviation dangerous goods Transportation and its supporting documents or the rules for the Safety of Air Transport of dangerous goods (Doc9284) and its supplementary materials and appendices.

15.8.1 Upon occurrence or receipt of information regarding dangerous goods violations, all department, branch company, bases, or other outstation must immediately report it in accordance with the requirements of Section 6.3.1.1 of the Mandatory Reporting Information Management Work Procedure 0313 in the company's Safety Management Procedures Manual. If involving dangerous goods cargo transportation, also immediately report to the AOC Duty Manager and Cargo Production Duty Officer.

15.8.1.1 Reporting Methods for Dangerous Goods Cargo Transportation Violations

1) The reporter shall complete the Dangerous Goods Irregularity Report Form (Appendix 15-2) and submit it to the Cargo Control Desk (hykzx1@hnair.com).

2) Dangerous Goods Coordinators in all departments, branches, and bases shall consolidate statistics and submit the Dangerous Goods Accidents, Incidents, and Irregularities Statistics Form (Appendix 15-3) to the Cargo Management Center of Ground Service Management Department by the 4th of each month.

3) All stations and cargo units may establish their own records of dangerous goods irregularities or request such records from local ground handling agents, and submit them to the Cargo Management Center of Ground Service Management Department by the 4th of each month.

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4) The Cargo Management Center of Ground Service Management Department shall consolidate and submit the Dangerous Goods Accidents, Incidents, and Irregularities Statistics Form (Appendix 15-3) to the Dangerous Goods Management Center of Safety Oversight Department by the 5th of each month.

15.8.1.2 Reporting Methods for Dangerous Goods Baggage Transportation Violations

1) All departments, branches, bases, or other out-stations shall, upon the occurrence or receipt of information regarding any irregularity involving the transport of dangerous goods in baggage, immediately report it in accordance with the requirements of Section 6.3.1.1 of the Mandatory Reporting Information Management Work Procedure 0313 in the company's Safety Management Procedures Manual.

2) The Safety Supervision Department duty officer shall record the incident in the shift log. The Dangerous Goods Management Center of the Safety Supervision Department shall compile monthly summaries and use the Dangerous Goods Air Transport Incident Reporting System to uniformly report the number of incidents occurring in the previous month, referencing the template in Table 15-2.

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15.9 Attachment

Figure 15-1: Dangerous Goods Air Transport Incident Information Report Form

***1.Accident/incident Date:**	***2.Place of the incident:**	**3. Local time of the accident**	
***4.Relevant enterprises and institutions of the incident:**	**5.Flight number:**		
6. Aircraft registration No:	**7. Aircraft type:**		
*** 8. Passenger aircraft / cargo aircraft:**	**9. Take-off at the airport:**		
10. Destination Airport	**11. The first starting place of the dangerous goods involved**		
***12. incident location ☐ passenger terminal area ☐ apron ☐ Aircraft(Cabin) ☐ Aircraft(Cargo) ☐ Aircraft(Cockpit) ☐ Freight Terminal ☐ Shuttle Bus ☐ Scurity Checkpoint ☐ Other**			
***13.Accident description:(including details of the injury, loss, etc, attachment is allowed)** **Incident Link:☐ Ground ☐ In flight ☐ Others** **Involved Dangerous Goods:** **Reason&Result of Incident: ☐ People Maimed or Dead ☐ Minor Injured ☐ Aircfraft Damaged ☐ Smoke ☐ Overheat ☐ Fire ☐ Broken ☐ Percolation ☐ In Luggage ☐ Document Missing of Dangerous Goods☐ Dangerous Goods Tag missing or incorrect ☐ Not Declared ☐ Others** **Details:**			
14.Transportation name(including technical name)			**15.UN/ID number (as known):**
16.Classification(as known)	**17.Secondary hazard**	**18.Package level**	**19.Level(only 7th)**
20.Type of package	**21.Package standard label**	**22.Package statement**	**23.Quantity(or transportation index)**
24. Air waybill No:			
25. Label of postal bags or luggage, or the number of passenger flight tickets:			
***26.Name and address of the shipper, agents, passengers, etc:**			
27. Other related information(including suspected causes, measures already taken):			
***28.Name and title of report author:**		***29.Department and post:**	
***30.Telephone :**		**31.Report number:**	
***32.Working Address :**		***33.Signature :**	
		***34.Date :**	
NOTE:			

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1. In the above table, items marked with an asterisk (*) are mandatory, while the rest should be completed only when applicable.

2. In the event of air transport events of dangerous goods or suspected air transport events of dangerous goods, the relevant enterprises and institutions in the incident shall use the air transport event report system to fill in this form truthfully and keep one

Written report.

This form is not required for air transport of hazardous materials:

(1) Transport dangerous goods or misdeclared in goods or mail;

(2) transportation of baggage.

3. Emergency incidents of hazardous goods in China shall be reported within 12 hours after the occurrence; the dangerous goods emergency outside China shall be filled within 24 hours after the occurrence; the danger occurs

Non-emergency events (except Note 1 (1) and (2)) shall be filled in within 48 hours after the event.

Dangerous goods emergencies include:

(1) causes damaged aircraft or casualties due to air transport of dangerous goods;

(2) Dangerous goods catch fire or smoke;

(3) Dangerous goods damage, leakage, liquid leakage, leakage of radioactive materials, packaging failure to remain complete, etc., need emergency treatment;

(4) Other circumstances similar to the above clause.

The air transport of hazardous materials not listed as a hazardous material emergency is a non-emergency.

4. Relevant enterprises and institutions involved in the incident include operators, ground service agents and other relevant agencies. If the air transport event of hazardous goods occurs in the ground operation link, the ground service agent shall be the ground service agent

The responsible operator is responsible for reporting; if during the flight.

5.. For the reported events, if the relevant enterprises and institutions of the incident obtain new information, they should use the air transport event report system of dangerous materials and fill in the supplementary information in the "Note" column of this form in time.

6. Under the permit of safety conditions, all the evidence of dangerous materials, packaging, site photos and documents related to the air transport events of hazardous materials shall be sealed, unless otherwise required by the civil aviation administrative department.

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Figure 15-2: Dangerous Goods Violations Report Form (Sample)

Transport Type	Domestic/International	Date of Occurrence	Airport Code	Location	Cause of Incident	UN/ID Number	Lithium Battery?	Lithium Battery Type	Baggage Type	Safety Recommendations

NOTE: In the above table, items marked with an asterisk (*) are mandatory, while the rest should be completed only when applicable.

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Figure 15-3:_____airlines ____Y__M Dangerous goods accidents, incidents and irregularities statistics Table(sample)

Amount / Incident Type / Company name and happening phase		Dangerous goods accidents		Dangerous goods incidents		Dangerous goods irregularities					In total
		Associated with passenger , crew	Associated with cargo , mail	Associated with passenger , crew	Associated with cargo , mail	Associated with passenger , crew		Associated with cargo , mail			
						Carry dangerous goods	other	Not submit, wrongly submit dangerous goods	Wrong operation	other	
	Happens during aircraft operation										
	Happens during other phase										

Filling notes:

1. Carry dangerous goods refers to passengers or crew carry prohibited dangerous goods.
2. Wrong operation refers to irregularities caused by the shipper or his agent not understanding and not familiar with dangerous goods transport regulations and knowledge, including but not limited to marking label sticking errors, documentation errors, incorrect use of packaging and so on.
3.he division of aircraft operational phases and other stages is as defined in the Classification Methods for Civil Aircraft Incidents (AC-395-AS-01).

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Appendix A

Definition

The following terms are used in this regulation as following meaning:

Dangerous good:see Section 1.1 of this manual.

Technical instruction: refer to documentations in *Technical instructions for dangerous goods aviation transport security* (Doc 9284-AN/905)issued by IATA, including supplementary materials and annex published and approved by council of IATA.

DGR:refer to documentation in *dangerous goods rules* issued by IATA.

Carrier:A person, organization or enterprise engaged in or offering to engage in an aircraft operation. In this manual, it refers to HNA.

Shipper: The person who concludes a contract with the carrier and sign his/her name on airway bill or shipments records.

Cargo sales agent: The companies or enterprises who undertake sales activities of air transport with delegation or accreditation of the carrier.

Ground handling agents: Enterprises who undertake ground services of air transport with delegation or accreditation of the carrier.

Consignment: One or more packages of dangerous goods accepted by an operator from one shipper at one time and at one address, receipted for in one lot and moving to one consignee at one destination address.

Pilot-in-command: The pilot designated by HNA as being in command and charged with the safe conduct of the flight.

Crew member: A person assigned by HNA to duty on an aircraft during a flight duty period.

Flight crew: A person responsible for aircraft operation during flight duty and having flight license.

Authority:refer to CAAC, administration authority of aviation and appointed units of aviation authority.

Cargo aircraft: Any aircraft, other than a passenger aircraft, which is carrying goods or property.

Passenger aircraft: An aircraft that carries any person other than a crew member, an operator's employee in an official capacity, an authorized representative of an appropriate national authority

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or a person accompanying a consignment or other cargo.

Dangerous goods accident: An occurrence associated with and related to the transport of dangerous goods by air which results in fatal or serious injury to a person or major property damage.

Dangerous goods incident: An occurrence other than a dangerous goods accident associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in injury to a person, property damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained. Any occurrence relating to the transport of dangerous goods which seriously jeopardizes an aircraft or its occupants is also deemed to be a dangerous goods incident.

Exception: A provision in these Regulations which excludes a specific item of dangerous goods from the requirements normally applicable to that item.

Exemption: Authorization issued by an appropriate national authority of all States concerned providing relief from the provisions of these Regulations.

Incompatibility: describing dangerous goods which, if mixed, would be liable to cause a dangerous evolution of heat or gas or produce a corrosive substance.

COMAT:substance owned or used by operator.

Package: The complete product of the packing operation consisting of the packaging and contents prepared for transport.

Overpack: An enclosure used by a single shipper to contain one or more packages and to form one handling unit for convenience of handling and stowage. A Unit Load Device is not included in this definition.

Unit load device: Any type of freight container, aircraft container, aircraft pallet with a net, or aircraft pallet with a net over an igloo.

Packing receptacle: Inner and intermediate packagings including boxes, bottles, cans, drums, jars and tubes, including any means of closure. Refer to item 7.2 in section 2 of *Technical instructions*.

SERIOUS INJURY : An injury which is sustained by a person in an accident and which:
(a) requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or
(b) results in a fracture of any bone (except simple fractures of fingers, toes or nose); or
(c) involves lacerations which cause severe haemorrhage, nerve, muscle or tendon damage; or

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(d) involves injury to any internal organ; or
(e) involves second or third degree burns, or any burns affecting more than 5% of the body surface; or
(f) involves verified exposure to infectious substances or injurious radiation

The state of origin: the country in the territory of which the cargo was first loaded on an aircraft.

The state of operator: the country in which the operator has his principal place of business or, if he has no such place of business, his permanent residence.

UN code: the four-digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods to identify a substance or a particular group of substances.

Ground operation agent: person or unit accepting, operating, stowing, transferring cargo, passenger or luggage on behalf of HNA.

Weight and balance staff: in terms of dangerous goods, it refers to personnel appointed by HNA to take charge of :

(a)point out the loading position of dangerous goods on the aircraft;

(b)point out the necessary space between dangerous goods and other dangerous goods, other cargo or passenger on the aircraft;

(c)prepare information for captain;

(d)provide dangerous goods emergency response information for captain

Net quantity: The weight or volume of the dangerous goods contained in a package excluding the weight or volume of any packaging material. For the purposes of this definition “dangerous goods” means the substance or article as described by the proper shipping name shown in Table 4.2,e.g. for “fire extinguishers”. For articles packed with equipment or contained in equipment , the net quantity is the net weight of the article ,e.g. for lithium ion batteries contained in equipment ,the net quantity is the net weight of the lithium ion batteries in the package.

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Appendix B

List of manual management and post responsibilities, list of compilation basis and list of manual interfaces

B.1 List of management responsible persons and post responsible persons of this manual

Serial number	The name of the manual	Manual chapter	Manual section	Responsible person of post	Responsible person for management
1	*Dangerous Goods Transport Manual*	Chapter 0	Chapter 0 Overview	Li Liusen	Guo Yifan
2	*Dangerous Goods Transport Manual*	Chapter 1	Chapter 1 Management of Transport of Dangerous Goods	Li Liusen/Li Jianwei/ Yang Nan	Guo Yifan/ Yang Chenlu
3	*Dangerous Goods Transport Manual*	Chapter 2	Chapter 2 Restrictions on Transport of Dangerous Goods	Li Liusen	Guo Yifan
4	*Dangerous Goods Transport Manual*	Chapter 3	Chapter 3 Classification of dangerous goods	Li Liusen	Guo Yifan
5	*Dangerous Goods Transport Manual*	Chapter 4	Chapter 4 Identification of Dangerous Goods	Li Liusen	Guo Yifan
6	*Dangerous Goods Transport Manual*	Chapter 5	Chapter 5 Dangerous Goods Packaging	Li Liusen	Guo Yifan
7	*Dangerous Goods Transport Manual*	Chapter 6	Chapter 6 Dangerous Goods Label	Li Liusen	Guo Yifan
8	*Dangerous Goods Transport Manual*	Chapter 7	Chapter 7 Transport Documents of Dangerous Goods	Li Liusen	Guo Yifan
9	*Dangerous Goods Transport Manual*	Chapter 8	Chapter 8 Radioactive Substances	Li Liusen	Guo Yifan
10	*Dangerous Goods Transport Manual*	Chapter 9	Chapter 9 Dangerous Goods Collection and Transport	Li Liusen	Guo Yifan

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11	*Dangerous Goods Transport Manual*	Chapter 10	Chapter 10 Storage of Dangerous Goods	Li Liusen	Guo Yifan
12	*Dangerous Goods Transport Manual*	Chapter 11	Chapter 11 Loading of Dangerous Goods	Li Liusen/Chen Wei	Guo Yifan/Feng Er
13	*Dangerous Goods Transport Manual*	Chapter 12	Chapter 12 Delivery of Dangerous Goods	Li Liusen	Guo Yifan
14	*Dangerous Goods Transport Manual*	Chapter 13	Chapter 13 Regulations on the Transport of Dangerous Goods in Baggage	Li Liusen/Huang Ru	Guo Yifan/Dai Yuanfei
15	*Dangerous Goods Transport Manual*	Chapter 14	Chapter 14 Dangerous Goods operation procedures	Li Liusen/Liang Zhenliang	Guo Yifan/Yi Rong
16	*Dangerous Goods Transport Manual*	Chapter 15	Chapter 15 Dangerous goods emergency treatment procedures	Li Liusen/Fu Yuxue/ Huang Zhezong	Guo Yifan/ Liu Jijiao/ Zhou Panfeng
17	*Dangerous Goods Transport Manual*	Chapter A	Appendix A Definitions	Li Liusen	Guo Yifan
18	*Dangerous Goods Transport Manual*	Chapter B	Appendix B Manual management and post responsibility list, compilation basis list, manual interface list	Li Liusen	Guo Yifan
20	*Dangerous Goods Transport Manual*	Chapter C	Appendix C Ministry of Health on printing Notice of the Catalogue of pathogenic microorganisms infected by humans	Li Liusen	Guo Yifan
21	*Dangerous Goods Transport Manual*	Chapter D	Appendix D Instruction from the Ministry of Health of PRC	Li Liusen	Guo Yifan
22	*Dangerous Goods Transport Manual*	Chapter E	Appendix E Company's professional organization for dangerous goods emergency response contact number	Li Liusen	Guo Yifan
23	*Dangerous Goods Transport Manual*	Chapter F	Appendix F for DGR booking and release	Li Liusen	Guo Yifan

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24	*Dangerous Goods Transport Manual*	Chapter G	Appendix G Lithium Battery air transport operation code and emergency methods	Li Liusen	Guo Yifan

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B.2 This manual standard is written according to the checklist

The name of the manual	Serial number	According to the full name of the document	Version number/File number	Date of release/implementation
Dangerous Goods Transport Manual	1	*Technical Instructions for the Safe Transport of Dangerous Goods by Air* (ICAO)	The 2025-2026 edition	Effective January 1, 2025
	2	*Dangerous Goods Regulations*(IATA)	The 2025 edition	Effective January 1, 2025
	3	*Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods* (Red Book)	The 2025-2026 edition	Effective January 1, 2025
	4	*Regulations on the Management of the Transport of Dangerous Goods* by Civil Air CCAR-276-R2and supporting documents	The R2 version	Effective on July 1, 2024
	5	Announcement of the Civil Aviation Administration of China No. 6, 2016: Announcement of the Civil Aviation Administration of China on the release of the Catalogue of Carry-on and Checked Articles Prohibited by Civil Aviation Passengers and the Catalogue of Carry-on and Checked Articles Restricted by Civil Aviation Passengers	The 2017 edition	Effective January 1, 2017
	6	*Guidance for Emergency Handling on Lithium Batteries Onboard*(MD-TR-2025-01)	The 2025 edition	Effective June 4, 2025
	7	*Code for the Carriage of Dangerous Goods by Air by Passengers and Crew*(MH T 1030-2018)	The 2018 edition	Effective June 1, 2018
	8	*Specifications for Aviation Cargo Handling Operations*（AC-275-TR-2023-01）	The 2023 edition	Released on August 9, 2023
	9	*Administrative Procedures for the Air Transport of* Radioactive Materials	The 2024 edition	Released on April 24, 2024

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B.3 List of interfaces in this manual

Serial number	The name of the manual	Manual chapter	Manual section	The interface unit	Interface unit process/program
1	*Dangerous Goods Transport Manual*	Chapter 0 Overview	0.1 President Statement	/	/
2	*Dangerous Goods Transport Manual*	Chapter 0 Overview	0.2 directory	/	/
3	*Dangerous Goods Transport Manual*	Chapter 0 Overview	0.3 Manual Description	/	/
4	*Dangerous Goods Transport Manual*	Chapter 0 Overview	0.4 Manual Management	/	/
5	*Dangerous Goods Transport Manual*	Chapter 0 Overview	0.5 Amendment Notes and Records	/	/
6	*Dangerous Goods Transport Manual*	Chapter 0 Overview	0.6 List of valid pages	/	/
7	*Dangerous Goods Transport Manual*	Chapter 0 Overview	0.7 Distribution Record	/	/
8	*Dangerous Goods Transport Manual*	Chapter 1 Management of Transport of Dangerous Goods	1.1 Definition of Dangerous Goods	/	/
9	*Dangerous Goods Transport Manual*	Chapter 1 Management of Transport of	1.2 General Policy on the transport of dangerous Goods	/	/

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		Dangerous Goods			
10	*Dangerous Goods Transport Manual*	Chapter 1 Management of Transport of Dangerous Goods	1.3 Regulations on the management of dangerous goods carried by the Company	/	/
11	*Dangerous Goods Transport Manual*	Chapter 1 Management of Transport of Dangerous Goods	1.4 Dangerous Goods transport management structure and responsibilities	Flight Department,	*Flight Operations Manual*, Chapter 11 — Passengers and Cargo, and Chapter 12 — Crew Emergency Procedures.
12	*Dangerous Goods Transport Manual*	Chapter 1 Management of Transport of Dangerous Goods	1.5 Shipper's responsibility	/	/
13	*Dangerous Goods Transport Manual*	Chapter 1 Management of Transport of Dangerous Goods	1.6 Responsibilities of HU and its agents	/	/
14	*Dangerous Goods Transport Manual*	Chapter 1 Management of Transport of Dangerous Goods	1.7 Dangerous Goods Transport Training	/	/
15	*Dangerous Goods Transport Manual*	Chapter 1 Management of Transport of Dangerous Goods	1.8 Dangerous Goods Transportation Certificate Management	/	/
16	*Dangerous Goods Transport Manual*	Chapter 1 Management of Transport of Dangerous Goods	1.9 Dangerous Goods Transportation Preparation	/	/
17	*Dangerous Goods Transport Manual*	Chapter 1 Management of Transport of Dangerous Goods	1.10 Provision of dangerous goods transport information	Flight Department, Ground service Management	*Ground Operations Manual*, 4.2.6 Provision of Dangerous Goods Transport Information; *Flight Operations Manual*, 11.18.12 Responsibilities, and

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				Department	12.5 In- flight Emergency Procedures for Dangerous Goods Air Transport.
18	*Dangerous Goods Transport Manual*	Chapter 1 Management of Transport of Dangerous Goods	1.11 Cargo security	Department of Aviation Security	*The Aviation Security Program*, Chapter 15 — Security of Air Cargo and Mail.
19	*Dangerous Goods Transport Manual*	Chapter 1 Management of Transport of Dangerous Goods	1.12 Submission of dangerous goods air transport data	/	/
20	*Dangerous Goods Transport Manual*	Chapter 1 Management of Transport of Dangerous Goods	1.13 Self-audit Policy for Dangerous Goods Management	Safety Supervision Department	*Safety Management Procedures Manual* — Procedure 0322: Safety Corrective Action Management.
21	*Dangerous Goods Transport Manual*	Chapter 1 Management of Transport of Dangerous Goods	1.14 Filing of the Company as a ground agent	/	/
22	*Dangerous Goods Transport Manual*	Chapter 1 Management of Transport of Dangerous Goods	1.15 Management of dangerous goods identification agencies	/	/
23	*Dangerous Goods Transport Manual*	Chapter 2 Restrictions on Transport of Dangerous Goods	2.1 Dangerous goods transported by air are prohibited under any circumstances	/	/
24	*Dangerous Goods Transport Manual*	Chapter 2 Restrictions on Transport of Dangerous Goods	2.2 Dangerous goods prohibited from transport by air which may be transported by exemption	/	/
25	*Dangerous Goods Transport Manual*	Chapter 2 Restrictions on Transport of Dangerous Goods	2.3 Hidden dangerous goods	/	/

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26	*Dangerous Goods Transport Manual*	Chapter 2 Restrictions on Transport of Dangerous Goods	2.4 Exceptional quantity of dangerous goods	/	/
27	*Dangerous Goods Transport Manual*	Chapter 2 Restrictions on Transport of Dangerous Goods	2.5 Restricted quantity of dangerous goods	/	/
28	*Dangerous Goods Transport Manual*	Chapter 2 Restrictions on Transport of Dangerous Goods	2.6 Differences between country and carrier	/	/
29	*Dangerous Goods Transport Manual*	Chapter 2 Restrictions on Transport of Dangerous Goods	2.7 Dangerous goods in the mail	/	/
30	*Dangerous Goods Transport Manual*	Chapter 2 Restrictions on Transport of Dangerous Goods	2.8 Dangerous goods in the carrier's assets (or in on-board supplies)	/	/
31	*Dangerous Goods Transport Manual*	Chapter 2 Restrictions on Transport of Dangerous Goods	2.9 Provisions prohibiting the installed transportation of dangerous goods as general goods	/	/
32	*Dangerous Goods Transport Manual*	Chapter 2 Restrictions on Transport of Dangerous Goods	2.10 Transportation plan for dangerous goods in emergency	/	/
33	*Dangerous Goods Transport Manual*	Chapter 3 Classification of dangerous goods	3.1 General Provisions	/	/
34	*Dangerous Goods Transport Manual*	Chapter 3 Classification of dangerous goods	3.2 Classification	/	/
35	*Dangerous Goods Transport Manual*	Chapter 3 Classification of dangerous goods	3.3 Packaging grade	/	/

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36	*Dangerous Goods Transport Manual*	Chapter 3 Classification of dangerous goods	3.4 Category 1- -explosives	/	/
37	*Dangerous Goods Transport Manual*	Chapter 3 Classification of dangerous goods	3.5 Category 2- -Gas	/	/
38	*Dangerous Goods Transport Manual*	Chapter 3 Classification of dangerous goods	3.6 Category 3-Flammable liquid	/	/
39	*Dangerous Goods Transport Manual*	Chapter 3 Classification of dangerous goods	3.7 Category 4- -Flammable solids, substances prone to spontaneous combustion, and substances that release flammable gases in case of water	/	/
40	*Dangerous Goods Transport Manual*	Chapter 3 Classification of dangerous goods	3.8 Category 5- -Oxidative substances and organic peroxides	/	/
41	*Dangerous Goods Transport Manual*	Chapter 3 Classification of dangerous goods	3.9 Category 6-Toxicity and infectious substances	/	/
42	*Dangerous Goods Transport Manual*	Chapter 3 Classification of dangerous goods	3.1 Category 7- -Radioactive substances	/	/
43	*Dangerous Goods Transport Manual*	Chapter 3 Classification of dangerous goods	3.11 Category 8- -Corrosive substances	/	/
44	*Dangerous Goods Transport Manual*	Chapter 3 Classification of dangerous goods	3.12 Category 9 — Miscellaneous hazardous substances and articles	/	/
45	*Dangerous Goods*	Chapter 3 Classification of dangerous goods	3.13 Classification of multiple hazardous articles / substances	/	/

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46	*Dangerous Goods Transport Manual*	Chapter 4 Identification of Dangerous Goods	4.1 Selection of the special name for dangerous goods transportation	/	/
47	*Dangerous Goods Transport Manual*	Chapter 4 Identification of Dangerous Goods	4.2 Mixtures and solutions containing dangerous goods	/	/
48	*Dangerous Goods Transport Manual*	Chapter 4 Identification of Dangerous Goods	4.3 Non-restricted items	/	/
49	*Dangerous Goods Transport Manual*	Chapter 4 Identification of Dangerous Goods	4.4 Limited quantity of dangerous goods	/	/
50	*Dangerous Goods Transport Manual*	Chapter 4 Identification of Dangerous Goods	4.5 Use of hazardous goods table	/	/
51	*Dangerous Goods Transport Manual*	Chapter 5 Dangerous Goods Packaging	5.1 The Shipper's Liability	/	/
52	*Dangerous Goods Transport Manual*	Chapter 5 Dangerous Goods Packaging	5.2 Identification of the United Nations (UN) specification package	/	/
53	*Dangerous Goods Transport Manual*	Chapter 5 Dangerous Goods Packaging	5.3 General packaging requirements	/	/
54	*Dangerous Goods Transport Manual*	Chapter 5 Dangerous Goods Packaging	5.4 Limited quantity and packaging requirements	/	/
55	*Dangerous Goods*	Chapter 5 Dangerous Goods Packaging	5.5 Normal conditions for air transport	/	/

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56	*Dangerous Goods Transport Manual*	Chapter 5 Dangerous Goods Packaging	5.6 Packaging instructions	/	/
57	*Dangerous Goods Transport Manual*	Chapter 6 Dangerous Goods Label	6.1 General Provisions	/	/
58	*Dangerous Goods Transport Manual*	Chapter 6 Dangerous Goods Label	6.2 Marking	/	/
59	*Dangerous Goods Transport Manual*	Chapter 6 Dangerous Goods Label	6.3 Tags	/	/
60	*Dangerous Goods Transport Manual*	Chapter 6 Dangerous Goods Label	6.4 Label Specification	/	/
61	*Dangerous Goods Transport Manual*	Chapter 6 Dangerous Goods Label	6.5 Operation Label	/	/
62	*Dangerous Goods Transport Manual*	Chapter 7 Transport Documents of Dangerous Goods	7.1 General Provisions	/	/
63	*Dangerous Goods Transport Manual*	Chapter 7 Transport Documents of Dangerous Goods	7.2 The Shipper Dangerous Goods Declaration Form	/	/
64	*Dangerous Goods Transport Manual*	Chapter 7 Transport Documents of Dangerous Goods	7.3, Freight slip	/	/
65	*Dangerous Goods*	Chapter 7 Transport Documents of	7.4 Collection and transportation inspection list	/	/

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	Transport Manual	Dangerous Goods			
66	*Dangerous Goods Transport Manual*	Chapter 7 Transport Documents of Dangerous Goods	7.5 Notice of Special cargo Captain	/	/
67	*Dangerous Goods Transport Manual*	Chapter 7 Transport Documents of Dangerous Goods	7.6 Storage period of the document	/	/
68	*Dangerous Goods Transport Manual*	Chapter 8 Radioactive Substances	8.1 General Provisions	/	/
69	*Dangerous Goods Transport Manual*	Chapter 8 Radioactive Substances	8.2 Transportation restrictions	/	/
70	*Dangerous Goods Transport Manual*	Chapter 8 Radioactive Substances	8.3 Classification	/	/
71	*Dangerous Goods Transport Manual*	Chapter 8 Radioactive Substances	8.4 Identification	/	/
72	*Dangerous Goods Transport Manual*	Chapter 8 Radioactive Substances	8.5 Packaging	/	/
73	*Dangerous Goods Transport Manual*	Chapter 8 Radioactive Substances	8.6 Marking and labeling	/	/
74	*Dangerous Goods Transport Manual*	Chapter 8 Radioactive Substances	8.7 Documents	/	/
75	*Dangerous Goods*	Chapter 8 Radioactive Substances	8.8 Tag Examples of Radioactive Material	/	/

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76	*Dangerous Goods Transport Manual*	Chapter 9 Dangerous Goods Collection and Transport	9.1 General Provisions	/	/
77	*Dangerous Goods Transport Manual*	Chapter 9 Dangerous Goods Collection and Transport	9.2 General requirements for receiving and transporting dangerous goods	/	/
78	*Dangerous Goods Transport Manual*	Chapter 9 Dangerous Goods Collection and Transport	9.3 Special requirements for receiving and transporting dangerous goods	/	/
79	*Dangerous Goods Transport Manual*	Chapter 9 Dangerous Goods Collection and Transport	9.4 Collection and shipping procedures	/	/
80	*Dangerous Goods Transport Manual*	Chapter 9 Dangerous Goods Collection and Transport	9.5 Fees	/	/
81	*Dangerous Goods Transport Manual*	Chapter 10 Storage of Dangerous Goods	10.1, General Provisions	/	/
82	*Dangerous Goods Transport Manual*	Chapter 10 Storage of Dangerous Goods	10.2 Facilities and management of dangerous goods warehouse	/	/
83	*Dangerous Goods Transport Manual*	Chapter 10 Storage of Dangerous Goods	10.3 Storage of dangerous goods	/	/
84	*Dangerous Goods Transport Manual*	Chapter 10 Storage of Dangerous Goods	10.4 Ground service agent temporary storage of dangerous goods management provisions	/	/
85	*Dangerous Goods*	Chapter 11 Loading of Dangerous Goods	11.1, Loading principle	/	/

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	Transport Manual				
86	*Dangerous Goods Transport Manual*	Chapter 11 Loading of Dangerous Goods	11.2. Loading requirements	/	/
87	*Dangerous Goods Transport Manual*	Chapter 11 Loading of Dangerous Goods	11.3 ULD Tag and Special Load Notification to Captain	/	/
88	*Dangerous Goods Transport Manual*	Chapter 11 Loading of Dangerous Goods	11.4 Regulations for Cargo Compartment Code, Position and Total Approved TI of Radioactive Material	/	/
89	*Dangerous Goods Transport Manual*	Chapter 11 Loading of Dangerous Goods	11.5 Uninstallation requirements	/	/
90	*Dangerous Goods Transport Manual*	Chapter 11 Loading of Dangerous Goods	11.6 The Telegraph	/	/
91	*Dangerous Goods Transport Manual*	Chapter 12 Delivery of Dangerous Goods	12.1, General Provisions	/	/
92	*Dangerous Goods Transport Manual*	Chapter 12 Delivery of Dangerous Goods	12.2. Delivery Notice	/	/
93	*Dangerous Goods Transport Manual*	Chapter 12 Delivery of Dangerous Goods	12.3, Delivery Procedure	/	/
94	*Dangerous Goods Transport Manual*	Chapter 12 Delivery of Dangerous Goods	12.4 Transport accident record	/	/

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95	*Dangerous Goods Transport Manual*	Chapter 13 Regulations on the Transport of Dangerous Goods in Baggage	13.1, General Provisions	/	/
96	*Dangerous Goods Transport Manual*	Chapter 13 Regulations on the Transport of Dangerous Goods in Baggage	13.2 Provisions on the articles carried by the passenger and crew	/	/
97	*Dangerous Goods Transport Manual*	Chapter 13 Regulations on the Transport of Dangerous Goods in Baggage	13.3 Provisions of CAAC on dangerous goods in luggage	/	/
98	*Dangerous Goods Transport Manual*	Chapter 13 Regulations on the Transport of Dangerous Goods in Baggage	13.4 Baggage reception work	Ground Service Management Department, Cabin Department	*Ground Operations Manual* — Section 4.2 Baggage Transportation Restrictions, Section 8.8 Dangerous Goods Handling; Sections 3.1.2.3 Information Notification Standards, 3.2.3 Domestic Check- in, 3.2.4 International Check- in, and 4.2.1 General Provisions; *Cabin Crew Manual* Chapter 8.
99	*Dangerous Goods Transport Manual*	Chapter 13 Regulations on the Transport of Dangerous Goods in Baggage	13.5 Notification and publicity of passengers	/	/
	Dangerous Goods Transport Manual	Chapter 13 Regulations on the Transport of Dangerous Goods in Baggage	13.6 Special Baggage Notice to Captain	Ground Service Management	*Ground Operations Manual,* Section 12.2.2.38, Captain's Notification for Special Baggage.
100	*Dangerous Goods Transport Manual*	Chapter 14 Dangerous Goods Operation Regulations	14.1, Working procedure	/	/
101	*Dangerous Goods*	Chapter 14 Dangerous Goods Operation	14.2 Shipper qualification management	Ground Service Management	*Cargo Transportation Manual* — Section 15.13, Integrity Management.

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	Transport Manual	Regulations			
102	*Dangerous Goods Transport Manual*	Chapter 14 Dangerous Goods Operation Regulations	14.3 Dangerous goods operation procedure	/	/
103	*Dangerous Goods Transport Manual*	Chapter 15 Dangerous goods emergency treatment procedures	15.1 General	Flight Department	*Flight Operations Manual* — Chapter 12: Crew Emergency Procedures.
104	*Dangerous Goods Transport Manual*	Chapter 15 Dangerous goods emergency treatment procedures	15.2 Basic Knowledge and Emergency Equipment	/	/
105	*Dangerous Goods Transport Manual*	Chapter 15 Dangerous goods emergency treatment procedures	15.3 Determination and report for DG transport event	Safety supervision department	*Dangerous Goods Safety Management Manual* — Section 5.4, Incident Reporting Procedures; *Safety Management Procedures Manual* — Procedure 0313, Mandatory Reporting Information Management Work Procedures (Section 6.3, Mandatory Reporting Information Management).
106	*Dangerous Goods Transport Manual*	Chapter 15 Dangerous goods emergency treatment procedures	15.4 The Report and Disposal for Abnormal Transportation	Flight Department, Cabin Department, Operation control Department	*Flight Operations Manual* — Section 12.5, In- flight Emergency Procedures for Dangerous Goods Air Transport; *Cabin Management Department Dangerous Goods Operation Quick Reference Guide*; *Emergency Response Manual* — Section 1.4.1, Sample Reference for Safety Emergency Response Classification Index; Section 1.5, Procedures for Emergency Response Initiation, Handling, and Termination; *Emergency Response Plan Operations Manual* — Section 3.3, Information Reporting; Section 4.6, Dangerous Goods Emergency Incident Emergency Handling Checklist; Section 4.8, In- flight Fire Emergency Handling Checklist; and Appendix C.

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107	*Dangerous Goods Transport Manual*	Chapter 15 Dangerous goods emergency treatment procedures	15.5 Report and Disposal of General Dangerous Goods event on Ground	operation control Department	*Emergency Response Plan Operations Manual* — Section 3.3, Information Reporting.
108	*Dangerous Goods Transport Manual*	Chapter 15 Dangerous goods emergency treatment procedures	15.6 Guidelines for the Emergency Treatment of Dangerous Goods	/	/
109	*Dangerous Goods Transport Manual*	Chapter 15 Dangerous goods emergency treatment procedures	15.7 Common Dangerous Goods Emergency Actions (Classified by poisoning material)	/	/
110	*Dangerous Goods Transport Manual*	Chapter 15 Dangerous goods emergency treatment procedures	15.8 Reporting of Dangerous Goods Violations	/	/
111	*Dangerous Goods Transport Manual*	Chapter 15 Dangerous goods emergency treatment procedures	15.9 Attachment	/	/
112	*Dangerous Goods Transport Manual*	Appendix	Appendix A Definition	/	/
113	*Dangerous Goods Transport Manual*	Appendix	Appendix B List of manual management and post responsibilities, list of compilation basis and list of manual interfaces	/	/
114	*Dangerous Goods Transport Manual*	Appendix	Appendix C Ministry of Health on printing Notice of the Catalogue of pathogenic microorganisms infected by humans	/	/
115	*Dangerous Goods Transport Manual*	Appendix	Appendix D Instruction from the Ministry of Health of PRC Number 45	/	/
116	*Dangerous Goods*	Appendix	Appendix E Company Contact List for Dangerous Goods Emergency	/	/

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	Transport Manual		Response		
117	*Dangerous Goods Transport Manual*	Appendix	Appendix F Reservation and Distribution of the Dangerous Goods Regulations	/	/
118	*Dangerous Goods Transport Manual*	Appendix	Appendix G Lithium battery air transport guide and emergency operations	Flight Department, Cabin Department,	*Flight Operations Manual* — Section 12.5.4, Handling of In- flight Dangerous Goods Incidents by the Flight Crew; *Cabin Crew Manual* — Section 3.6.18, Prohibition and Restriction of Portable Electronic Devices; *Cabin Management Department Dangerous Goods Operation Quick Reference Guide.*

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Appendix C

Ministry of Health on printing

Notice of the Catalogue of pathogenic microorganisms infected by humans

Health commissions of all provinces, autonomous regions, municipalities directly under the Central Government and the CPC and Xinjiang Production and Construction Corps:

To strengthen the pathogenic microbe laboratory biological safety management, pathogenic microorganism experiment activities, bacteria (poison) and sample transportation, according to the law of the People's Republic of China and the regulations of the administration of biological safety, by commission in the list of human pathogenic microorganisms (who education hair [2006, no. 15), on the basis of the organization formulated the catalogue of human pathogenic microorganisms. It is now printed and distributed to you for your compliance. For any problems encountered in the implementation, please give timely feedback to our committee.

As of the date of issuance of this Circular, the List of human infected pathogenic microorganisms (No.15,2006) shall be abolished.

Attachment: 1. List of front cover. doc

2. List of pathogenic microorganisms. doc

Health Ministry of the People's Republic of China

18th August, 2023

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The World Infectious Pathogeny Animalcule Name List

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Established by the Health Ministry of the People's Republic of China

18th August, 2023

Table 1. Virus Classification Name List

No.	病毒名称			Classification of hazard degree	实验活动所需实验室等级					运输包装分类 [f]		Remarks
	Chinese name	English name	Classification status		virus culture [a]	Animal infection experiments [b]	Operation of the uncultured infected material [c]	Operation of the inactivated material [d]	Operation without infectious material [e]	A/B	UN Number	
1	类天花病毒	*Alastrim virus*	痘病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	
2	天花病毒	*Variola virus*	痘病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	有疫苗.
3	猴痘病毒 [g]	*Mpox virus*	痘病毒科	第一类	BSL-3	ABSL-3	BSL-2	BSL-2	BSL-1	A	UN2814	
4	亨德拉病毒	*Hendra virus*	副黏病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	
5	尼帕病毒	*Nipah virus*	副黏病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	
6	希普尔病毒	*Hypr virus*	黄病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	
7	库姆灵厄病毒	*Kumlinge virus*	黄病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	
8	卡萨诺尔森林病病毒	*Kyasanur Forest disease virus*	黄病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	
9	跳跃病病毒	*Louping ill virus*	黄病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	
10	汉扎罗瓦病毒	*Hanzalova virus*	黄病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	

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No.	病毒名称			Classification of hazard degree	实验活动所需实验室等级					运输包装分类 [f]		Remarks
	Chinese name	English name	Classification status		virus culture [a]	Animal infection experiments [b]	Operation of the uncultured infected material [c]	Operation of the inactivated material [d]	Operation without infectious material [e]	A/B	UN Number	
11	鄂木斯克出血热病毒	*Omsk hemorrhagic fever virus*	黄病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	
12	圣路易斯脑炎病毒	*St.Louis encephalitis virus*	黄病毒科	第一类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
13	蜱传脑炎病毒 [h]	*Tick-borne encephalitis virus*	黄病毒科	第一类	BSL-3	ABSL-3	BSL-3	BSL-1	BSL-1	A	UN2814	有疫苗.仅病毒培养物为A类.
14	黄热病毒	*Yellow fever virus*	黄病毒科	第一类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	有疫苗.仅病毒培养物为A类.
15	克里米亚—刚果出血热病毒(新疆出血热病毒)	*Crimean-Congo hemorrhagic fever virus (Xinjiang hemorrhagic fever virus)*	内罗病毒科	第一类	BSL-3	ABSL-3	BSL-3	BSL-2	BSL-1	A	UN2814	
16	猴疱疹病毒	*Herpesvirus simiae*	疱疹病毒科	第一类	BSL-3	ABSL-3	BSL-2	BSL-2	BSL-1	A	UN2814	仅病毒培养物为A类.
17	东方马脑炎病毒	*Eastern equine encephalitis virus*	披膜病毒科	第一类	BSL-3	ABSL-3	BSL-3	BSL-2	BSL-1	A	UN2814	仅病毒培养物为A类.
18	委内瑞拉马脑炎病毒	*Venezuelan equine encephalitis virus*	披膜病毒科	第一类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
19	西方马脑炎病毒	*Western equine encephalitis virus*	披膜病毒科	第一类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
20	弗莱克索尔病毒	*Flexal virus*	沙粒病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	

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No.	病毒名称			Classification of hazard degree	实验活动所需实验室等级					运输包装分类 [f]		Remarks
	Chinese name	English name	Classification status		virus culture [a]	Animal infection experiments [b]	Operation of the uncultured infected material [c]	Operation of the inactivated material [d]	Operation without infectious material [e]	A/B	UN Number	
21	鸠宁病毒	*Junin virus*	沙粒病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	
22	瓜纳瑞托病毒	*Guanarito virus*	沙粒病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	
23	拉沙热病毒	*Lassa fever virus*	沙粒病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	
24	马秋波病毒	*Machupo virus*	沙粒病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	
25	莫佩亚病毒(和其他塔卡里伯病毒)	*Mopeia virus (and other Tacaribe viruses)*	沙粒病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	
26	萨比亚病毒	*Sabia virus*	沙粒病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	
27	塔卡里伯病毒	*Tacaribe virus*	沙粒病毒科	第一类	BSL-4	ABSL-4	BSL-2	BSL-2	BSL-1	A	UN2814	
28	埃博拉病毒	*Ebola virus*	丝状病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	
29	马尔堡病毒	*Marburg virus*	丝状病毒科	第一类	BSL-4	ABSL-4	BSL-3	BSL-2	BSL-1	A	UN2814	
30	大别班达病毒(发热伴血小板减少综合征病毒)	*Dabie bandavirus (SFTS Virus)*	白蛉纤细病毒科	第二类	BSL-2	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	仅病毒培养物为 A 类.
31	戈尔迪病毒	*Gordil virus*	白蛉纤细病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	

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No.	病毒名称			Classification of hazard degree	实验活动所需实验室等级					运输包装分类 [f]		Remarks
	Chinese name	English name	Classification status		virus culture [a]	Animal infection experiments [b]	Operation of the uncultured infected material [c]	Operation of the inactivated material [d]	Operation without infectious material [e]	A/B	UN Number	
32	哈特兰病毒	*Heartland bandavirus*	白蛉纤细病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	仅病毒培养物为 A 类.
33	伊泰图巴病毒	*Itaituba virus*	白蛉纤细病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
34	哈桑病毒	*Khasan virus*	白蛉纤细病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
35	拉兹丹病毒	*Razdan virus*	白蛉纤细病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
36	裂谷热病毒	*Rift valley fever virus*	白蛉纤细病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
37	加尔巴病毒	*Garba virus*	弹状病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
38	狂犬病病毒(街毒)	*Rabies virus (street virus)*	弹状病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
39	罗尚博病毒	*Rochambeau virus*	弹状病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
40	伊年加皮病毒	*Inhangapi virus*	弹状病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
41	中东呼吸综合征冠状病毒(MERS 冠状病毒)	*Middle East Respiratory Syndrome coronavirus (MERS-CoV)*	冠状病毒科	第二类	BSL-3	ABSL-3	BSL-3	BSL-2	BSL-1	A	UN2814	

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	Chinese name	English name	Classification status		virus culture [a]	Animal infection experiments [b]	Operation of the uncultured infected material [c]	Operation of the inactivated material [d]	Operation without infectious material [e]	A/B	UN Number	
42	严重急性呼吸综合征冠状病毒(SARS 冠状病毒)	*Severe acute respiratory syndrome coronavirus (SARS-CoV)*	冠状病毒科	第二类	BSL-3	ABSL-3	BSL-3	BSL-2	BSL-1	A	UN2814	
43	新型冠状病毒 [i]	*Severe acute respiratory syndrome coronavirus 2, (SARS-CoV-2)*	冠状病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-2	BSL-1	A	UN2814	
44	引起肺综合征的汉坦病毒	*Hantaviruses causing pulmonary syndrome*	汉坦病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	仅病毒培养物为 A 类.
45	引起肾综合征出血热的汉坦病毒	*Hantaviruses causing hemorrhagic fever with renal syndrome*	汉坦病毒科	第二类	BSL-2	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	有疫苗.仅病毒培养物为 A 类.
46	乙型脑炎病毒(日本脑炎病毒)	*Japanese encephalitis virus*	黄病毒科	第二类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	A	UN2814	有疫苗.仅病毒培养物为 A 类.
47	墨累谷脑炎病毒	*Murray valley encephalitis virus*	黄病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
48	根岸病毒	*Negishi virus*	黄病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
49	波瓦森病毒	*Powassan virus*	黄病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	

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	Chinese name	English name	Classification status		virus culture [a]	Animal infection experiments [b]	Operation of the uncultured infected material [c]	Operation of the inactivated material [d]	Operation without infectious material [e]	A/B	UN Number	
50	罗西奥病毒	*Rocio virus*	黄病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
51	塞皮克病毒	*Sepik virus*	黄病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
52	西尼罗病毒	*West Nile virus*	黄病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	仅病毒培养物为 A 类.
53	伊塞克病毒	*Issyk-Kul virus*	内罗病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
54	内罗毕绵羊病病毒	*Nairobi sheep disease virus*	内罗病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
55	萨哈林病毒(幌筵岛病毒)	*Sapphire orthonairovirus (Paramushir virus)*	内罗病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
56	塔姆德病毒	*Tamdy virus*	内罗病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
57	人免疫缺陷病毒(Ⅰ型和Ⅱ型)[i]	*Human immunodeficiency virus (HIV) (Type 1 and 2 virus)*	逆转录病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	仅病毒培养物为 A 类.
58	猴免疫缺陷病毒	*Simian immunodeficiency virus (SIV)*	逆转录病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
59	基孔肯雅病毒	*Chikungunya virus*	披膜病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	

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No.	病毒名称			Classification of hazard degree	实验活动所需实验室等级					运输包装分类 [f]		Remarks
	Chinese name	English name	Classification status		virus culture [a]	Animal infection experiments [b]	Operation of the uncultured infected material [c]	Operation of the inactivated material [d]	Operation without infectious material [e]	A/B	UN Number	
60	埃弗格莱兹病毒	*Everglades virus*	披膜病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
61	库孜拉加奇病毒	*Kyzylagach virus*	披膜病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
62	马亚罗病毒	*Mayaro virus*	披膜病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
63	米德尔堡病毒	*Middelburg virus*	披膜病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
64	穆坎布病毒	*Mucambo virus*	披膜病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
65	恩杜姆病毒	*Ndumu virus*	披膜病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
66	鹭山病毒	*Sagiyama virus*	披膜病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
67	淋巴细胞脉络丛脑膜炎(嗜神经性的)病毒	*Lymphocytic choriomeningitis (neurotropic) virus*	沙粒病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
68	脊髓灰质炎病毒 [k]	*Polio virus*	小 RNA 病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	见注.
69	多里病毒	*Dhori virus*	正黏病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
70	高致病性禽流感病毒	*High pathogenic avian influenza virus*	正黏病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	仅病毒培养物为 A 类.

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71	加利福尼亚脑炎病毒	*California encephalitis virus*	周布尼亚病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
72	格米斯顿病毒	*Germiston virus*	周布尼亚病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
73	伊尼尼病毒(辛布正布尼亚病毒)	*Inini virus (Simbu orthobunyavirus)*	周布尼亚病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
74	奥罗普切病毒	*Oropouche virus*	周布尼亚病毒科	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
75	白蛉热病毒	*Sandfly fever virus*	白蛉纤细病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
76	诺如病毒	*Norovirus*	杯状病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
77	札如病毒	*Sapovirus*	杯状病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
78	费兰杜病毒	*Flanders virus*	弹状病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
79	哈特帕克病毒	*Hart Park virus*	弹状病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
80	狂犬病病毒(固定毒)	*Rabies virus (fixed virus)*	弹状病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
81	水疱性口炎病毒	*Vesicular stomatitis virus*	弹状病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	A	UN2900	
82	水牛痘病毒	*Buffalopox virus*	痘病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	

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83	骆驼痘病毒	*Camelpox virus*	痘病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
84	牛痘病毒	*Cowpox virus*	痘病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
85	传染性软疣病毒	*Molluscum contagiosum virus*	痘病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
86	口疮病毒	*Orf virus*	痘病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
87	假牛痘病毒(挤奶工结节病毒)	*Pseudocowpox virus (Milker's nodule virus)*	痘病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
88	兔痘病毒	*Rabbitpox virus*	痘病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
89	塔那痘病毒	*Tanapox virus*	痘病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
90	痘苗病毒	*Vaccinia virus*	痘病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
91	多瘤病毒	*Polyoma virus*	多瘤病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
92	猴病毒 40	*Simian virus 40*	多瘤病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
93	偏肺病毒	*Metapneumovirus*	肺炎病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	

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94	呼吸道合胞病毒	*Respiratory syncytial virus*	肺炎病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
95	风疹病毒	*Rubivirus (Rubella)*	马氏病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
96	麻疹病毒	*Measles virus*	副黏病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
97	流行性腮腺炎病毒	*Mumps virus*	副黏病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
98	副流感病毒	*Parainfluenza virus*	副黏病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
99	仙台病毒(鼠副流感病毒 1 型)	*Sendai virus (murine parainfluenza virus type 1)*	副黏病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
100	冠状病毒(低致病性)	*Coronavirus (low pathogenicity to human)*	冠状病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	系指低致病性冠状病毒如HCoV-OC43,HCoV-NL63,HCoV-229E,HCoV-HKU1等.
101	柯尔替病毒	*Coltivirus*	呼肠孤病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
102	轮状病毒	*Rotavirus*	呼肠孤病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	部分不能培养(如 B 组).

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103	登革病毒	*Dengue virus*	黄病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
104	黄病毒(非高致病性)	*Flaviviruses,other known non-highly pathogenic*	黄病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	系指已知的非高致病性黄病毒.
105	丙型肝炎病毒	*Hepatitis C virus*	黄病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
106	昆津病毒	*Kunjin virus*	黄病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
107	兰加特病毒	*Langat virus*	黄病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
108	索马里兹礁病毒	*Sammarez Reef virus*	黄病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
109	黄热病毒(疫苗株,17D)	*Yellow fever virus, (vaccine strain, 17D)*	黄病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
110	寨卡病毒	*Zika Virus*	黄病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
111	哈扎拉病毒	*Hazara virus*	内罗病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
112	人T细胞白血病病毒	*Human T-lymphotropic virus* (HTLV)	逆转录病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	

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113	慢病毒(非高致病性)	*Lentivirus (Non highly pathogenic)*	逆转录病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
114	巨细胞病毒	*Cytomegalovirus*	疱疹病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
115	EB 病毒	*Epstein-Barr virus*	疱疹病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
116	单纯疱疹病毒	*Herpes simplex virus*	疱疹病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
117	松鼠猴疱疹病毒	*Herpesvirus saimiri*	疱疹病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
118	人疱疹病毒 6 型	*Human herpes virus-6*	疱疹病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
119	人疱疹病毒 7 型	*Human herpes virus-7*	疱疹病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
120	人疱疹病毒 8 型	*Human herpes virus-8*	疱疹病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
121	水痘－带状疱疹病毒	*Varicella-Zoster virus*	疱疹病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
122	甲病毒(非高致病性)	*Alphaviruses, other known non-highly pathogenic*	披膜病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
123	巴尔马森林病毒	*Barmah forest virus*	披膜病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	

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124	比巴鲁病毒	*Bebaru virus*	披膜病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
125	盖塔病毒	*Getah virus*	披膜病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-2	BSL-1	B	UN3373	
126	阿尼昂-尼昂病毒	*O'nyong-nyong virus*	披膜病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
127	罗斯河病毒	*Ross river virus*	披膜病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
128	塞姆利基森林病毒	*Semliki forest virus*	披膜病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	A	UN2814	
129	辛德毕斯病毒	*Sindbis virus*	披膜病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
130	人乳头瘤病毒	*Papillomavirus (human)*	乳头瘤病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	目前不能培养.
131	淋巴细胞性脉络丛脑膜炎病毒(亲内脏型)	*Lymphocytic choriomeningitis virus*	沙粒病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
132	乙型肝炎病毒	*Hepatitis B virus*	嗜肝 DNA 病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	A	UN2814	目前不能培养,但有产毒细胞系.仅细胞培养物为 A 类.
133	丁型肝炎病毒	*Hepatitis D virus*	卫星病毒	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	

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134	戊型肝炎病毒	*Hepatitis E virus*	戊型肝炎病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
135	腺病毒伴随病毒	*Adeno-associated virus*	细小病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
136	博卡病毒	*Bocavirus*	细小病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
137	细小病毒 B19	*Parvovirus B19*	细小病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
138	腺病毒	*Adenovirus*	腺病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
139	心病毒 [l]	*Cardiovirus*	小 RNA 病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
140	柯萨奇病毒	*Coxsakie virus*	小 RNA 病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
141	埃可病毒	*ECHO virus*	小 RNA 病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
142	肠道病毒 [l]	*Enterovirus*	小 RNA 病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	系指脊髓灰质炎病毒、肠道病毒 A71 型、柯萨奇病毒、埃可病毒之外的其他肠道病毒.
143	肠道病毒 A71 型	*Enterovirus A-71*	小 RNA 病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	

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144	甲型肝炎病毒	*Hepatitis A virus*	小 RNA 病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
145	库赛病毒 [l]	*Human Cosavirus*	小 RNA 病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
146	嵴病毒 [l]	*Kobuvirus*	小 RNA 病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
147	副肠孤病毒	*Parechovirus*	小 RNA 病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
148	鼻病毒	*Rhinovirus*	小 RNA 病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
149	星状病毒	*Astrovirus*	星状病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
150	流行性感冒病毒(非 H2N2 流感病毒)	*Influenza virus*	正黏病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	包括甲、乙和丙型.根据 WHO 建议,H2N2 亚型病毒应提高防护等级.
	甲型流行性感冒病毒 H2N2 流感病毒	*Influenza virus*	正黏病毒科	第三类	BSL-3	ABSL-3	BSL-2	BSL-1	BSL-1	A	UN2814	
151	瓜纳图巴病毒	*Guaratuba virus*	周布尼亚病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
152	拉克罗斯病毒	*La Crosse virus*	周布尼亚病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
153	塔黑纳病毒	*Tahyna orthobunyavirus*	周布尼亚病毒科	第三类	BSL-2	BSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	

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154	藤索病毒	*Tensaw virus*	周布尼亚病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
155	特洛克病毒	*Turlock virus*	周布尼亚病毒科	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	BSL-1	B	UN3373	
156	金黄地鼠白血病病毒	*Hamster leukemia virus*	逆转录病毒科	第四类	BSL-1	ABSL-1	BSL-1	BSL-1	BSL-1	B	UN3373	
157	小鼠白血病病毒	*Mouse leukemia virus*	逆转录病毒科	第四类	BSL-1	ABSL-1	BSL-1	BSL-1	BSL-1	B	UN3373	
158	小鼠乳腺瘤病毒	*Mouse mammary tumor virus*	逆转录病毒科	第四类	BSL-1	ABSL-1	BSL-1	BSL-1	BSL-1	B	UN3373	
159	大鼠白血病病毒	*Rat leukemia virus*	逆转录病毒科	第四类	BSL-1	ABSL-1	BSL-1	BSL-1	BSL-1	B	UN3373	
160	豚鼠疱疹病毒	*Guinea pig herpes virus*	疱疹病毒科	第四类	BSL-1	ABSL-1	BSL-1	BSL-1	BSL-1	B	UN3373	

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Appendix: Prion

序号	Disease Chinese name	Disease English name	extent of injury classify	实验活动所需实验室等级			运输包装分类[f]		Remarks
				tissue culture	zoogenetic infection	Detection of the infectious material	A/B	UN number	
1	牛海绵状脑病	*Bovine spongiform encephalopathy (BSE)*	第二类	BSL-3	ABSL-3	BSL-2	B	UN3373	需要有 134℃高压灭菌条件.
2	克雅病	*Creutzfeldt-Jacob disease (CJD)*	第二类	BSL-2	ABSL-3	BSL-2	B	UN3373	需要有 134℃高压灭菌条件.
3	家族性致死性失眠症	*Fatal familian insomnia (FFI)*	第二类	BSL-2	ABSL-2	BSL-2	B	UN3373	需要有 134℃高压灭菌条件.ABSL-2 实验室仅开展啮齿类实验动物的实验活动.
4	吉斯特曼-斯召斯列综合征	*Gerstmann-Straussler-Scheinker syndrome (GSS)*	第二类	BSL-2	ABSL-2	BSL-2	B	UN3373	需要有 134℃高压灭菌条件.ABSL-2 实验室仅开展啮齿类实验动物的实验活动.
5	库鲁病	*Kuru disease*	第二类	BSL-3	ABSL-3	BSL-2	B	UN3373	需要有 134℃高压灭菌条件.
6	变异型克雅病	*Variant Creutzfeldt-Jacob disease (vCJD)*	第二类	BSL-3	ABSL-3	BSL-2	B	UN3373	需要有 134℃高压灭菌条件.
7	痒病	*Scrapie*	第三类	BSL-2	ABSL-2	BSL-2	B	UN3373	需要有 134℃高压灭菌条件.ABSL-2 实验室仅开展啮齿类实验动物的实验活动.

Note:BSL-n/ABSL-n: Different Biological safety degree laboratory/animal laboratory

a. Virus Cultivation: Referring to the separation, cultivation, titration, neutralization, the sublimation of living virus and its protein, virus freeze-dry and regrouping test which may produce living viruses.Using living viruses or its infectious cells (or cell distilling substances) without biochemical analysis under inactivation condition, serology test, immunology test etc. is taken as Virus cultivation. When using virus cultivation substances to get nucleic acids, the adding of cracking agent and inactivator must be in the same degree laboratory and protection as virus cultivation. After the adding of cracking agent or inactivator, the operation can be carried out by comparing with the non-cultivation infectious material protection degree.

b. Animal infection experiment:Referring to the animal experiment infected by living virus.

c. Non-cultivation infectious material operation: Referring to the operations such as antigen test, serology test, nucleic acid test and biochemical analysis before reliable inactivation of the non-cultivation infectious material. If without reliable inactivation or settled people and animal organ sample may have high-level viruses, the protection degree should be compared with viruses cultivation.

d. nactivation material operation: Referring to the operations without pathogenicity living viruses such as virus antigen test, serology test, nucleic acid test, biochemical analysis and molecule biological experiments after taking reliable way for inactivatin of the infectious material or living viruses.

e. Operations of non infectious material: Referring to each operation of non-infectious material identification, include but not limited to non-infectious virus DNA or cDNA operation.

f. Transportation packaging classification: According to ICAO Doc9284 TI packaging classification requirements, the related pathogeny and samples are divided into Class A and B, the related UN numbers are UN 2814 (Animal virus is UN2900) and UN 3373. If there is no mark “only limited to virus cultivation substance”, the infectious substances of Class A should include all the materials related to this virus. For the viruses with B class mark and its related samples shall be packaged and transported by air according to the requirements of UN3373. For the transportation by other tools, you may refer to the above standards for packaging.

g. Here refer to the TBEV IgG spread in Eurasian area, Russian Spring and Autumn encephalitis and middle Europe TBVE

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IgG.

Poliomyelitis Virus:Here only list general guidance principles. The operation for poliomyelitis virus street strain should comply with the related regulations of Sanitary Ministry. For bacterin strain, operate according to the protection type of Class 3 pathogeny microbe, and the protection condition for virus cultivation is BSL-2. Animal infection is ABSL-2.The operation of non-cultivation infectious substances is BSL-2.The operation of inactivated and non-infectious substances is BSL-1.The protection condition of VDPV virus cultivation is BSL-2.Animal infection is ABSL-3.The operation of non-cultivation infectious substance is BSL-2.The operation of inactivated and non-infectious substance is BSL-1. The above guidance principles will be subject to the development of World defeating poliomyelitis virus, and the new guidance principles will be carried out according to new regulations.

Notes:

1. In the precondition of ensuring safety, the operation of clinic and on spot unknown sample testing may be carried out under the protection type of biological safety level 2 or above. Individual and environmental protection should be enhanced for the operation of virus separation cultivation. Watch out for epidemiology trend, judge if there is highly-pathogenicity pathogeny. The work should be carried out in the related biological safety degree lab if it is suspicious highly-pathogenicity pathogeny.
2. Each unit's biological safety committee is responsible for hazard degree evaluation and the related biological safety protection degree determination for the viruses and experiments not listed in this table. The highly-pathogenicity viruses and its related experiments should be demonstrated by National pathogeny microbe laboratory biological safety experts committee.
3. Prion is a special pathogeny, and its hazard degree classification and the biological safety protection level of related experiment activity are listed separately.
4. The regrouping body which uses human viruses: Before the issuing of related management regulations by sanitary ministry, the following principles should be followed temporarily for human virus regrouping body (include the modifications such as the loss, inserting, mutation of the viruses and take viruses as the carrier of outside gene): 1.The complete genetic regrouping between two different pathogenies are prohibited.2 If bacterin strain exists, for the viruses causing human beings illnesses, only the bacterin strain is allowed to make outside gene carrier.3. The protection condition of operation should be below its female parent viruses for the regrouping living viruses (copying regrouping viruses) which have copying abilities under general conditions. The protection condition can be lowerd for conditioning copying or copying limitation viruses, but should be below BSL-2 protection, for example the dual gene loss carrier which comes from HIV slow virus carrier can be operated in BSL-2 labrotary.4.For the virus taken as expression carrier, its protection level generally should be operated according to hazard level of highly-pathogenicity pathogeny and protection condition. Protection level may be reduced as appropriate if regrouping body has been proved no hazard..5.A hazard estimation is necessary before the making of copying regrouping viruses, and it is necessary to get approval of the related unit biological safety committee. The operation of highly-pathogenicity pathogeny regrouping or the possible highly-pathogenicity pathogeny making should be demonstrated by the unit biological safety committee

5. Use the classification status of reducing toxin, weak taxin to regulate the nation officially approved biological goods bacterin production.

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Table 2. Bacteria, Actidione, Chlamydia, Mycoplasma, Rickettsia, Leptospira Classificaiton Name Llist

No.	The name of the pathogen		Classification of hazard degree	实验活动所需实验室等级				运输包装分类[e]		Remarks
	Chinese name	Latin name		Live bacteria operation[a]	Animal infection experiments[b]	Sample detection[c]	Experiments with non-infectious material[d]	A/B	UN Number	
1	嗜吞噬细胞无形体	*Anaplasma phagocytophilum*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
2	炭疽芽孢杆菌	*Bacillus anthracis*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
3	布鲁氏菌属	*Brucella* spp.	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	其中弱毒株或疫苗株可在 BSL-2 实验室操作；疫苗株按 B 类运输包装.
4	鼻疽伯克霍尔德菌	*Burkholderia mallei*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
5	类鼻疽伯克霍尔德菌	*Burkholderia pseudomallei*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
6	伯氏考克斯氏体	*Coxiella burnetii*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
7	土拉弗朗西斯菌	*Francisella tularensis*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
8	牛分枝杆菌	*Mycobacterium bovis*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	非泛耐药、非多耐药的菌株传代培养、扩增培养可在 BSL-2 实验室进行.
9	结核分枝杆菌	*Mycobacterium tuberculosis*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	结核分枝杆菌 H37Ra 按照第二类病原微生物管理;

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No.	The name of the pathogen		Classification of hazard degree	实验活动所需实验室等级				运输包装分类[e]		Remarks
	Chinese name	Latin name		Live bacteria operation[a]	Animal infection experiments[b]	Sample detection[c]	Experiments with non-infectious material[d]	A/B	UN Number	
										非泛耐药、非多耐药的菌株传代培养、扩增培养可在BSL-2实验室进行.
10	立克次体属斑疹热群	*Rickettsia* Spotted Fever Group	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
11	莫氏立克次体	*Rickettsia.mooseri, Rm*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
12	普氏立克次体	*Rickettsia prowazeki, Rp*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
13	恙虫病东方体	*Orientia tsutsugamushi*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
14	卢氏立克次体	*Rickettsia raoultii*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
15	西伯利亚立克次体	*Rickettsia sibirica*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
16	塔拉萨维奇立克次体	*Rickettsia tarasevichiae*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
17	山羊无形体	*Anaplasma capras*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
18	霍乱弧菌	*Vibrio cholerae*	第二类	BSL-2	ABSL-2	BSL-2	BSL-1	A	UN2814	霍乱弧菌产毒株按第二类管理,实验室细菌分离培养等工作可在BSL-2实验室进行；非产毒株按第三类管理.
19	鼠疫耶尔森菌	*Yersinia pestis*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	

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No.	The name of the pathogen		Classification of hazard degree	实验活动所需实验室等级				运输包装分类[e]		Remarks
	Chinese name	Latin name		Live bacteria operation[a]	Animal infection experiments[b]	Sample detection[c]	Experiments with non-infectious material[d]	A/B	UN Number	
20	鲍氏不动杆菌	*Acinetobacter baumannii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
21	鲁氏不动杆菌	*Acinetobacter lwoffi*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
22	马杜拉放线菌	*Actinomadura madurae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
23	白乐杰马杜拉放线菌	*Actinomadura pelletieri*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
24	牛型放线菌	*Actinomyces bovis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
25	戈氏放线菌	*Actinomyces gerencseriae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
26	衣氏放线菌	*Actinomyces israelii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
27	内氏放线菌	*Actinomyces naeslundii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
28	放线菌属其他种	Other *Actinomyces* Species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
29	嗜水气单胞菌	*Aeromonas hydrophila*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
30	斑点气单胞菌	*Aeromonas punctata*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
31	气单胞菌属其他种	Other *Aeromonas* Species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
32	阿菲波菌属	*Afipia* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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No.	The name of the pathogen		Classification of hazard degree	实验活动所需实验室等级				运输包装分类[e]		Remarks
	Chinese name	Latin name		Live bacteria operation[a]	Animal infection experiments[b]	Sample detection[c]	Experiments with non-infectious material[d]	A/B	UN Number	
33	伴放线菌团聚杆菌	*Aggregatibacter actinomycetemcomitans*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
34	丙酸蛛菌	*Arachnia propionica*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
35	马隐秘杆菌	*Arcanobacterium equi*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
36	溶血隐秘杆菌	*Arcanobacterium haemolyticum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
37	蜡样芽孢杆菌	*Bacillus cereus*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
38	脆弱拟杆菌	*Bacteroides fragilis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
39	杆状样巴尔通氏体	*Bartonella bacilliformis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
40	克氏巴尔通氏体	*Bartonella clarridgeiae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
41	多氏巴尔通氏体	*Bartonella doshiae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
42	依利莎白巴尔通氏体	*Bartonella elizabethae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
43	格氏巴尔通氏体	*Bartonella grahamii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
44	汉氏巴尔通氏体	*Bartonella henselae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
45	科氏巴尔通氏体	*Bartonella koehlerae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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No.	The name of the pathogen		Classification of hazard degree	实验活动所需实验室等级				运输包装分类[e]		Remarks
	Chinese name	Latin name		Live bacteria operation[a]	Animal infection experiments[b]	Sample detection[c]	Experiments with non-infectious material[d]	A/B	UN Number	
46	五日热巴尔通氏体	*Bartonella quintana*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
47	部落巴尔通氏体	*Bartonella tribocorum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
48	文氏巴尔通氏体文氏亚种	*Bartonella vinsonii* subsp. *Vinsonii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
49	支气管炎鲍特氏菌	*Bordetella bronchiseptica*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
50	副百日咳鲍特氏菌	*Bordetella parapertussis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
51	百日咳鲍特氏菌	*Bordetella pertussis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
52	布氏疏螺旋体	*Borrelia burgdorferi*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
53	达氏疏螺旋体	*Borrelia duttonii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
54	回归热疏螺旋体	*Borrelia recurrentis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
55	奋森疏螺旋体	*Borrelia vincenti*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
56	短螺菌属	*Brachyspira* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
57	肉芽肿鞘杆菌	*Calymmatobacterium granulomatis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
58	结肠弯曲杆菌	*Campylobacter coli*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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No.	The name of the pathogen		Classification of hazard degree	实验活动所需实验室等级				运输包装分类[e]		Remarks
	Chinese name	Latin name		Live bacteria operation[a]	Animal infection experiments[b]	Sample detection[c]	Experiments with non-infectious material[d]	A/B	UN Number	
59	胎儿弯曲杆菌	*Campylobacter fetus*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
60	空肠弯曲杆菌	*Campylobacter jejuni*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
61	唾液弯曲杆菌	*Campylobacter sputorum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
62	弯曲杆菌属其他种	Other *Campylobacter* Species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
63	肺炎衣原体	*Chlamydia pneumoniae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
64	鹦鹉衣原体	*Chlamydia psittaci*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
65	沙眼衣原体	*Chlamydia trachomatis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
66	肉毒梭菌	*Clostridium botulinum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	A	UN2814	毒素按第二类管理.
67	艰难拟梭菌	*Clostridioides difficile*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
68	马梭菌	*Clostridium equi*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
69	溶血梭菌	*Clostridium haemolyticum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
70	诺氏梭菌	*Clostridium novyi*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
71	产气荚膜梭菌	*Clostridium perfringens*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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No.	The name of the pathogen		Classification of hazard degree	实验活动所需实验室等级				运输包装分类[e]		Remarks
	Chinese name	Latin name		Live bacteria operation[a]	Animal infection experiments[b]	Sample detection[c]	Experiments with non-infectious material[d]	A/B	UN Number	
72	破伤风梭菌	*Clostridium tetani*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
73	牛棒杆菌	*Corynebacterium bovis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
74	白喉棒杆菌	*Corynebacterium diphtheriae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
75	极小棒杆菌	*Corynebacterium minutissimum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
76	假结核棒杆菌	*Corynebacterium pseudotuberculosis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
77	纹带棒杆菌	*Corynebacterium striatum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
78	溃疡棒杆菌	*Corynebacterium ulcerans*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
79	刚果嗜皮菌	*Dermatophilus congolensis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
80	迟钝爱德华氏菌	*Edwardsiella tarda*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
81	怡菲埃里希氏体	*Ehrlichia Chaffeensis, EC*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
82	啮蚀艾肯氏菌	*Eikenella corrodens*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
83	产气肠杆菌	*Enterobacter aerogenes*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
84	阴沟肠杆菌	*Enterobacter cloacae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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No.	The name of the pathogen		Classification of hazard degree	实验活动所需实验室等级				运输包装分类[e]		Remarks
	Chinese name	Latin name		Live bacteria operation[a]	Animal infection experiments[b]	Sample detection[c]	Experiments with non-infectious material[d]	A/B	UN Number	
85	肠杆菌属其他种	Other *Enterobacter* Species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
86	腺热新立克次体	*Neorickettsia sennetsu*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
87	猪红斑丹毒丝菌	*Erysipelothrix rhusiopathiae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
88	丹毒丝菌属	*Erysipelothrix* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
89	脑膜脓毒依金氏菌	*Elizabethkingia meningoseptica*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
90	博兹曼氏军团菌	*Legionella bozemanae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
91	土拉弗朗西斯菌新凶手亚种	*Francisella tularensis* subsp. *novicida*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
92	坏死梭杆菌	*Fusobacterium necrophorum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
93	阴道加德纳氏菌	*Gardnerella vaginalis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
94	杜氏嗜血杆菌	*Haemophilus ducreyi*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
95	流感嗜血杆菌	*Haemophilus influenzae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
96	溶组织哈撒韦氏菌	*Hathewaya histolytica*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
97	幽门螺杆菌	*Helicobacter pylori*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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No.	The name of the pathogen		Classification of hazard degree	实验活动所需实验室等级				运输包装分类[e]		Remarks
	Chinese name	Latin name		Live bacteria operation[a]	Animal infection experiments[b]	Sample detection[c]	Experiments with non-infectious material[d]	A/B	UN Number	
98	金氏金氏菌	*Kingella kingae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
99	产酸克雷伯氏菌	*Klebsiella oxytoca*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
100	肺炎克雷伯氏菌	*Klebsiella pnenmoniae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
101	嗜肺军团菌	*Legionella pneumophila*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
102	问号钩端螺旋体	*Leptospira interrogans*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
103	伊氏李斯特氏菌	*Listeria ivanovii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
104	单核增生李斯特氏菌	*Listeria monocytogenes*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
105	多态小小菌	*Mima polymorpha*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
106	摩氏摩根氏菌	*Morganella morganii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
107	非洲分枝杆菌	*Mycobacterium africanum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	广泛耐药、多耐药菌株按第二类管理.
108	山羊分枝杆菌	*Mycobacterium caprae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	广泛耐药、多耐药菌株按第二类管理.
109	田鼠分枝杆菌	*Mycobacterium microti*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	广泛耐药、多耐药菌株按第二类管理.
110	亚洲分枝杆菌	*Mycobacterium asiaticum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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No.	The name of the pathogen		Classification of hazard degree	实验活动所需实验室等级				运输包装分类[e]		Remarks
	Chinese name	Latin name		Live bacteria operation[a]	Animal infection experiments[b]	Sample detection[c]	Experiments with non-infectious material[d]	A/B	UN Number	
111	鸟分枝杆菌	*Mycobacterium avium*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
112	龟分枝杆菌	*Mycobacterium chelonae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
113	偶发分枝杆菌	*Mycobacterium fortuitum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
114	堪萨斯分枝杆菌	*Mycobacterium kansasii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
115	麻风分枝杆菌	*Mycobacterium leprae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
116	玛尔摩分枝杆菌	*Mycobacterium malmoenes*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
117	鸟分枝杆菌副结核亚种	*Mycobacterium avium* subsp. *paratuberculosis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
118	瘰疬分枝杆菌	*Mycobacterium scrofulaceum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
119	猿分枝杆菌	*Mycobacterium simiae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
120	斯氏分枝杆菌	*Mycobacterium szulgai*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
121	溃疡分枝杆菌	*Mycobacterium ulcerans*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
122	蟾分枝杆菌	*Mycobacterium xenopi*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
123	分枝杆菌属其他种	Other *Mycobacterium* Species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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No.	The name of the pathogen		Classification of hazard degree	实验活动所需实验室等级				运输包装分类[e]		Remarks
	Chinese name	Latin name		Live bacteria operation[a]	Animal infection experiments[b]	Sample detection[c]	Experiments with non-infectious material[d]	A/B	UN Number	
124	肺炎支原体	*Mycoplasma pneumoniae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
125	淋病奈瑟氏球菌	*Neisseria gonorrhoeae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
126	脑膜炎奈瑟氏球菌	*Neisseria meningitidis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
127	星状诺卡氏菌	*Nocardia asteroides*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
128	巴西诺卡氏菌	*Nocardia brasiliensis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
129	肉色诺卡氏菌	*Nocardia carnea*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
130	皮疽诺卡氏菌	*Nocardia farcinica*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
131	新诺卡氏菌	*Nocardia nova*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
132	豚鼠耳炎诺卡氏菌	*Nocardia otitidiscaviarum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
133	德兰士瓦诺卡氏菌	*Nocardia transvalensis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
134	索氏类梭菌	*Paeniclostridium sordellii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
135	多杀巴斯德氏菌	*Pasteurella multocida*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
136	侵肺啮齿杆菌	*Rodentibacter pneumotropicus*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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No.	The name of the pathogen		Classification of hazard degree	实验活动所需实验室等级				运输包装分类[e]		Remarks
	Chinese name	Latin name		Live bacteria operation[a]	Animal infection experiments[b]	Sample detection[c]	Experiments with non-infectious material[d]	A/B	UN Number	
137	致病性大肠埃希菌	Pathogenic *Escherichia coli*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
138	其他致病性埃希菌属	Other pathogenic *Escherichia* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
139	厌氧消化链球菌	*Peptostreptococcus anaerobius*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
140	类志贺邻单胞菌	*Plesiomonas shigelloides*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
141	普雷沃氏菌属	*Prevotella* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
142	奇异变形杆菌	*Proteus mirabilis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
143	彭氏变形杆菌	*Proteus penneri*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
144	普通变形杆菌	*Proteus vulgaris*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
145	产碱普罗威登斯菌	*Providencia alcalifaciens*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
146	雷氏普罗威登斯菌	*Providencia rettgeri*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
147	铜绿假单胞菌	*Pseudomonas aeruginosa*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
148	自养假诺卡氏菌	*Pseudonocardia autotrophica*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
149	马红球菌	*Rhodococcus equi*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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No.	The name of the pathogen		Classification of hazard degree	实验活动所需实验室等级				运输包装分类[e]		Remarks
	Chinese name	Latin name		Live bacteria operation[a]	Animal infection experiments[b]	Sample detection[c]	Experiments with non-infectious material[d]	A/B	UN Number	
150	肠沙门氏菌	*Salmonella enterica*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
151	邦戈尔沙门氏菌	*Salmonella bongori*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
152	液化沙雷氏菌	*Serratia liquefaciens*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
153	褪色沙雷氏菌	*Serratia marcescens*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
154	痢疾志贺氏菌	*Shigella dysenteriae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
155	弗氏志贺氏菌	*Shigella flexneri*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
156	鲍氏志贺氏菌	*Shigella boydii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
157	宋内氏志贺氏菌	*Shigella sonnei*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
158	金黄色葡萄球菌	*Staphylococcus aureus*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
159	表皮葡萄球菌	*Staphylococcus epidermidis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
160	念珠状链杆菌	*Streptobacillus moniliformis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
161	肺炎链球菌	*Streptococcus pneumoniae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
162	酿脓链球菌	*Streptococcus pyogenes*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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No.	The name of the pathogen		Classification of hazard degree	实验活动所需实验室等级				运输包装分类[e]		Remarks
	Chinese name	Latin name		Live bacteria operation[a]	Animal infection experiments[b]	Sample detection[c]	Experiments with non-infectious material[d]	A/B	UN Number	
163	链球菌属	*Streptococcus* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	食品制作中使用的嗜热链球菌等菌株属于第四类.
164	猪链球菌	*Streptococcus suis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
165	斑点病密螺旋体	*Treponema carateum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
166	苍白(梅毒)密螺旋体	*Treponema pallidum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3733	
167	极细密螺旋体	*Treponema pertenue*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
168	文氏密螺旋体	*Treponema vincentii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
169	酿脓特吕佩尔氏菌	*Trueperella pyogenes*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
170	解脲脲支原体	*Ureaplasma urealyticum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
171	创伤弧菌	*Vibrio vulnificus*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
172	副溶血弧菌	*Vibrio parahaemolyticus*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
173	河流弧菌	*Vibrio fluvialis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
174	弗尼斯弧菌	*Vibrio furnissii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
175	溶藻弧菌	*Vibrio alginolyticus*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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No.	The name of the pathogen		Classification of hazard degree	实验活动所需实验室等级				运输包装分类[e]		Remarks
	Chinese name	Latin name		Live bacteria operation[a]	Animal infection experiments[b]	Sample detection[c]	Experiments with non-infectious material[d]	A/B	UN Number	
176	拟态弧菌	*Vibrio mimicus*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
177	弧菌属其他种	Other *Vibrios* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
178	小肠结肠炎耶尔森菌	*Yersinia enterocolitica*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
179	假结核耶尔森菌	*Yersinia pseudotuberculosis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
180	生殖道支原体	*Mycoplasma genitalium*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
181	克罗诺杆菌属	*Cronobacter* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
182	柠檬酸杆菌属	*Citrobacter* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
183	美人鱼发光杆菌	*Photobacterium damselae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
184	施万菌属	*Shewanella* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
185	海鲜变形菌	*Proteus cibarius*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
186	缺陷乏养菌	*Abiotrophia defectiva*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
187	二氧化碳噬纤维菌属	*Capnocytophaga* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
188	色杆菌属	*Chromobacterium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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No.	The name of the pathogen		Classification of hazard degree	实验活动所需实验室等级				运输包装分类[e]		Remarks
	Chinese name	Latin name		Live bacteria operation[a]	Animal infection experiments[b]	Sample detection[c]	Experiments with non-infectious material[d]	A/B	UN Number	
189	金黄杆菌属	*Chryseobacterium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
190	短链小球菌属	*Granulicatella* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

Notes:BSL-n/ABSL-n: Different Biological safety degree laboratory/animal laboratory

a. Mass living bacteria operation: experiment operation relate to “mass” pathogeny preparation, or the experiment which easy to produce Aerosol (for example pathogeny centrifugalism, Freeze-out)

b. Animal infection experiment:Referring to the animal experiment infected by living bateria.

c. Sample test: It includes initial testing activity such as the pathogeny separation purification of the sample, medication sensitivity experiment, biochemical identification, immunology experiment, PCR nucleic acid distilling, smear test and observation by microscope etc.

d. Non-infectious material experiment: For example molecule biology, immunology experiment without pathogeny living bacteria material.

e. Transportation Packaging Classification: According to ICAO Doc9284 TI packaging classification requirements, the related pathogeny and samples are divided into Class A and B, the related UN numbers are UN 2814 (Animal virus is UN2900) and UN 3373. The infectious substances (only limited to virus cultivation substance) of Class A should include all the materials related to this virus. For the viruses with B class mark and its related samples shall be packaged and transported by air according to the requirements of UN3373. For the transportation by other tools, you may refer to the above standards for packaging.

f. For the A class epidemic, the epidemic strain should be managed according to Class 2. The cultivation of mass living bacteria may be carried out in BSL-2 laboratory. Non epidemic strain belongs to Class 3.

Notes:

1. In the precondition of ensuring safety, the operation of clinic and on spot unknown sample testing may be carried out under the protection type of biological safety level 2 or above. Individual and environmental protection should be enhanced for the operation of virus separation cultivation. However this work is only limited to initial separation identification for the

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pathogeny in samples. Once the pathogeny initially clarified, it should be moved to the related biological safety level laboratory according to the hazard classification of pathogeny microbe.

2. “Mass” preparation of pathogeny refers to the volumn or density of pathogeny, which exceeds the normal needed quantity a lot. For example, cosmically fermenting, the production of pathogeny and bacterin, the further idenrification and scientific activity of pathogeny, multiplication of pathogeny and the needed dose of concentration.

3. For the pathogeny microbe and experiment activity not listed in this table, the hazard degree should be evaluated by Unit’s biological safety committee and the related biological safety protection degree should be determined. The highly-pathogenicity viruses and its related experiments should be demonstrated by National pathogeny microbe laboratory biological safety experts committee.

4. Use the classification status of reducing toxin, weak taxin to regulate the nation officially approved biological goods bacterin production.

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Table 3. Epiphyte classification name list

Sequence number	Epiphyte Name		Hazard Degree Classification	The Needed Biological Safety Laboratory Level in Experiment Activity				Transportation packaging classification [e]		Remarks
	Scientific Name	Chinese Name		Mass Living Bacteria Operation [a]	Animal Infectious Experiment [b]	Sample Test [c]	Non-infectious Material Experiments [d]	A/B	UN Number	
1	皮炎芽生菌	*Blastomyces dermatitidis*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
2	粗球孢子菌	*Coccidiodes immitis*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
3	波萨达斯球孢子菌	*Coccidioides posadasii*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
4	荚膜组织胞浆菌	*Histoplasma capsulatum*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
5	组织胞浆菌属其他致病种	Other *Histoplasma* species	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
6	巴西副球孢子菌	*Paracoccidioides brasiliensis*	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
7	副球孢子菌属其他致病种	Other *Paracoccidioides* species	第二类	BSL-3	ABSL-3	BSL-2	BSL-1	A	UN2814	
8	枝顶孢霉属	*Acremonium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
9	端梗霉属	*Acrophialophora* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
10	互格链格孢	*Alternaria alternata*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
11	侵染链格孢	*Alternaria infectoria*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
12	链格孢属其他	Other *Alternaria*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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	致病种	species								
13	鳞质霉属	*Apophysomyces* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
14	节菱孢霉属	*Arthrinium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
15	节纹菌属	*Arthrographis* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
16	黄曲霉复合群	*Aspergillus flavus* complex	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	复合群包括:*flavus*、*A. oryzae* 等.
17	烟曲霉复合群	*Aspergillus fumigatus* complex	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	复合群包括:*A. fumigatus*、*A. lentulus* 等.
18	土曲霉	*Aspergillus terreus*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
19	短梗霉属	*Aureobasidium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
20	固孢蛙粪霉	*Basidiobolus haptosporus*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
21	蛙粪霉属其他致病种	Other *Basidiobolus* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
22	白僵菌属	*Beauveria* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
23	白念珠菌	*Candida albicans*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
24	都柏林念珠菌	*Candida dubliniensis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
25	光滑念珠菌复合群	*Candida glabrata* complex	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	复合群包括C.glabrata、C. nivariensis等。
26	季也蒙念珠菌复合群	*Meyerozyma guilliermondii* complex	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	复合群包括:*M. guilliermondii*、*M. carpophila* 等.
27	希木龙念珠菌复合群	*Candida haemulonis* complex	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	复合群包括:C. haemulonis、 C.pseudohaemulonis 等.

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28	克柔念珠菌	*Candida krusei*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	亦称:*Pichia kudriavzevii*
29	近平滑念珠菌复合群	*Candida parapsilosis* complex	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	复合群包括:*C. parapsilosis*、*C. orthopsilosis* 等.
30	热带念珠菌	*Candida tropicalis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
31	耳念珠菌	*Candida auris*	第三类	BSL-2[f]	ABSL-2	BSL-2	BSL-1	B	UN3373	
32	念珠菌属其他致病种	Other *Candida* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
33	头孢霉属	*Cephalosporium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
34	毛壳菌属	*Chaetomium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
35	金孢子菌属	*Chrysosporium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
36	卷霉属	*Circinella* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
37	斑替枝孢瓶霉	*Cladophialophora bantiana*	第三类	BSL-2[f]	ABSL-2	BSL-2	BSL-1	B	UN3373	
38	卡氏枝孢瓶霉	*Cladophialophora carrionii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
39	枝孢瓶霉属其他致病种	Other *Cladophialophora* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
40	枝孢霉属	*Cladosporium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
41	棒孢酵母属	*Clavispora* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
42	毛盘孢霉属	*Colletotrichum* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
43	冠状耳霉	*Conidiobolus coronatus*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
44	异孢耳霉	*Conidiobolus incongruus*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
45	耳霉属其他致病种	Other *Conidiobolus* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
46	假黑粉霉属	*Coniosporium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
47	喀什可乐棒孢	*Corynespora*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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	霉	*cassiicola*								
48	棒孢霉属其他致病种	Other *Corynespora* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
49	格特隐球菌复合群	*Cryptococcus gattii* complex	第三类	BSL-2[f]	ABSL-2	BSL-2	BSL-1	B	UN3373	复合群包括:*C. gattii*、*C. decagattii* 等.
50	新生隐球菌复合群	*Cryptococcus neoformans* complex	第三类	BSL-2[f]	ABSL-2	BSL-2	BSL-1	B	UN3373	复合群包括:*C. neoformans*、*C. deneoformans* 等.
51	隐球菌属其他致病种	Other *Cryptococcus* species	第三类	BSL-2[f]	ABSL-2	BSL-2	BSL-1	B	UN3373	
52	灰色小克银汉霉	*Cunninghamella bertholletiae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
53	小克银汉霉属其他致病种	Other *Cunninghamella* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
54	皮肤毛孢子菌属	*Cutaneotrichosporon* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
55	夏威夷弯孢	*Curvularia hawaiiensis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	旧称:*Bipolaris hawaiiensis* 夏威夷离蠕孢.
56	巴贲多夫弯孢	*Curvularia papendorfii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	旧称:*Bipolaris papendorfii* 巴贲多夫离蠕孢.
57	穗状弯孢	*Curvularia spicifera*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	旧称:*Bipolaris spicifera* 穗状离蠕孢.
58	弯孢霉属	*Curvularia* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
59	柱孢霉属	*Cylindrocarpon* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
60	间座壳属	*Diaporthe* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
61	双孢腔菌属	*Didymella* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	原名:*Phoma sancta.*
62	伊蒙菌属	*Emmonsia* spp.	第三类	BSL-2[f]	ABSL-2	BSL-2	BSL-1	B	UN3373	
63	絮状表皮癣菌	*Epidermophyton*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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		floccosum								
64	皮炎外瓶霉	*Exophiala dermatitidis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
65	甄氏外瓶霉复合群	*Exophiala jeanselmei* complex	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
66	棘状外瓶霉	*Exophiala spinifera*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
67	外瓶霉属其他致病种	Other *Exophiala* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
68	麦格尼明脐霉	*Exserohilum mcginnisii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
69	喙明脐霉	*Exserohilum rostratum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
70	莫诺弗着色霉	*Fonsecaea monophora*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
71	裴氏着色霉	*Fonsecaea pedrosoi*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
72	努比卡着色霉	*Fonsecaea nubica*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
73	着色霉属其他致病种	Other *Fonsecaea* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
74	尖孢镰刀菌复合群	Fusarium oxysporum complex	第三类	BSL-2[f]	ABSL-2	BSL-2	BSL-1	B	UN3373	复合群包括:*F. oxysporum*、*F. petroliphilum* 等.
75	茄病镰刀菌复合群	*Fusarium solani* complex	第三类	BSL-2[f]	ABSL-2	BSL-2	BSL-1	B	UN3373	复合群包括:*F. solani*、*F. pseudensiforme* 等.
76	镰刀菌属其他致病种	Other *Fusarium* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
77	地霉属	*Geotrichum* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
78	粘束孢属	*Graphium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
79	威尼克何德菌	*Hortaea werneckii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	旧称:*Phaeoannellomyces werneckii.*

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80	对半新柱顶孢	*Hormonema dermatioides*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
81	可可毛色二孢	*Lasiodiplodia theobromae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
82	伞枝横梗霉	*Lichtheimia corymbifera*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	旧称:*Absidia corymbifera* 伞枝梨头霉.
83	多枝横梗霉	*Lichtheimia ramosa*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
84	横梗霉属其他致病种	Other *Lichtheimia* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
85	多育节荚孢	*Lomentospora prolificans*	第三类	BSL-2[f]	ABSL-2	BSL-2	BSL-1	B	UN3373	旧称:*Scedosporium prolificans* 多育赛多孢.
86	灰马杜拉菌	*Madurella grisea*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	亦称:*Trematosphaeria grisea.*
87	足菌肿马杜拉菌	*Madurella mycetomatis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
88	马杜拉菌其他致病种	Other *Madurella* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
89	糠秕马拉色菌	*Malassezia furfur*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
90	球形马拉色菌	*Malassezia globosa*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
91	马拉色菌属其他致病种	Other *Malassezia* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
92	犬小孢子菌	*Microsporum canis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
93	铁锈色小孢子菌	*Microsporum ferrugineum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
94	小孢子菌属其他致病种	Other *Microsporum* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
95	被孢霉属	*Mortierella* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
96	卷枝毛霉复合群	*Mucor circinelloides* complex	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	复合群包括:***M. lusitanicus*** 、 *M.*

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										circinelloides 等.
97	不规则毛霉	*Mucor irregularis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	旧 称 :*Rhizomucor variabilis* 多变根毛霉.
98	总状毛霉	*Mucor racemosus*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
99	毛霉属其他致病种	Other *Mucor* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
100	石膏奈尼兹菌	*Nannizzia gypsea*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	旧 称 :*Microsporum gypseum* 石膏小孢子菌.
101	新萨托菌属	*Neosartorya* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
102	新龟甲形菌属	*Neotestudina* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
103	黑孢子菌属	*Nigrospora* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
104	赭霉属	*Ochroconis* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
105	绪方酵母属	*Ogataea* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
106	壳孢霉属	*Ophiostoma* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
107	淡紫紫孢霉	*Purpureocillium lilacinum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	旧 称 :*Paecilomyces lilacinus* 淡紫拟青霉.
108	宛氏拟青霉	*Paecilomyces variotii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
109	暗色枝顶孢霉属	*Phaeoacremonium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
110	暗色环痕孢霉属	*Phaeoannellomyces* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	**包 括 :*P. werneckii*、*P. elegans* 等,*P. werneckii* 同于 *Hortaea werneckii* 威尼克何德霉.**
111	平革菌属	*Phanerochaete* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
112	单孢瓶霉属	*Phialemonium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
113	美洲瓶霉	*Phialophora*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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		americana								
114	疣状瓶霉	*Phialophora verrucosa*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
115	瓶霉属其他致病种	Other *Phialophora* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
116	茎点霉属	*Phoma* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
117	何德毛结节菌	*Piedraia hortae*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
118	歪嘴座壳属	*Pleurostoma* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
119	威克汉姆无绿藻	*Prototheca wickerhamii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	亦称:小型无绿藻.
120	祖菲无绿藻	*Prototheca zopfii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	亦称:中型无绿藻.
121	无绿藻属其他致病种	Other *Prototheca* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
122	喙枝孢霉属	*Rhinocladiella* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
123	根毛霉属	*Rhizomucor* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
124	小孢根霉	*Rhizopus microsporus*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
125	少根根霉	*Rhizopus arrhizus*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	旧称:*Rhizopus oryzae* 米根霉.
126	根霉属其他致病种	Other *Rhizopus* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
127	红酵母属	*Rhodotorula* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
128	帚枝霉属	*Sarocladium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
129	尖端赛多孢霉	*Scedosporium apiospermum*	第三类	BSL-2[f]	ABSL-2	BSL-2	BSL-1	B	UN3373	
130	赛多孢霉属其他致病种	Other *Scedosporium* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
131	裂褶菌属	*Schizophyllum* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
132	短帚霉	*Scopulariopsis brevicaulis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
133	帚霉属其他致	Other *Scopulariopsis*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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	病种	species								
134	柱顶孢霉属	*Scytalidium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
135	球形孢子丝菌	*Sporothrix globosa*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
136	申克孢子丝菌	*Sporothrix schenckii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
137	孢子丝菌属其他致病种	Other *Sporothrix* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
138	共头霉属	*Syncephalastrum* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
139	马尔尼菲篮状菌	*Talaromyces marneffei*	第三类	BSL-2[f]	ABSL-2	BSL-2	BSL-1	B	UN3373	
140	须癣毛癣菌复合群	*Trichophyton mentagrophytes* complex	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	复合群包括: *T. mentagrophytes*、*T. interdigitale* 等.
141	红色毛癣菌复合群	*Trichophyton rubrum* complex	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	复合群包括: *T. rubrum*、*T. soudanense* 等.
142	许兰氏毛癣菌	*Trichophyton schoenleinii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
143	断发毛癣菌	*Trichophyton tonsurans*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
144	紫色毛癣菌	*Trichophyton violaceum*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
145	毛癣菌属其他致病种	Other *Trichophyton* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
146	阿萨希毛孢子菌	*Trichosporon asahii*	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
147	毛孢子菌属其他致病种	Other *Trichosporon* species	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
148	麦轴霉属	*Tritirachium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
149	单格孢霉属	*Ulocladium* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	
150	维朗那霉属	*Veronaea* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

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151	疣孢霉属	*Verruconis* spp.	第三类	BSL-2	ABSL-2	BSL-2	BSL-1	B	UN3373	

Notes:BSL-n/ABSL-n: Different Biological safety degree laboratory/animal laboratory

a. Mass living bacteria operation: experiment operation relate to "mass" pathogeny preparation, or the experiment which easy to produce Aerosol (for example pathogeny centrifugalism, Freeze-out)

h. b Animal infection experiment: Referring to the animal experiment infected by living bacteria.

c. Sample test:It includes initial testing activity such as the pathogeny separation purification of the sample, medication sensitivity experiment, biochemical identification, immunology experiment, PCR nucleic acid distilling, smear test, observation by microscope etc.

d. Non-infectious material experiment: For example molecule biology, immunology experiment without pathogeny living bacteria material.

e. Transportation packaging classification: According to ICAO Doc9284 TI packaging classification requirements, the related pathogeny and samples are divided into Class A and B, the related UN numbers are UN 2814 (Animal virus is UN2900) and UN 3373. The infectious substances (only limited to virus cultivation substance) of Class A should include all the materials related to this virus. For the viruses with B class mark and its related samples shall be packaged and transported by air according to the requirements of UN3373. For the transportation by other tools, you may refer to the above standards for packaging.

f. For the A class epidemic, the epidemic strain should be managed according to Class 2. For the cultivation of mass living bacteria may be carried out in BSL-2 laboratory. Non epidemic strain belongs to Class 3.

Notes:

1. In the precondition of ensuring safety, the operation of clinic and on spot unknown sample testing may be carried out under the protection type of biological safety level 2 or above. Individual and environmental protection should be enhanced for the operation of virus separation cultivation. However this work is only limited to initial separation identification for the pathogeny in samples. Once the pathogeny initially clarified, it should be moved to the related biological safety level laboratory according to the hazard classification of pathogeny microbe.

2. "Mass" preparation of pathogeny refers to the volumn or density of pathogeny, which exceeds the normal needed quantity a lot. For example, cosmically fermenting, the production of pathogeny and bacterin, the further idenrification and scientific activity of pathogeny, multiplication of pathogeny and the needed dose of concentration.

3. For the pathogeny microbe and experiment activity not listed in this table, the hazard degree should be evaluated by Unit's biological safety committee and the related biological safety protection degree should be determined. The highly-pathogenicity viruses and its related experiments should be demonstrated by National pathogeny microbe laboratory biological safety experts committee.

4. Use the classification status of reducing toxin, weak taxin to regulate the nation officially approved biological goods bacterin production.

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Appendix D

Instruction from the Ministry of Health of PRC

Number 45

Transportation Management Regulations of Highly-pathogenicity Pathogeny Microbe Bacteria (Virus) or Sample Possibly Leads to Human Infection has been approved by the meeting of Ministry of Health committee on 24th of November, 2005 and issued now. It is put into effect on 1st of February, 2006.

Minister Gaoqiang

December 28, 2005

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Transportation Management Regulations of Highly-pathogenicity Pathogeny Microbe Bacteria (Virus) or Sample Possibly Leads to Human Infection

Article 1 This regulation is enacted pursuant to *PRC Infectious Disease Protection and Cure Law, Pathogeny Microbe Laboratory Biological Safety Management Regulations* etc. in order to enhance transportation management of highly-pathogenicity pathogeny microbe bacteria (virus) or sample possibly leads to human infection.

Article 2 The highly-pathogenicity pathogeny microbe bacteria (virus) or sample possibly leads to human infection in this regulation refer to the CAT1, CAT2 pathogeny microbe bacteria (Virus) or sample regulated in *The World Infectious Pathogeny Microbe Name List.*

Article 3 This regulation applied to the transportation management of highly-pathogenicity pathogeny microbe bacteria (virus) or sample possibly leads to human infection.

The pathogeny microbe bacteria (Virus) or sample of Transportation Packaging Classification A in CAT 3 pathogeny microbe of *The World Infectious Pathogeny Microbe Name List shall be managed according to this regulation for transportation.*

Article 4 the bacteria (Virus) or Sample (Highly-pathogenicity microbe bacteria (Virus) or Sample is the general name for hereafter) regulated in Transportation Article 3

Article 5 The Units who are involved in disease defending control, medical

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treatment, education, scientific research, bacteria (Virus) Storage and Biological producing may apply to transport highly-pathogenicity pathogeny microbe bacteria (virus) or sample if work needed.

Article 6 The Units who apply to transport highly-pathogenicity pathogeny microbe bacteria (virus) or sample (application units for short) should apply to provincial sanitary administration, and submit the following application material (1 original, 3 copies):

(I)Application Form for highly-pathogenicity pathogeny microbe bacteria (virus) or sample possibly leads to human infection;

(II)Corporative Person Qualification Attestation Material (Copy)

(III)The certificate documents of taking over agreed by the units who take over highly-pathogenicity pathogeny microbe bacteria (virus) or sample (Taking over unit for short)

(IV)The certificate documents required by Article 7 (二)、(三) in this regulation.

(V)The approval number, certificate (Copy) of container or wrapper or transportation container or wrapper certificate commitment of highly-pathogenicity pathogeny microbe bacteria (Virus) or sample

(VI)Other Related Material

Article 7 the qualifications of taking-over company:

(I)Have corporative qualification;

(II)Have the laboratory which can be involved in highly-pathogenicity

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pathogeny microbe experiment activities;

(III)Have the approval documents of involving in highly-pathogenicity pathogeny microbe experiment activity, sample storage and biological production etc. verified and issued by the related government principal ministries.

Article 8 multiple transportations may be applied if the highly-pathogenicity pathogeny microbe bacteria (Virus) or sample will be transported many times between fixed application and taking over units. The valid period of multiple transportations is 6 months. Reapplication should be made if the transportations continue to be needed after it expires.

Article 9 the transportation of highly-pathogenicity pathogeny microbe bacteria (Virus) or samples applied within the administration area of each province, autonomous region or municipal city shall be examined and approved by the sanitary administration office of each province, autonomous region or municipal city.

Provincial sanitary administration shall check the application material from units on time. For the units who didn't submit complete material or the material is not compliance with legal form, a notification to make rectification for application material shall be given to them immediately. The provincial administration shall accept and hear the case immediately if application form is complete or it comply with legal conditions, and give a decision on if it can be approved within 5 working days. If it is compliance with legal conditions, *A Navicert for Human Infection Highly-pathogenicity Pathogeny Microbe Bacteria (virus) or Sample* will be given to

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the unit. If it is not compliance with legal conditions, a not approval decision with reasons shall be given.

Article 10 The application material shall be given to the departing place provincial sanitary administration for initial check if the units applied for interprovincial transportation of highly-pathogenicity pathogeny microbe bacteria (virus) or sample or transportation between different autonomous regions, municipal cities. The provincial sanitary administration shall give initial check comments within 3 working days if requirements met, and submit the initial comments and application material to Ministry of Health for examination and approval.

Ministry of Health shall give a decision on if it is approved within 3 working days after receiving the application material. If it is compliance with legal conditions, *A Navicert for Human Infection Highly-pathogenicity Pathogeny Microbe Bacteria (virus) or Sample will be issued.* If it is not compliance with legal conditions, a not approval decision with reasons shall be given.

Article 11 The transportation application of highly-pathogenicity pathogeny microbe bacteria (virus) or sample in order to control the breaking out, spreading of infectious disease, the provincial sanitary administration and Ministry of Health may submit, examine and approve it by fax. A rectification must be made after it if the related original documents need to be submitted.

According to the need of disease controlling, for the highly-pathogenicity pathogeny microbe bacteria (virus) or sample needed to be transported to *Disease*

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Prevention and Controlling Center of China, submit the application directly to *Disease Prevention and Controlling Center of China*. If it is compliance with legal conditions, *A Navicert for Human Infection Highly-pathogenicity Pathogeny Microbe Bacteria (virus) or Sample will be issued.* If it is not compliance with legal conditions, a not approval decision with reasons shall be given. *Disease Prevention and Controlling Center of China* shall report the examining and approving thing to Ministry of Health for records within 3 days.

Article 12 The container or packaging material for transporting highly-pathogenicity pathogeny microbe bacteria (virus) or sample shall achieve Class A packaging standards regulated by *ICAO DGR TI(Doc 9284packaging instruction PI602),* which meets the requirements of water-proof, damage-proof, leakage-proof, high temperature and pressure enduration and it should has the biological hazard label, marking, transportation registration form, warning and caution diction regulated by Ministry of Health.

Article 13 The transportation of highly-pathogenicity pathogeny microbe bacteria (virus) or sample shall be escorted by the appointed persons, and it should not be less than 2 appointed persons. The application unit shall give the related biological safety knowledge training to the escorted persons and do the related protection actions during escorting.

Article 14 The application unit shall take the *the Navicert for Human Infection Highly-pathogenicity Pathogeny Microbe Bacteria (virus) or Sample* examined and

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issued by above provincial sanitary administration or *Disease Prevention and Controlling Center of China* to the related departments of Civil Aviation to do the related procedures

For civil aviation transportation, the shipper shall classify, pack, mark, label it and submit correctly filled DGR transportation document to the carrier and airport approved by civil aviation principal departments according to CCAR276R2 and ICAO DGR TI (Doc9284). If transported by the carrier or airport not approved, it shall be approved by civil aviation principal departments.

Article 15 The packing before the transportation of highly pathogenicity pathogeny microbe bacteria (virus) or sample and the opening of the package shall be carried out at the place which complies with biological safety regulations.

The application units shall check carefully if the container and package are compliance with safety requirements, if the labels and sample registration form on all the containers and packages are complete and inerrability and if the placing direction of the container is correct.

Article 16 After transportation, the application unit shall submit a written report about the transportation to the approval department.

Article 17 For the behaviors violating this regulation, the unit will be punished according to the related regulation in Article 62, 67 of *Pathogeny Microbe Laboratory Biological Safety Management Regulations*

Article 18 Exit and entry of the territory of genus or samples of highly

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disease-evocative pathogen micro-organism bacteria (toxins) must be regulated in accordance with the relevant regulations of the National Health Commission (NHC) and the General Administration of Customs (GAC).

(Note: The former Ministry of Health and the General Administration of Quality Supervision, Inspection and Quarantine no longer exist and have been reorganized. Their relevant administrative functions have been assumed by the National Health Commission and the General Administration of Customs.)

Article 19 this regulation will be put into effect from 1st February, 2006.

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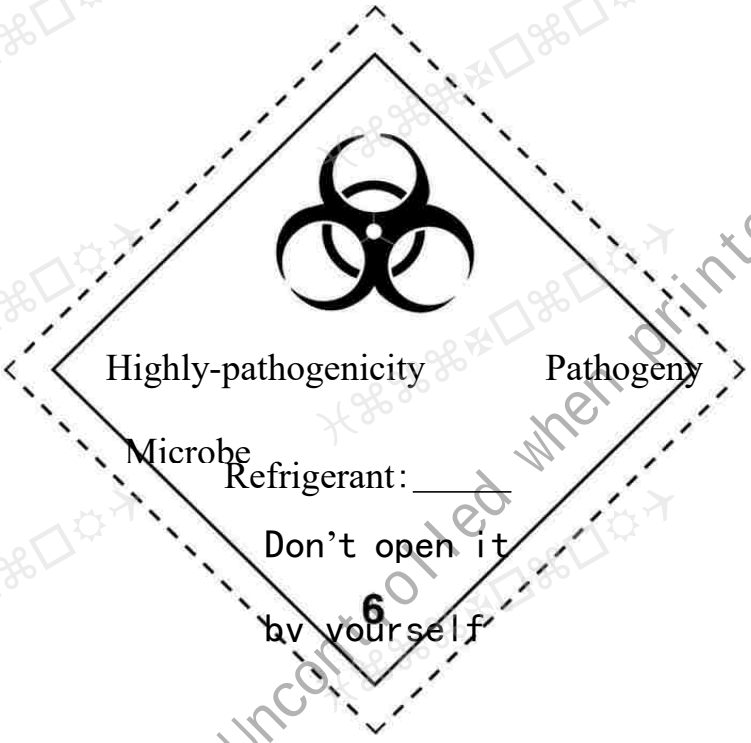
Human Infection highly-pathogenicity pathogeny microbe bacteria (Virus) or Sample Transportation Packaging Marking

1、Highly-pathogenicity Pathogeny Microbe



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Please contact the local sanitary administration when damaged, leakage or lost

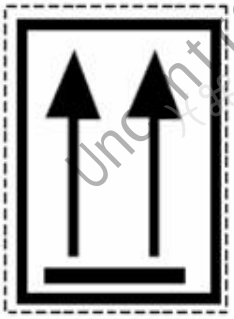
Contact Person :

Contact Phone:

2、Highly-pathogenicity Pathogeny Microbe Transportation Registration Form

Receiving Unit:_____ Detailed Address:_____ Postal Code:_____ Contact Person:_____ Contact Phone:_____
Sending Unit:_____ Detailed Address:_____ Postal Code:_____Contact Person: Contact Phone:_____

3、Outer Package Placing Direction Marking



Note: When transported by Air, the regulations about package marking, labeling in chapter 2 and 3 in ICAO TI Section 5 have the priority.

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Human Infection Highly-pathogenicity Pathogeny Microbe Bacteria (virus) or Sample Transportation Application Form

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Application Unit: _____

Contact person: _____

Telephone: _____Fax: _____

Email Address: _____

Made by Ministry of Health of PRC

Form Filling Instruction

1. Fill it item by item and faithfully according to the format of application form

2. The contents of the application form shall be complete, clear and without corrections.

3. Before filling this form, please read the related laws and management regulations carefully. The forms not meeting the requirements will be refused

4. Please see *the World Infectious Pathogeny Microbe Name List* made by Ministry of Health for pathogeny microbe classification, name, and transportation package types.

5. You can download the application form from the website of Ministry of Health (www.moh.gov.cn)

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Bacteria(Virus) Strain or Sample	Name (Chinese and English Name)	Classification UN number	Specification and Quantities			source
			Sample status	The capacity of each package	Package quantities	
Transportation purpose						
Primary container		Assistant container		Filling		
Outer packing			Refrigerant Name and Quantity			

Notices for Removing and Checking							
Starting and ending places for Transportation	Starting						
	Ending						
Times of Transportation		Date of Transportation					
Receiving Unit	Name						
	Address						
	Responsible person			Contact phone			
Transportation type		The responsible person for transportation		Position or title		Contact phone	

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Commitment Letter of the Container or Packaging Material for Highly-pathogenicity Pathogeny Microbe Bacteria (Virus) or Sample

You shall confirm that the container or packaging material for highly-pathogenicity pathogeny microbe bacteria(Virus) or sample meet the following requirements:

1、Highly-pathogenicity pathogeny microbe is required to take 3 layers packaging system during transportation, from inside to outside, they are primary container, assistant container and outer package.

2、Highly-pathogenicity pathogeny microbe bacteria (Virus) or sample shall be placed correctly in the primary container, and the primary container is required to be asepsis, water-proof and leakage-proof. The primary container may be made of glass, metal or plastic etc. It must have reliable leakage-proof seal, for example, heat seal, plug with edge or metal curled edge seal. The outside of the primary container shall have enough sample absorbing material, once leakage, it can absorb all samples. Label the outside of the primary container and indicate sample type, number, name, quantity of sample etc.

3、The assistant container is the second layer container which is strong, water-proof and leakage-proof outside primary container. Its function is to pack and protect primary container. When several primary containers loaded in one assistant container, you must pack them separately to prevent contacts between each other and line enough absorbing material on the outside of the several primary containers. The related documents (for example, sample quantities form, hazard declaration, letter, sample appraisal material, sender and receiver information) shall be put in a water-proof bag and stick it to the outside of assistant container.

4、Assistant container must be fixed in the outside package by using proper liner material in order to prevent it from outside influence during transportation, for example damage, founder etc.

5、When the ice, dry ice or other refrigerants are used for cold storage transportation, the refrigerant shall be put between assistant container and outside package, with a holder fixed inside. When ice or dry ice consumed, the assistant container can still be fixed at the original position. If ice is used, the outer package shall be water-proof. If dry ice is used, the outer package shall be able to exhaust carbon dioxide gas in order to avoid pressure build-up which leads to container crack. Under the temperature of using refrigerants, the primary and assistant container shall be able to remain good performance. After the refrigerants consumed, it shall still be able to stand the temperature and pressure during transportation.

6、When using liquid nitrogen for the cold storage of samples, you must ensure the primary and assistant container can be adapted to extremely low temperature. Moreover, it must meet other transportation requirements about liquid nitrogen.

7、The primary and assistant containers shall be intact under the temperature of using refrigerants and the possible temperature and pressure when cold-making lost. The primary and

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assistant containers shall stand 95kPa inner pressure under the condition of no leakage and shall be out of damage at the temperature range between -40℃to50℃.

8、Outer package is a protection layer outside assistant container. It has enough intensity and unified marking stuck on outside surface.

Application Unit Corporative Person Signature:

Year Month Day

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Examination comments from application transportation unit:

Corporative representative: Cachet:

Year Month Day

Examination comments from the Health administration of province, autonomous region or municipal cities:

Cachet:

Year Month Day

Examination comments from the Ministry of Health:

Cachet

Year Month Day

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Attached material(Please mark "√" in □ before the provided material)

□ 1. Corporative qualification attestation material(copy)

□ 2. Attestation document from receiving unit for the consent of acceptance(Original)

□3.*The Laboratory Qualification Certificate of involving highly-pathogenicity pathogeny microbe experiment activity (copy)* issued by the Ministry of Health and shown by receiving unit.

□4.The approval documents shown by receiving unit for involving in the world infectious highly-pathogenicity pathogeny microbe or suspicious highly-pathogenicity pathogeny microbe experiment activities, bacteria (virus) storage, biological goods production etc.

□ 5.The approval number, product eligibility certificate of container or packaging material.

□ 6.Other related material

Other issues that need to be addressed.

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Transportation Approval Ceritificate for Human Infection Highly-pathogenicity Pathogeny Microbe Bacteria (Virus) or Sample

Anhui transportation approval certificate(PRC year)
Number

Bacteria (Virus) or Sample	Name (Both Chinese and English)	Total quantities	Capacity of each package	Package quantity	Sample Status
Class/UN number			Purpose of transportation		
Primary container		Assistant container		Filling	
Outer package			The name of refrigerants and quantity		
Removing and checking notices					
Transportation times and date					
Transportation starting place					
Transportation ending place					
Transportation application unit	Name				
	Address				
	Contact Person		Telephone		
Receiving unit	Name				
	Address				
	Contact Person		Telephone		
Transportation type					
Approval Unit	Cachet Year Month Day				

Made by the Ministry of Health of PRC

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Appendix E

Company Contact List for Dangerous Goods Emergency Response

Number	Airport Name	Contact Number
1	Haikou Meilan International Airport	Airport Command Center：0898-69966909 Fire Service Center：0898-65751119 First Aid Center：0898-69966120 Airport Police：0898-65751110 Haikou Emergency Management Bureau:0898-68723771/68723773 Hainan Provincial Emergency Management Department: 0898-66771111/66771112
2	Sanya Fenghuang International Airport	Airport Command Center：0898-88289086/087/555 Fire Service Center：0898-88289119/9274 First Aid Center：0898-88289334 Airport Police：0898-88289276/9260/9110 Regional Emergency Number：0898-88272446
3	Qionghai Boao Airport	Airport Command Center：0898-62629515 Fire Service Center：0898-62629119 First Aid Center：0898-62629120 Airport Police：0898-62629110 Regional Emergency Number：0898-62802233
61	Chengdu Tianfu International Airport	Airport Command Center：02886906015 Fire Service Center：02886909119 First Aid Center：02886909120 Airport Police：02886909110 Regional Emergency Number：02886908978 Other Supplementary Phone Numbers：
62	Langzhong Ancient City Airport	Airport Command Center：0817-6258068/9 Fire Service Center：0817-6258119 First Aid Center：0817-6258120 Airport Police：0817-6258110 Regional Emergency Number：0817-6306110 Flight Service Room：0817-6258059
63	Hefei Xinqiao International Airport	Airport Command Center：0551-63777202 Fire Service Center：0551-63777119 First Aid Center：0551-63777120 Airport Police：0551-63777110

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4	Sansha Yongxing Airport	Airport Command Center：0898-83838118 Fire Service Center：0898-83838119 First Aid Center：098-83838120/18288945431 Airport Police：18876656711 Sansha Emergency Rescue and Comprehensive Law Enforcement Bureau：18789700801	64	Anqing Tianzhu Mountain Airport	Airport Command Center：0556-5861035 Fire Service Center：0556-5861119 First Aid Center：0556-5861120 Airport Police：0556-5861110 Regional Emergency Number：0556-5701117
5	Beijing Capital International Airport	Airport Command Center：010-64535801 Fire Service Center：010-64563333/010-64593333 First Aid Center：010-64530120 Airport Police：010-64564100 Beijing Emergency Management Bureau：010-12350 Contact Number of the State Council Nuclear Safety Regulatory Department：010-66556378 Contact Number of the Civil Aviation Competent Department:010-64091928 Beijing Ecological Environment Bureau：010-55522366、010-55522555 On - duty Phone Number of Beijing Regulatory Bureau:13911604362 Hazardous Goods Report Phone Number of North China Bureau:13601282233	65	Shijiazhuang Zhengding International Airport	Airport Command Center：0311-68137766 Fire Service Center：0311-68137119 First Aid Center：0311-68137299 Airport Police：0311-88027110
6	Shanghai Pudong International Airport	Airport Command Center：021-68347571 Fire Service Center：021-68347007 First Aid Center：021-68347007 Airport Police：021-68343110 Regional Emergency Number：021-68347571	66	Handan Airport	Fire Service Center：0310-6280119 First Aid Center：0310-2111120 Airport Police：0310-6280110 Regional Emergency Number：0310-3022227

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7	Shanghai Hongqiao International Airport	Airport Command Center：021-22381200 Fire Service Center：021-22344061/22320119 First Aid Center：021-68347007/68347008/68341119/22320119 Airport Police：021-68343110/28952110 Regional Emergency Number：021-22381201	67	Tangshan Sannvhe Airport	Airport Command Center：0315-2521088 Fire Service Center：0315-2521119 First Aid Center：0315-2521053 Airport Police：0315-2521110 Regional Emergency Number：0315-5906616
8	Guangzhou Baiyun International Airport	Airport Command Center：020-36066029 Fire Service Center：020-36063119 First Aid Center：020-36062664 Airport Police：020-86122609 Regional Emergency Number：020-36062564	68	Zhengzhou Xinzheng International Airport	Airport Command Center：037158517002 Fire Service Center：037158519119 First Aid Center：037158519120 Airport Police：037158519110 Regional Emergency Number：037161318803
9	Shenzhen Bao'an International Airport	Airport Command Center：0755-23456111 Fire Service Center：0755-23456119 First Aid Center：0755-23459120 Airport Police：0755-84447555 Regional Emergency Number：0755-83071111	69	Nanyang Jiangying Airport	Airport Command Center：0377-62232016 Fire Service Center：0377-62232119 First Aid Center：0377-62232081 Airport Police：0377-62232110/2115
10	Zhuhai Jinwan Airport	Airport Command Center：0756-7771222 Fire Service Center：0756-7778115 First Aid Center：0756-7772120 Airport Police：0756-7772541 Regional Emergency Number：0756-7263110	70	Xinyang Minggang Airport	Airport Command Center：0376-8693022 Fire Service Center：0376-8693119 First Aid Center：0376-8693120 Airport Police：0376-8693059 Regional Emergency Number：0376-8693022

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11	Jieyang Chaoshan International Airport	Airport Command Center：0663-6192077 Fire Service Center：0663-6191119 First Aid Center：0663-6191120 Airport Police：0663-6191110 Regional Emergency Number：0663-8768337
12	Huizhou Pingtan Airport	Airport Command Center：0752-5718156/157 Fire Service Center：0752-5718119 First Aid Center：0752-5718120 Airport Police：0752-5718110 Regional Emergency Number：0752-2180378
13	Zhanjiang Wuchuan Airport	Airport Command Center：0759-8210256 Fire Service Center：0759-8210119 First Aid Center：0759-8210120 Airport Police：0759-3255110 Regional Emergency Number：0759-5579119
71	Harbin Taiping International Airport	Airport Command Center：045182894077 Fire Service Center：045182894119 First Aid Center：045182894120/4093 Airport Police：045182894808/5652 Heilongjiang Emergency Management：045187017019 Harbin Emergency Management Bureau：045186776266
72	Jixi Xingkai Lake Airport	Airport Emergency Rescue Command Center：0467-2191003 Fire Service Center：0467-2191119 First Aid Center：0467-2191120 Airport Police：0467-2191110 City Emergency Management Bureau Phone Number：0467-6181254
73	Changchun Longjia International Airport	Airport Command Center：0431-77783805 Fire Service Center：0431-77785119 First Aid Center：0431-77785120 Airport Police：0431-77785110 Regional Emergency Number：0431-80767908

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14	Chongqing Jiangbei International Airport	Airport Command Center：023-67152304 Fire Service Center：023-67150119 First Aid Center：023-67150120 Airport Police：023-67150110 Regional Emergency Number：023-67152308
15	Qianjiang Wuling Mountain Airport	Airport Command Center：023-79850701 Fire Service Center：023-79850757 First Aid Center：023-79857120 Airport Police：023-79850796 Regional Emergency Number：023-79850701
16	Dalian Zhoushuizi International Airport	Airport Command Center：0411-83885244 Fire Service Center：0411-83885490 First Aid Center：0411-83885807 Airport Police：0411-83885680 Regional Emergency Number：0411-83886239
17	Shenyang Taoxian International Airport	Airport Command Center：024-89398050 Fire Service Center：024-89392119 First Aid Center：024-89392762/31929120 Airport Police：024-89392110 Regional Emergency Number：024-84821195
74	Nanchang Changbei International Airport	Airport Command Center：0791-87652239/87652274/87652276 Fire Service Center：0791-87652119/87152119 First Aid Center：0791-87652120/86152120 Airport Police：0791-87652470/88217110 Regional Emergency Number：0791-83980366
75	Jiujiang Lushan Airport	Airport Command Center：0792-8431856 Fire Service Center：07928431119 First Aid Center：0792-8431120 Airport Police：0792-8431110
76	Yichun Mingyue Mountain Airport	Airport Command Center：0795-3600268 Fire Service Center：0795-3600119 First Aid Center：0795-3600120 Airport Police：0795-3297110 Regional Emergency Number：0795-3198329
77	Yinchuan Hedong International Airport	Airport Command Center：0951-6912293/0951-6912295 Fire Service Center：0951-6912119 First Aid Center：0951-6912120 Airport Police：0951-6912110 Regional Emergency Number：0951-6888689

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18	Lanzhou Zhongchuan International Airport	Airport Command Center：0931-8168813 Fire Service Center：0931-8253119 First Aid Center：0931-8253120 Airport Police：0931-8253110 Emergency Management Bureau of Lanzhou City: 7848020 or 13609352770 Emergency Management Bureau of Lanzhou New Area:0931-8256031 24 - hour Emergency On - duty Telephone of Civil Aviation Gansu Regulatory Bureau: 0931-8169988 or 13909495225 Ecology and Environment Bureau of Lanzhou New Area: 0931-8259401 Northwest Nuclear and Radiation Safety Supervision Station of the Ministry of Ecology and Environment: 0931-8682816 Land and Resources and Environmental Protection Bureau of Lanzhou New Area:0931-8253784。	78	Xining Caojiabao International Airport	Airport Command Center：0971-8188128 Fire Service Center：0971-8188119 First Aid Center：0971-8188120 Airport Police：0981-8188183
19	Zhangye Ganzhou Airport	Airport Command Center：0936-88590124 Fire Service Center：0936-8859119 First Aid Center：0936-8859120 Airport Police：0936-8859110 Emergency Management Bureau of Zhangye City:0936-8213512 Command Center of Zhangye Public Security Bureau: 0936-5999058	79	Edinburgh Airport	Airport Command Center：+44(0)1313332228/+44(0)1313443254 Fire Service Center：+44(0)1313332228 First Aid Center：+44(0)1313332228 Airport Police：+44(0)1313332228 Regional Emergency Number：+44(0)1313332228 机场运行经理席：+441313443316
20	Tianjin Binhai International Airport	Airport Command Center：022-24906456 Fire Service Center：022-24905119 First Aid Center：022-24905120 Airport Police：022-24905110	80	Oslo Gardermoen Airport	Airport Command Center：+4764819065 Fire Service Center：64812911 First Aid Center：113 Airport Police：02800

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21	Taiyuan Wusu Airport	~~Airport Command Center：0351-7012317~~ Fire Service Center：0351-7288119 First Aid Center：T1：0351-7287120、T2：0351-7288120 Airport Police：0351-7288110 Taiyuan Environmental Protection Supervision Phone Number：0351-12369 Safety and Quality Department of Taiyuan Airport：0351-7012034 Taiyuan Epidemic Prevention Office：0351-12345	81	Belgrade Nikola Tesla Airport	Airport Command Center：+38111209-4971/+38111209-4972 Fire Service Center：+381112097222 First Aid Center：+38111209-4971/+38111209-4972 Airport Police：+381648926958 Regional Emergency Number：+381648485442
22	Xi'an Xianyang International Airport	Airport Command Center：029-88798727/88798728 Fire Service Center：029-88798119 First Aid Center：029-88798591/88796120 Airport Police：029-88798909/88798924	82	Budapest Ferenc Liszt International Airport	Airport Command Center：+36 20 9261 297 Fire Service Center： First Aid Center：+36 1 296 7421 Airport Police：+361 296 6444 Regional Emergency Number：+36 1 296 6399 Airport customer service：+36 1296-7000
23	Yulin Yuyang Airport	Airport Command Center：0912-3457222 Fire Service Center：0912-3457119 First Aid Center：0912-3457120 Airport Police：0912-3457110 Center for Disease Control and Prevention：0912-8193195 Environmental Protection Department：0912-7995668	83	Paris Charles de Gaulle Airport	Airport Command Center：+33 1 48 62 74 74 Fire Service Center：+33 1 48 62 40 18/18 First Aid Center：+33 1 49 75 48 09 Airport Police：17 Regional Emergency Number：+33 1 74 37 70 77 Airport agent Traffic on duty：+33 1 48 16 66 61

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24	Hanzhong Chenggu Airport	Airport Command Center：0916-7391117 Fire Service Center：0916-7390119 First Aid Center：0916-7390120 Airport Police：0916-7390110 Center for Disease Control and Prevention：0916-2217773 Environmental Protection Department：0916-2682313	84	Prague Václav Havel Airport	Airport Command Center：+00420 1000 Fire Service Center：00420 3333 First Aid Center：00420 3301 Airport Police：00420 4444 Other Supplementary Phone Numbers：0420 22011
25	Urumqi Tianshan International Airport	Airport Command Center：0991-7525090 Fire Service Center：0991-7529119 First Aid Center：0991-7528120 Airport Police：0991-5267110 Civil Aviation Xinjiang Administration：0991-3803248	85	Berlin Brandenburg Airport	Airport Command Center：0049 30609110110 Fire Service Center：0049 306091112 First Aid Center：0049 306091112 Airport Police：0049 308562111111 Regional Emergency Number：112 Airport info :0049 30609160910
26	Kashgar Laining International Airport	Airport Command Center：09982928088 Fire Service Center：09985856119 First Aid Center：09985856120 Airport Police：09982928110 Regional Emergency Number：0998-2823829	86	Brussels Airport	Airport Command Center：0032 2753 4200 Fire Service Center：0032 2753 3333 First Aid Center：0032 2753 6363 Airport Police：0032 2709 6666 Regional Emergency Number：112
27	Kuqa Qiuci Airport	Airport Command Center：0997-6787020 Fire Service Center：0997-6787021 First Aid Center：0997-6777120 Airport Police：0997-6787011	87	Dublin Airport	Airport Command Center：+353（087）2392277 Fire Service Center：+35318144343，+35318144666 First Aid Center：+35318144444 Airport Police：+35318144300

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28	Shihezi Garden Airport	Airport Command Center：0993-2660571 Fire Service Center：0993-2660582 First Aid Center：0993-2660565 Airport Police：0993-2660543 Regional Emergency Number0993-2860000	88	Vladivostok International Airport

Airport Command Center：+7 (423) 230-67-77
Fire Service Center：01
First Aid Center：+7 (423) 230-69-03; +7 (423) 230-69-04.
Airport Police：+7 (423) 260-64-70; +7 (999) 29-65-764
Regional Emergency Number：+7 (423) 230-67-77
Unifies rescue service: 112
Police:102
Ambulance: 103
Firefighters and rescuers: 101
Other Supplementary Phone Numbers:
24-hour airport information service: +7 (423) 230-69-09
Luggage search: +7 (423) 230-68-43
Room with passengers with reduced mobility: +7 (423) 230-68-41;+7 (924) 730-03-65
Mother and child room: + 7 (423) 230-68-66

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29	Hotan Kungang Airport	Airport Command Center：09032086116 Fire Service Center：09032086119 First Aid Center：09032086120 Airport Police：09062086110	89	London Heathrow Airport	Airport Command Center：+44 7525 825585 Fire Service Center：+44（0）20 8759 1212 First Aid Center：media_centre@heathrow.com、+44 (0)20 8745 7224 Airport Police：https://www.met.police.uk/、+44 20 7230 1212、999 Regional Emergency Number：+44 7710 069531
30	Changsha Huanghua International Airport	Airport Command Center：0731-84797280 Fire Service Center：0731-84797119 First Aid Center：0731-84797120 Airport Police：0731-84797110 Regional Emergency Number：0731-86390032	90	Rome Fiumicino Airport	Airport Command Center：+39 06 6595 3022 06-65964077 Fire Service Center：+39 06 6595 4444 First Aid Center：+39 06 6595 3133/3134 Airport Police：+39 06 6595 6666 Regional Emergency Number：+39 06 6820 3391/2338/2289 ENAV TOWER CONTROL：+39 06 6595 7555
31	Hengyang Nanyue Airport	Airport Command Center：0734-8696062 Fire Service Center：0734-8696119 First Aid Center：0734-8696120 Airport Police：0734-8696110 Regional Emergency Number：0734-8869036	91	Manchester Airport	Airport Command Center：+441614893331 Fire Service Center：+441614892222 First Aid Center：+441614892222 Airport Police：+441614895555 Regional Emergency Number：999

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32	Shaoyang Wugang Airport	Airport Command Center：17873932857 Fire Service Center：0739-4562119 First Aid Center：0739-4568120 Airport Police：0739-4563110 Regional Emergency Number：0739-4243760	92	Madrid Barajas Airport	Airport Command Center：+34 913936524 Fire Service Center：112 First Aid Center：112 Airport Police：+34 913 058 500 Regional Emergency Number：112
33	Yueyang Sanhe Airport	Airport Command Center：0730-2999830 Fire Service Center：0730-2961119 First Aid Center：0730-2999958 Airport Police：0730-2999797 Regional Emergency Number：0730-8795801	93	Milan Malpensa Airport	Airport Command Center：+39 02 23 23 23 Fire Service Center：115 First Aid Center：+39 06 59944793 Airport Police：113
34	Wuhan Tianhe International Airport	Airport Command Center：027-85818546 Fire Service Center：027-85818119 First Aid Center：027-65590120 Airport Police：027-85818110 Regional Emergency Number：027-82896506 Wuhan Traffic and Transportation Administration: 027-68820110	94	Moscow International Airport	Airport Command Center：+74955786565 Fire Service Center：01 First Aid Center：+7-(495)-578-77-09 Airport Police：+7 (495) 578 22 55 Regional Emergency Number：+7 (495) 459 90 38
35	Yichang Sanxia International Airport	Airport Command Center: 07176439203 Fire Service Center: 07176532119 First Aid Center：07176532120 Airport Police: 07176532110 Yichang Emergency Management Bureau: 07176212350 Xiaoting District Emergency Management Bureau: 07176512350	95	Vienna International Airport	Airport Command Center：+43-1-7007-0 Fire Service Center：+43-1-7007-0 Feuerwehr@viennaairport.com First Aid Center：+43-1-7007-22245 Airport Police：+43-1-7007-33133 Local emergency numbers: Fire 122, Ambulance 144, Police 133, EU-wide emergency 112

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36	Jingzhou Shashi Airport	Airport Command Center：07168999065 Fire Service Center：07168999119 First Aid Center：07168911120 Airport Police：07168999110 Regional Emergency Number：07168815917
37	Lianyungang Huaguoshan International Airport	Airport Command Center：051880566038 Fire Service Center：051880566119 First Aid Center：051880566120 Airport Police：051880566110 Regional Emergency Number：0518-85515976 Other Supplementary Phone Numbers：/
38	Nanjing Lukou International Airport	Airport Command Center：02569820256 Fire Service Center：02569820119 First Aid Center：02569820120 Airport Police：02569820110 Regional Emergency Number：02587778332
39	Xuzhou Guanyin International Airport	Airport Command Center：051683068090 Fire Service Center：051683068119 First Aid Center：051683068150 Airport Police：051683068110 Regional Emergency Number：051683739658
96	St. Petersburg Pulkovo Airport	Airport Command Center： +7 (812) 324-30-00 +7 (812) 337-34-44 +7 (812) 337-38-22 Fire Service Center：01 First Aid Center：03 Airport Police：+7 (812) 600-26-11, +7 (812) 600-26-12, +7 (812) 600-26-13. Regional Emergency Number： Other Supplementary Phone Numbers：
97	Irkutsk International Airport	Airport Command Center：54-42-56, 26-64-05, 89148956495 Fire Service Center：26-64-04, 26-62-01 First Aid Center：26-64-04, 26-62-01 Airport Police：26-62-02, 27-02-97 Regional Emergency Number：01, 112, 520-112
98	Tijuana International Airport	Airport Command Center：+52 664-409-0138 Fire Service Center：+52 664-408-9025 First Aid Center：+52 664-235-3275 Airport Police：+52 55-5434-4055
99	Toronto Pearson International Airport	Airport Command Center：+001 416-7763055 Fire Service Center：+001 416-7763033 First Aid Center：+001 416-7763033 Airport Police：+001 416-7763033 Regional Emergency Number：+001

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					416-7763033
40	Hangzhou Xiaoshan International Airport	Airport Command Center：0571-83833283 Fire Service Center：0571-86662119 First Aid Center：0571-86662120/86662316 Airport Police：0571-83837110 Airport Quarantine (Customs): 0571-86662570 CAAC Zhejiang Supervision Bureau (24-hour): 13805713688 CAAC East China Regional Administration (24-hour): 13916661870	100	Mexico City International Airport	Airport Command Center：+52 55 5571 3214；+52 55 5762 2202；+52 55 2482 2424 Fire Service Center：+52 55 2482 2424；+52 55 2482 2400 First Aid Center：+52 55 2482 2424；+52 55 5571 3084 Airport Police：+52 55 5571 0497；+52 55 2482 2424 Regional Emergency Number：9-1-1
41	Ningbo Lishe International Airport	Airport Command Center：0574-89009998 Fire Service Center：0574-89006119 First Aid Center：0574-89006120 Airport Police：0574-89006110	101	Vancouver International Airport	Tower/Control Centre: +1 604 775 9531 Airport Operations: +1 604 207 7022 Fire Department: 911 Medical Emergency: 911 Airport Police: +1 604 303 4721 / 911 Non-emergency Police Line: +1 604 278 1212 YVR Customer Service: +1 604 207 7077 (TTY 7070) Customs: +1-888 226 7277 / CBSA: +1-888 294 2202

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42	Wenzhou Longwan International Airport	Airport Command Center：0577-85807720 Fire Service Center：0577-86892119 First Aid Center：0577-85807971 Airport Police：0577-85807110 Emergency Management Office of Wenzhou Airpor: 13758477076
43	Taizhou Luqiao Airport	Airport Command Center：0576-82776298 Fire Service Center：0576-82578119 First Aid Center：0576-82775120 Airport Police：0576-82778110
44	Fuzhou Changle International Airport	Airport Command Center:059128013052 Fire Service Center：059128014119 First Aid Center：059128013017 Airport Police：059128012110 Fuzhou Municipal Government Emergency Management Office：059183324466
45	Xiamen Gaoqi International Airport	Airport Command Center：0592-5708221 Fire Service Center：0592-5706119 First Aid Center：0592-5706120 Airport Police：0592-5706110
102	Seattle-Tacoma International Airport	Airport Command Center：(206) 787-5229 Fire Service Center：911 First Aid Center：911 Airport Police：+1 (206) 947-8332 Regional Emergency Number：911
103	Osaka Kansai International Airport	Airport Command Center：+81 0352538727/+8109040284524 Fire Service Center：119 First Aid Center：119 Airport Police：110
104	Dubai International Airport	Airport Command Center：+971 4 504 5000 Fire Service Center：+971 4 506 2999 First Aid Center：+971 4 504 5007 Airport Police：+971 4 504 1111 Regional Emergency Number：+971 4 504 5000
105	Tokyo Narita International Airport	Airport Command Center：+81 476-32-2246 Fire Service Center：+81 476-32-2241 First Aid Center：+81 476-34-5555 Airport Police：+81 476-32-0110

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46	Quanzhou Jinjiang International Airport	Airport Command Center：0595-85628778 Fire Service Center：0595-85628119 First Aid Center：0595-85628120 Airport Police：0595-85628110
106	Kuala Lumpur International Airport	Airport Command Center： AIRPORT OPERATION CONTROL CENTER (AOCC) 03-8776 9135 AIRPORT OPERATION DUTY MANAGER (AODM) 03-8776 9999 AFRS：03-8776 8953 BOMBA KLIA SEPANG：03-8787 4986 First Aid Center： MENARA MEDICAL CENTRE KLIA：03-8776 4909 MENARA MEDICAL KLIA2：03-8778 5909 Airport Police： BALAI POLIS KLIA：03-8776 8922 PONDOK POLIS LEVEL 5 MTB：03-8776 3450 IBUPEJABAT POLIS KLIA：03-8776 8222 Regional Emergency Number： Other Supplementary Phone Numbers： IBUPEJABAT POLIS DAERAH SALAK TINGGI：03-8777 4222 K9 KLIA：03-8777 4419 UNIT PEMUSNAH BOM：03-8778 5370 HOSPITAL PUTRAJAYA：03-8312 4200 HOSPITAL SEREMBAN：06-7684 000 HOSPITAL SERDANG：03-8947 55554

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47	Sanming Shaxian Airport	Airport Command Center：0598-5668215 Fire Service Center：0598-5699119 First Aid Center：0598-5668108 Airport Police：0598-8052925	107	Bangkok Suvarnabhumi Airport	Airport Command Center：66 2 1324000 Fire Service Center：66 2 1329911 First Aid Center：66 21324000 Airport Police：66 21324191
48	Guiyang Longdongbao International Airport	Airport Command Center：085185498150 Fire Service Center：0851-85498767 First Aid Center：0851-85498350 Airport Police：0851-85498110 Guiyang Airport Duty Office ： 18685056935	108	Phuket International Airport	Airport Command Center：076351147/076351157 Fire Service Center：076351150/076351199 First Aid Center：076351113 Airport Police：076351962 Regional Emergency Number：076351009/076351191
49	Nanning Wuxu International Airport	Airport Command Center：07712885100 Fire Service Center：07712885119 First Aid Center：07712885120 Airport Police：07712885110	109	Seoul Incheon International Airport	Airport Command Center：+82-32-741-4949 Fire Service Center：+82-32-741-2119 First Aid Center：+82-32-741-2119 Airport Police： +82-32-745-5561 Regional Emergency Number：+82-119
50	Guilin Liangjiang International Airport	Airport Command Center：0773-2845860 Fire Service Center：0773-2845119 First Aid Center：0773-2845120 Airport Police：0773-2845110 Regional Emergency Number：0773-5625050	110	Tel Aviv Ben Gurion Airport	Airport Command Center：+972 3 975 5555 Fire Service Center：+972 3 975 2222 First Aid Center：+972 3 975 4333 Airport Police：+972 3 975 4666 Regional Emergency Number：100 (Police), 101 (EMS), 102 (Fire) Other Supplementary Phone Numbers：+972 3 975 2386

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51	Liuzhou Bailian Airport	Airport Command Center：0772-3201095 Fire Service Center：0772-3201119 First Aid Center：0772-3201120 Airport Police：0772-3201110 Regional Emergency Number：0772-2810914	111	Vientiane Wattay International Airport	Airport Command Center：856 20 23 222 765 Fire Service Center：856 20 54 468 862 Airport Police：856-21512012 Regional Emergency Number：856 20 55 662 676
52	Yulin Fumian Airport	Airport Command Center：0775-2125813 Fire Service Center：0775-2869119 First Aid Center：0775-2869120 Airport Police：0775-2869110 Regional Emergency Number：0775-2828103	112	Singapore Changi Airport	Airport Command Center：6541 2416 Fire Service Center：65412525 First Aid Center：65432223 Airport Police：65460000 Regional Emergency Number：65412424
53	Jinan Yaoqiang International Airport	Airport Command Center：0531-82086166 Fire Service Center：0531-82086119 First Aid Center：0531-82086512 Airport Police：0531-8206911 Regional Emergency Number：0531-82086366 Other Supplementary Phone Numbers：0531-82086166	113	Sapporo New Chitose Airport	Airport Command Center：0123-23-4195 Fire Service Center：0123-22-2852 First Aid Center：0123-22-2852 Airport Police：0123-45-7191 Regional Emergency Number：0123-22-1111
54	Qingdao Jiaodong International Airport	Airport Command Center：6789-1155 Fire Service Center：6789-0119 First Aid Center：6789-0120 Airport Police：6789-0110 Regional Emergency Number：6789-1111/6789-2222	114	Taipei Taoyuan International Airport	Airport Command Center：+886 3 306 3550 Fire Service Center：+886 3 306 2919~21 First Aid Center：+886 3 398 3486 Airport Police：+886 3 398 2174 Regional Emergency Number：110 Airport Operations Control Center (OCC)：+886 3 273 1999

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55	Dongying Shengli Airport	~~Airport Command Center：0546-2979069~~ Fire Service Center：0546-2979119 First Aid Center：0546-2979120 Airport Police：0546-2979110 Regional Emergency Number：0546-2979888 Other Supplementary Phone Numbers： Airport Command Center：0471-2901313/2901414 Fire Service Center：0471-2901119 First Aid Center：0471-2901120 Airport Police：0471-2901110 Regional Emergency Number：0471-2901539 Airport Service Room：0471-2901690 Airport commercial transfer：0471-2901818	115	Hong Kong International Airport	SATS IAC SERVICE CONTROL： +852 2183 4448 HKIA AA DM：+852 9612 1860
56	Hohhot Baita International Airport		116	Macau International Airport	Airport Command Center: 28861111 Macau Airport Security Company Duty Hotline: +853-66606099 Airport Duty Officer (AOD) Hotline: +853-66833057
57	Manzhouli Xijiao Airport	Airport Command Center：04706246007 Fire Service Center：04706246119 First Aid Center：04706246112 Airport Police：04706246110 Regional Emergency Number：04706224032	117	Auckland International Airport	Airport Command Center：092568818 Fire Service Center：092568818 First Aid Center：64 9 947 5241 Airport Police：64 9 275 9046 Regional Emergency Number： 6492750789/0800247767
58	Wuhai Airport	Airport Command Center：0473-2783355 Fire Service Center：0473-2783119 First Aid Center：0473-2783120 Airport Police：0473-2483110 Regional Emergency Number： 0473-3998586/0473-2020021	118	Melbourne Airport	Airport Command Center：+61 92971849 Fire Service Center：+61 03-92971601 First Aid Center：+61 03 9342 7000 Airport Police：000 Regional Emergency Number：131237

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59	Huolinguole Huolinhe Airport	Airport Command Center: +86-475-7969512 Fire Service Center：+86-475-7969119 First Aid Center：+86-475-7969120 Airport Police Station: +86-475-7969110 Huolinguole Municipal Emergency Management Bureau: +86-475-7921682	119	Sydney Kingsford Smith Airport	Airport Command Center：+61 02 9667 9921 Fire Service Center：+61 02 9667 9090 First Aid Center：+61 02 9667 9090 Airport Police：+61 02 9667 9673 Regional Emergency Number：+61 02 9667 9090
60	Kunming Changshui International Airport	Airport Command Center：0871-67091888 Fire Service Center：0871-67092269 First Aid Center：0871-67090120 Airport Police：0871-67093210	120	Cairo International Airport	Airport Command Center：+20 01066661122 Fire Service Center：+2 0222653390 First Aid Center：+2 01000096586 Airport Police：+2 01000096586

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Appendix F

Reservation and Distribution of the Dangerous Goods Regulations

1. Demand collecting and DGR reservation

1. 1 Operation Standard Department operation certification center will collect the DGR using status in September of every year, determine the order quantity, and report the demand to Transportation Training Centre of Sales & Marketing Department for centralized purchasing.

1.2 The Operation Standard Department operation certification center is responsible to contact IATA in December each year and subscribe the DGR next year.

2. Distribution

2.1 Distribute after revision of *Dangerous Goods Transport Manual* and relevant operation documentations is made according to contents of DGR new edition.

2. 2 The new version of DGR manual is issued by the Freight Management Center of the Ground Service Management Department to the ground operation agency units that have signed the Ground Agency Agreement with the company and the freight office that carries out the dangerous goods transportation business of the company.

2.3 After releasing distribution lists of DGR and this manual to each department, each department distributes them within the department by itself.

3. Reclamation of the old edition of the manual

3.1 When distributing new edition manual, the Operation Standard Department operation certification center is responsible for reclaiming the old edition.

4.Other

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The Operations Certification Center of the Flight Standards Department shall interpret, assess, and revise the company's Dangerous Goods Transportation Manual based on the latest edition of the DGR and DGR Addendum content obtained via the IATA website.The Ground Service Management Department and all Base/Branch Companies shall ensure that a current and effective copy of the Dangerous Goods Regulations (DGR) or the ICAO *Technical Instructions* for the Safe Transport of Dangerous Goods by Air (*Technical Instructions*), including applicable Addenda, is available at each location under their jurisdiction where cargo operations involving dangerous goods are performed or received. The Ground Service Management Department and all Base/Branch Companies are responsible for checking the availability of the DGR and DGR Addendum at each such location under their jurisdiction. The content of the DGR Addendum must be printed and attached to the held DGR.

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Appendix G

Lithium battery air transport guide and emergency operations

G.1 General rules

This chapter specifies the restrictions and operating specifications for the air transportation of lithium battery cargo / luggage of Hainan Airlines. All units of the company shall strictly comply with the provisions of this chapter to carry out the air transportation of lithium battery cargo. For overseas transportation, the laws and regulations of local country and the relevant regulations of civil aviation authorities

When all units and ground service agents carry out the air transport of lithium battery cargo at the relevant stations,

It shall comply with the scope of business notice of the transportation station issued by the Local Service Department of the Company or the scope of qualification specified in 1.3.3 List of Dangerous Goods Transport Stations of HNA Airlines.

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G .1.1 Definition

G.1.1.1 Lithium batteries are a variety of different chemical compositions containing combinations of many types of cathodes and electrolytes. In IATA DGR, lithium battery belongs to the category 9th dangerous goods, which is divided into lithium metal battery and lithium ion battery.

G.1.1.2 Lithium metal batteries are generally disposable batteries (not rechargeable) with lithium metal or lithium mixture acting as the anode. Lithium metal batteries are generally used as energy for watches, calculator, cameras, and temperature data recorders.

Figure 1-Lithium-metal battery

G.1.1.3 Lithium-ion batteries (sometimes abbreviated as Li-ion batteries) are a reusable battery (rechargeable) that is commonly used in the consumer electronics industry. Also included in the lithium-ion batteries are the lithium-polymer batteries. Lithium-ion batteries are usually used in mobile phones, laptops, etc. Lithium-polymer battery is a type of lithium-ion battery. In general, the main difference is that lithium-ion polymer batteries contain some kind of polymer electrolyte.

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Figure 2-Lithium-ion battery

G.1.1.4 The lithium battery cell is a single electrochemical closed unit, consisting of a positive electrode and a negative electrode, with a potential difference between the two poles. Lithium battery consists of two or more lithium battery cells that are connected through a circuit. In DGR, single-cell cells should be limited as battery cells rather than batteries.

G.1.1.5 Rated watt hour (Wh) is a standard standard for lithium-ion batteries. If the nominal voltage (V) and nominal capacity (Ah) of the battery are known, the value of the rated watt hour can be calculated: Wh= V x Ah (amp multiplied by the nominal

voltage equal to watt hour). Note: If only millihour (mAh) is marked on the battery, this value can be divided by 1000 to obtain ampere hours (Ah) (example: 4400 mAh / 1000 = 4.4Ah).

G.1.1.6 The button cell is a small round cell with an overall height less than the diameter.

G.1.1.7 Lithium content The mass of lithium in the anode of lithium metal or lithium alloy batteries

G.1.1.8 The charge bank is composed of lithium battery core or battery, corresponding circuit and shell. Its main function is to provide a stable DC output power source for other devices, and a small mobile power supply that can be carried by the user.(When the goods are transported, the charger is regarded as lithium battery rather than lithium battery containing equipment.)

G.1.2 **Transportation conditions (general requirements)**

G.1.2.1 All models of lithium batteries must pass the series tests specified in Section III UN38.3 before delivery for air transport.

G.1.2.2 Production of all lithium battery cells and batteries must be performed in accordance with the QMS (Quality Management System) specified in DGR 3.9.2.6.1 section e).

G.1.2.3 The packaging of lithium batteries must meet the general requirements of IATA DGR5.0.2 and be protected against short circuits. Measures include preventing contact with a conductive material that can cause a short circuit in the same package.

G.1.2.4 Under clause A154 of ICAO TI and IATA DGR, the lithium battery identified as defective or damaged for safety reasons may have a potential danger of heating, combustion and short circuit, and transportation is prohibited (e. g. batteries recalled by the manufacturer for safety reasons).

G.1.2.5 Under clause A183 of ICAO TI and IATA DGR, air transport is prohibited for recycling or disposal purposes unless approved in writing by the competent

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authority of the country of origin and operator.

G.1.2.6 Lithium battery of any specific type have not passed the series tests specified in the UN Test and Standards Manual Part III Section UN38.3, and are prohibited from transportation.

G.1.2.7 The country of origin, transit country, destination country, the country of the aviation operator and the aviation operator declare that the lithium battery whose transportation is prohibited and shall not be transported by air.

G.1.2.8 According to the requirements of the Notice no. 15,2013: Aviation Operators shall obtain the Permit for Air Transport of Dangerous Goods issued by the Civil Aviation Administration, the company shall not carry lithium battery goods unless the company has obtained the Permit for dangerous goods (including lithium battery) issued by the Civil Aviation Administration.

G.1.2.9 Lithium Batteries with Potential Safety Defects Carrying power banks without 3C certification, with unclear 3C marks, or of recalled models or batches on domestic flights is prohibited.

G.1.3 type of shipping

Lithium batteries are usually transported in the following three modes:

G.1.3.1 Pure battery transport alone;

G.1.3.2 Transport together with the equipment packaging;

G.1.3.3 Transport is installed in the equipment.

As shown in the figure below:

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Figure 3-Transportation mode of lithium battery

G.1.4 Basic requirements for the transportation of lithium battery goods

G.1.4.1 According to ICAO current version TI, the requirements of Packaging Instructions 965-970 Part I (including IA and IB) or Part II, to ensure air transport safety, the Company only receives transport on the package instructions PI966-967, PI969-970 Part II, specific transportation restrictions and basic requirements are provided in Section 1.3.3 of this manual and Table 1-Table 4 below.

G.1.4.2 HNA Airlines on the transport of lithium battery cargo restrictions

PI 965 (UN3480)	PI 966 (UN3481)		PI 967 (UN3481)		PI 968 (UN3090)	PI 969 (UN3091)		PI 970 (UN3091)	
IA and IB	I	II	I	II	IA and IB	I	II	I	II
X	X	√	X	√	X	X	√	X	√

Note: The "" sign can be transported, and "X" indicates that transportation is prohibited.

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Table 1: UN3481 Lithium-ion battery is packaged together with the equipment

(Packaging description 966 Part II)

Packaging instructions	**PI966**
IMP code	E L I
Test requirements	UN38.3
	1.2 m drop test 3m Stacking Test
Manufacturing requirements	It shall be performed under the quality management system specified in TI PART 2;9.3.1e) or DGR 3.9.2.6 (e).1 Lithium ion cells and batteries with a Watt-hour rating in excess of 2.7 Wh must be offered for transport at a state of charge not exceeding 30% of their rated capacity. When the state of charge (SoC) exceeds 30%, approval must be obtained as per the DGR and carriage is permitted only under specified conditions. Lithium ion cells and batteries with a Watt-hour rating not exceeding 2.7 Wh should be offered for transport at a state of charge not exceeding 30% of their rated capacity.
Rated energy limit	Battery cell of 20Wh Battery of 100Wh
packing specifications	Non-UN size packaging is available. Use solid hard packaging as to the requirements in DGR, as circular, square, and box.
Packaging limited	· The shipper shall ensure that the net weight of the lithium battery for each package on the passenger plane and cargo aircraft shall not exceed 5kg · And the number of batteries in each package shall not exceed the number of batteries required to drive the equipment, plus two spare pools.
packing requirement	· Measures must be taken to protect the battery cell and battery from short circuit, including preventing contact with conductive materials that may cause short circuit in the same package; · Lithium cells or batteries must be fully contained in packaging conforming to DGR requirements and placed with the equipment into strong rigid outer packaging;or fully packaged in the inner packaging and put into the solid hard packaging that meets DGR together with the equipment, the applicable type is circular bucket, square bucket and box; · The equipment shall be fixed in the outer package to avoid movement; · When using the aggregate package, the package must be firmly installed in the assembly package; and the assembly package shall not affect the due function of each package; · The packing or complete packing of each battery cell and battery must withstand the 1.2m drop test in any direction without the following circumstances: (1) the battery core or battery damage inside; (2) the internal movement causes the contact between the battery and the battery and the battery core); (3) the release

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	of the contents; · Other packaging requirements are detailed in Part II of the packaging instructions 966.
Tagged label	· battery mark on the outside of each package. · Attach battery marks and "OVERPACK" in the assembly package, unless all marks and labels in the assembly package are clearly visible.
Transportation documents	1. The UN38.3 Test Report, UN38.3 Test Summary and Cargo Air Transport Conditions Appraisal Letter (for domestic outbound goods);
	2. Lithium battery, Packaging 1.2 m Drop Test Report and 3m Stacking Test Report;
	3. Shipper statement (the sample of shipper statement is attached) and lithium cargo emergency response operations;
	4. Air cargo list, The waybill should indicate the words "Lithium ion battery conforming to the packaging instructions 966 Part II Lithium ion batteries in compliance with Section II of PI966" (domestic flights may not be filled in English); When multiple packages on one ticket conform meet the requirements of the different packaging instructions, Compliance statements for different battery types and / or packaging instructions may compose a statement, The declaration should reflect the applicable battery type, packaging description number), cargo air transport conditions identification report, etc.
	5. In the "Packaging grade" column of the special cargo captain notice, it should be indicated that the transport goods " meet the packaging PI__Part II Requirements " (Company difference requirements)..
remarks	· Part of lithium-ion batteries manufactured after January 1,2009 must have the watt-time rating on the battery shell. · In addition to button batteries mounted on equipment (including circuit boards), manufacturers and downstream distributors of battery cells or batteries manufactured after June 30,2003 must provide a summary of the tests as specified in paragraph 38.3.5 of Section 38.3.

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Table 2: UN3481 Lithium-ion battery is installed in the equipment (Packaging description 967 Part II)

Packaging instructions	**PI967**
IMP code	E L I
Test requirements	UN38.3
	3m Stacking Test
Manufacturing requirements	It shall be performed under the quality management system specified in TI PART 2;9.3.1e) or DGR 3.9.2.6 (e).1 Equipment should be offered for transport with: (a) the cells or batteries at a state of charge not exceeding 30% of their rated capacity; or (b) with an indicated battery capacity not exceeding 25%.
Rated energy limit	Battery cell of 20Wh Battery of 100Wh
packing specifications	Non-UN size packaging is available. Use solid and rigid outer packing for DGR, including circular barrels, square barrels and box.
Packaging limited	· The shipper shall ensure that the net weight of the lithium battery for each package on the passenger aircraft and cargo aircraft shall not exceed 5kg
packing requirement	· Measures must be taken to protect the battery cell and battery from short circuit, including preventing contact with conductive materials that may cause short circuit in the same package; · The equipment must be packed in rigid packaging; for large equipment that provides equivalent protection for the battery cell or battery, it can be delivered without packaging or placed on the tray; · The equipment installed with battery cells and batteries must be fixed in the outer packaging that meets the requirements of DGR to avoid movement, and the packaging method can prevent accidental startup; · When multiple pieces of equipment are included in the same outer package, each piece of equipment must be packaged to prevent contact with other equipment; · When using the aggregate package, the package must be firmly installed in the assembly package; and the assembly package shall not affect the due function of each package; · Other packaging requirements are detailed in Part II of the packaging instructions 967.
Tagged label	· battery mark on the outside of each package; · When no more than four battery cells or two batteries in a single package and no more than two such packages per shipment or packages containing only button cell batteries insatalled in equipment(including circuit boards), battery

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	marks may not be affixed; · Attach battery marks and "OVERPACK" in the assembly package, unless all marks and labels in the assembly package are clearly visible.
Transportation documents	1. The UN38.3 Test Report, UN38.3 Test Summary and Cargo Air Transport Conditions Appraisal Letter (for domestic outbound goods);
	2.3m Stacking Test Report;
	3. Shipper Statement (the sample of Shipper Statement is attached) and lithium cargo emergency response operations;
	4. On the air waybill, the waybill should indicate the words "Lithium ion battery meets the packaging instructions 967 Part II-Lithium ion batteries in compliance with Section II of PI967" (domestic flights may not fill in English content). For the goods that do not need to paste the battery operation label, it does not need to indicate the relevant words on the air waybill;
	5. In the "Packaging grade" column of the special cargo captain notice, it should be indicated that the transport goods " meet the packaging PI___Part II Requirements " (Company difference requirements).
remarks	· Part of lithium-ion batteries manufactured after January 1,2009 must have the watt-time rating on the battery shell. · RFID tags (RFID), watches, temperature recorders and other devices that do not produce dangerous heat can be transported when open. These devices must meet the specified electromagnetic radiation standards when turned on to ensure that the operation of such devices does not interfere with the aircraft system, and that such devices do not emit interference signals (e. g., beep alarms, flashing lights, etc.) during transit. · In addition to button batteries mounted on equipment (including circuit boards), manufacturers and downstream distributors of battery cells or batteries manufactured after June 30,2003 must provide a summary of the tests as specified in paragraph 38.3.5 of Section 38.3.

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Table 3: UN3091 Lithium-metal batteries are packaged together with the equipment

(Packaging Description 969 Part II)

Packaging instructions	**PI969**
IMP code	E L M
Test requirements	UN38.3
	1.2 m drop test 3m Stacking Test
Manufacturing requirements	It shall be performed under the quality management system specified in TI PART 2;9.3.1e) or DGR 3.9.2.6 (e).1
Lithium content limit	Battery core 1g Battery of 2g
packing specifications	Non-UN size packaging is available. Use solid and rigid outer packing for DGR, including circular barrels, square barrels and box.
Packaging limited	· The shipper shall ensure that the net weight of the lithium battery for each package on the passenger aircraft and cargo aircraft shall not exceed 5kg · And the number of batteries in each package shall not exceed the number required to power the equipment, plus 2 sets of spare points cell
packing requirement	· Measures must be taken to protect the battery cell and battery from short circuit, including preventing contact with conductive materials that may cause short circuit in the same package; · Lithium cells or batteries must be contained in packaging conforming to the relevant DGR requirements and placed with the equipment into strong rigid outer packaging; or they must be fully enclosed in inner packaging and then placed with the equipment into strong rigid outer packaging that conforms to the applicable DGR requirements. · The equipment shall be fixed in the outer package to avoid movement; · When using the aggregate package (overpack), the package must be firmly installed in the assembly package; and the aggregate package shall not affect the due function of each package; · Other packaging requirements are described in Part II of the packaging instructions 969.
Tagged label	· battery mark on the outside of each package · Package the battery mark and "OVERPACK", unless the assembly package shall not affect the function of each package.
Transportation	1. UN38.3 Test Report, UN38.3 Test Summary and Identification Letter of Cargo Air Transport Conditions for lithium battery;

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documents	~~2. Lithium battery, Packaging 1.2 m Drop Test Report and 3m Stacking Test~~ Report;
	3. Shipper statement (the sample of shipper statement is attached) and lithium cargo emergency response operations;
	4. Air cargo list, The waybill shall indicate the words "lithium metal battery meets the packaging instructions 969 Part II Lithium metal batteries in compliance with Section II of PI969" (domestic flights may not be filled in English); When multiple packages on one ticket conform meet the requirements of the different packaging instructions, Compliance statements for different battery types and / or packaging instructions may synthesize a statement, The declaration should reflect the applicable battery type, packaging description number), cargo air transport conditions identification report, etc.
	5. In the "Packaging grade" column of the special cargo captain notice, it should be indicated that the transport goods " meet the packaging PI__Part II Requirements " (Company difference requirements).
remarks	· In addition to button batteries mounted on equipment (including circuit boards), manufacturers and downstream distributors of battery cells or batteries manufactured after June 30,2003 must provide a summary of the tests as specified in paragraph 38.3.5 of Section 38.3. · Batteries designed to be not externally rechargeable and containing disposable lithium metal battery cells and rechargeable lithium-ion battery cells must meet the following conditions: (1) only disposable lithium metal battery cells can be charged as rechargeable lithium-ion battery cells; (2) prevent overcharging of rechargeable lithium-ion battery cells; (3) test the battery as disposable lithium battery; (4) all battery cells comprising the battery must pass the UN38.3 test. When the batteries meeting the above conditions are transported in Part II, the total lithium content of all lithium-metal cells shall not exceed 1.5g, and the total amount of all lithium-ion cells shall not exceed 10Wh.

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Table 4: UN3091 Lithium-metal batteries are installed in the equipment

(Packaging description 970 Part II)

Packaging instructions	**PI970**
IMP code	E L M
Test requirements	UN38.3
	3m Stacking Test
Manufacturing requirements	It shall be performed under the quality management system specified in TI PART 2;9.3.1e) or DGR 3.9.2.6 (e).1
Limits in lithium content	Battery core 1g Battery of 2g
packing specifications	Non-UN size packaging is available. Solid and hard outer packaging shall be used, including circular barrels, square barrels and boxes.
Packaging limited	· The shipper shall ensure that the net weight of the lithium battery for each package on the passenger aircraft and cargo aircraft shall not exceed 5kg
packing requirement	· Measures must be taken to protect the battery cell and battery from short circuit, including preventing contact with conductive materials that may cause short circuit in the same package; · Lithium battery core or lithium battery is packaged in internal packaging and put in solid rigid packaging meeting DGR; or completely packaged in internal packaging and solid rigid packaging meeting DGR. For large equipment, if the equipment provides equivalent protection for the battery core or battery, then without packaging or transportation on the tray; · The equipment shall be fixed in the outer package to avoid movement; · When using the aggregate package (overpack), the package must be firmly installed in the assembly package; and the aggregate package shall not affect the due function of each package; · Other packaging requirements are detailed in Part II of the packaging instructions 970.
Tagged label	· battery mark on the outside of each package; · When no more than four battery cells or two batteries in a single package and no more than two such packages per shipment or packages containing only button cell batteries insatalled in equipment(including circuit boards), battery marks may not be affixed; · Attach battery marks and "OVERPACK" in the assembly package, unless all

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	~~marks and labels in the assembly package are clearly visible.~~
Transportation documents	1. UN38.3 Test Report, UN38.3 Test Summary and Identification Letter of Cargo Air Transport Conditions for lithium battery;
	2.3m Stacking Test
	3. Shipper statement (the sample of shipper statement is attached) and lithium cargo emergency response operations;
	4. On the air waybill, the waybill should indicate the words "lithium metal battery meets the packaging instructions 970 Part II Lithium metal batteries in compliance with Section II of PI970" (domestic flights may not be filled in English). For the goods that do not need to paste the battery operation label, it is not need to indicate the relevant words on the air waybill;
	4. In the "Packaging grade" column of the special cargo captain notice, it should be indicated that the transport goods " meet the packaging PI__Part II Requirements " (Company difference requirements).
remarks	· In addition to button batteries mounted on equipment (including circuit boards), manufacturers and downstream distributors of battery cells or batteries manufactured after June 30,2003 must provide a summary of the tests as specified in paragraph 38.3.5 of Section 38.3. · RFID tags (RFID), watches, temperature recorders and other devices that do not produce dangerous heat can be transported when open. These devices must meet the specified electromagnetic radiation standards when turned on to ensure that the operation of such devices does not interfere with the aircraft system, and that such devices do not emit interference signals (e. g. beep alarms, flashing lights, etc.) during transit. · Batteries designed to be not externally rechargeable and containing disposable lithium metal battery cells and rechargeable lithium-ion battery cells must meet the following conditions: (1) only disposable lithium metal battery cells can be charged as rechargeable lithium-ion battery cells; (2) prevent overcharging of rechargeable lithium-ion battery cells; (3) test the battery as disposable lithium battery; (4) all battery cells comprising the battery must pass the UN38.3 test. When the batteries meeting the above conditions are transported in Part II, the total lithium content of all lithium-metal cells shall not exceed 1.5g, and the total amount of all lithium-ion cells shall not exceed 10Wh.

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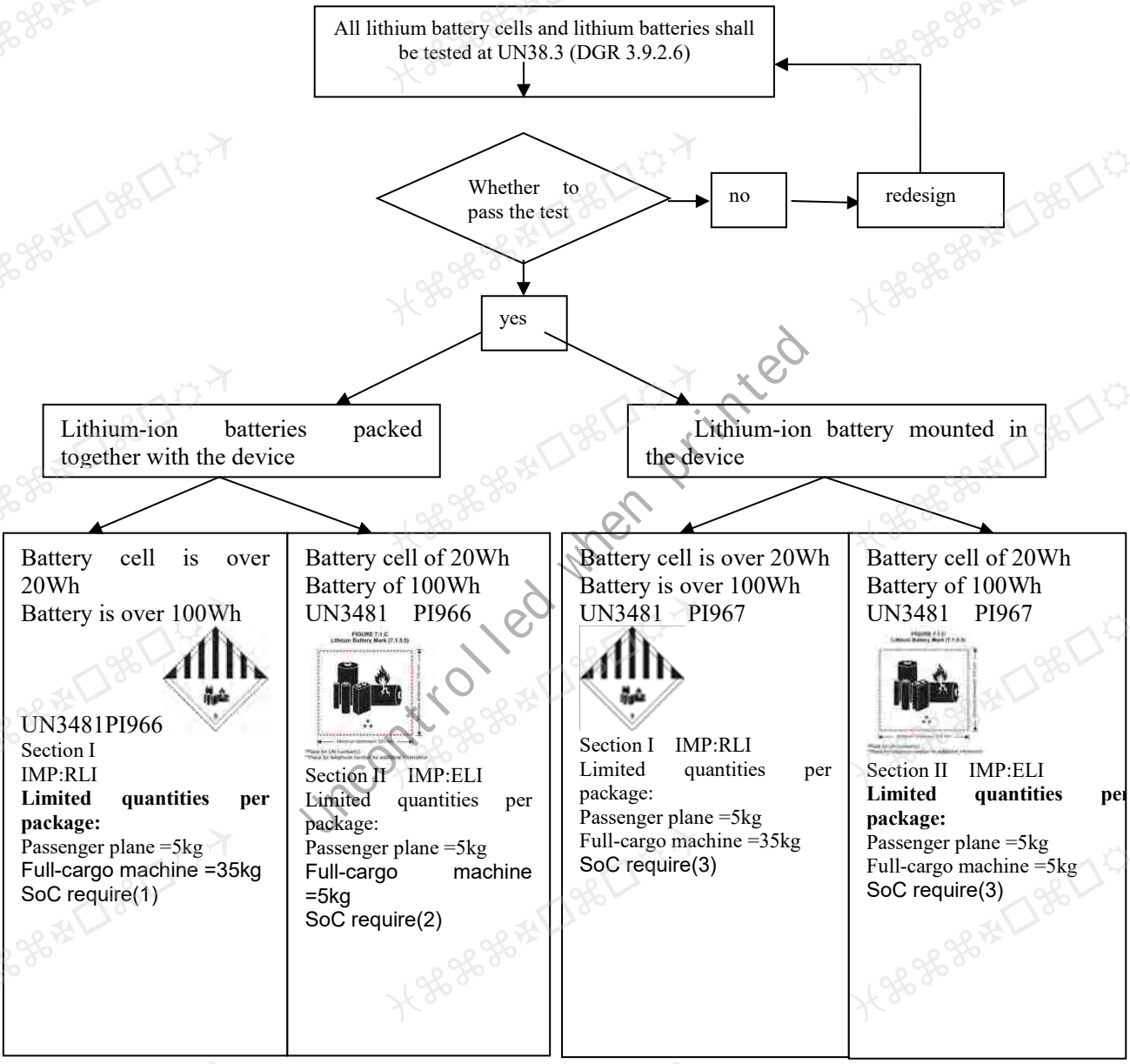
G.1.5 Flow chart of lithium battery cargo collection and transportation

This section introduces the lithium ion battery as an example, as shown in the figure below.

G.1.5.1 Lithium battery cargo transportation- -lithium-ion battery collection and transportation process



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(1) Must be shipped at a state of charge (SoC) ⩽ 30%.

(2) Those exceeding 2.7 Wh must be shipped at a state of charge (SoC) ⩽ 30%; those not exceeding 2.7 Wh should be shipped at a state of charge (SoC) ⩽ 30%.

(3) Should be shipped at a state of charge (SoC) ⩽ 30% or an indicated battery capacity ⩽ 25%.

G.1.2 Lithium battery cargo transportation- -lithium metal battery collection and transportation process

All lithium battery cells and lithium batteries shall be tested at UN38.3 (DGR 3.9.2.6)

Whether to pass the test

no → redesign

yes

Lithium-metal battery packaged with the equipment

Battery cell is over 1g Battery is over 2g UN3091 PI969 Section I IMP:RL M **Limited quantities per package:** Passenger plane =5kg Full-cargo machine =35kg	Battery cell: 1g Battery of 2g UN3091 PI969 Section II IMP:EL M Limited quantities per package: Passenger plane =5kg Full-cargo machine =5kg

Lithium-metal battery mounted in the device

Battery cell is over 1g Battery is over 2g UN3091 PI970 Section I IMP:RL M **Limited quantities per package:** Passenger plane =5kg Full-cargo machine =35kg	Battery cell: 1g Battery of 2g UN3091 PI970 Section II IMP:ELM **Limited quantities per package:** Passenger plane =5kg Full-cargo machine =5kg

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G.1.6 Lithium battery baggage transportation regulations

G.1.6.1 According to the current ICAO "TI", three categories of equipment containing lithium batteries and standby lithium batteries to be transported as luggage, and the energy of the lithium batteries, the type of luggage, carrying quantity, protection measures, and the approval of the captain, as shown in the table below.

		Rated energy limits	Luggage types	Quantitative limits	Approval	Protective measures	Inform Captain
Electronic devices for personal use		≤100wh or ≤2g	Checked-in luggage / hand carry-on luggage	(1)	—	Avoid accidental activation (2)	—
		100wh~160wh、2g~8g (PMED only)		—	Approved by carrier		—
Spare batteries of electronic devices for personal use		≤100wh or ≤2g	Hand carry-on luggage	(1)	—	Individual protection	—
		100wh~160wh 2g~8g (PMED only)		2 for each person	Approved by carrier		—
Power Banks / Portable Power Sources		≤100wh	Hand carry-on luggage	Maximum 2 per person	—	Individual protection	—
		100wh~160wh			Approved by carrier		—
Baggage with Li-batteries		Non-removable > 2.7Wh or > 0.3g	Forbidden				
		Non-removable ≤2.7Wh or ≤0.3g	Checked-in luggage / hand carry-on luggage	—	—	—	—
		Removable ≤100Wh or ≤2g	Hand carry-on / checked-in by removing the Li-batteries	—	—	—	—
		Removable 100Wh ~ 160Wh		—	Approved by carrier	—	—
Electric wheelchair or travel tool	Designed to protect the battery and secure	There is no watt-hour limit, but the circuit must be open	Checked-in luggage	—	Prearrangement with the Carrier	Protect batteries from short circuit and damage	Inform the Captain
	The design does not adequately protect the battery or does not hold it securely	≤300wh	Batteries shall be removed and transported as hand luggage				

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Spare batteries of electric wheelchair or travel tool	≤160wh	Hand luggage	2 for each person			
	≤300wh		1 for each person			

Notes:
(1)Each passenger or crew member may carry up to 15 portable electronic devices (PEDs) and up to 20 spare batteries (all types combined). Exceeding these limits requires carrier approval.
(2) Unless the lithium content in each device's battery does not exceed 0.3g or the energy capacity does not exceed 2.7Wh.
(3) This applies to mobility aids used by passengers with disabilities, health/age-related limitations, or temporary mobility restrictions (e.g., a broken leg).

G.1.6.2 According to the definition of ICAO "TI" on lithium battery, combined with the characteristics and dangers of lithium battery mobile power supply (charge bank), the lithium battery mobile power supply carried by passengers and crew should be regarded as the backup lithium battery, rather than the equipment containing lithium battery, so it is strictly prohibited to put the lithium battery mobile power supply into the checked luggage for transportation. For details on the collection and transportation of battery articles carried by other passengers, please refer to the management regulations of the company's Ground Operation Manual.

G.1.6.3 Passengers and crew members are not allowed to use lithium battery mobile power supply to charge electronic devices during the flight of the aircraft. For the lithium battery mobile power supply with a start switch, ensure that the lithium battery mobile power supply is always off during the flight. The cabin service department shall inform the passengers of the relevant safety knowledge of the lithium battery equipment in the form of on-board broadcast and safety notice demonstration. For specific in-flight usage restrictions on electronic devices containing lithium batteries and power banks, please refer to the relevant provisions set forth in Section 3.6.18 of the Company's Cabin Crew Manual.

G.1.6.4 Ground service should strengthen staff training, assist the ground agent for passengers carry lithium battery to safety tips related explanation, such as by

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put and posted lithium battery to safety tips, set up in the terminal, terminal broadcast lithium battery videos, lithium battery publicity materials, make passengers get more intuitive lithium battery carrying safety specification.

G.1.7 **Electronic devices containing lithium batteries in the machine**

G.1.7.1 The electronic device containing lithium battery on board refers to the electronic device containing lithium battery installed on the aircraft for the crew or passengers during the flight, such as electronic entertainment system, flight data package, credit card reader, etc.

G.1.7.2 Lithium battery content and test requirements

1) For those using lithium metal batteries, the lithium metal content shall not exceed 2 grams;

2) For lithium-ion batteries, the rated energy shall not exceed 100 watt hours;

3) The battery and cells must comply with each test requirements specified in Section III 38.3;

4) When equipped with a spare battery, in addition to meeting the above two provisions, the spare battery must be well protected individually, to prevent a short circuit when unused;

G.1.7.3 **management requirement**

For the machine installation with lithium battery as driving electronic entertainment system, flight packets, credit card reader and other electronic supplies, the company related departments should formulate measures to evaluate its safety, and clear its loading, storage, use conditions, charge and discharge, shutdown check, regular maintenance requirements, to carry out the relevant responsibility units, responsible, ensure the safety of the use of passengers in the flight.

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G.2 lithium battery is not normal transportation emergency

G.2.1 general requirements

G.2.1.1 The emergency handling personnel of the company entering the site of the dangerous goods transport event must be specially trained personnel.

G.2.1.2 Site disposal personnel should avoid breathing harmful gas, absolutely avoid contact with the skin, and inform the fire department.

G.2.2 The danger of lithium

G.2.2.1 The dangers of lithium-ion batteries depend on the lithium they contain. Lithium is a particularly reactive metal, silvery white in appearance, very soft, extenable, and flammable. Its characteristics are as follows:

G.2.2.2 When water or humid air will release flammable gas;

G.2.2.3 In the solid state, when the temperature exceeds the melting point of 180 C, it can burn by itself;

G.2.2.4 When powder, it can be burned at ambient temperature conditions;

G.2.2.5 Can cause severe burns and corrosion.

G.2.2.6 Lithium metal is a hazardous substance that releases flammable gas in item 4.3.

G.2.3 Lithium battery risk

G.2.3.1 A lithium battery itself is a redox system capable of spontaneous, vigorous reaction;

G.2.3.2 Internal or external short circuit, overcharging, high temperature, physical damage, product quality defects, or improper operation during use, handling, packaging, storage, etc., can cause a spontaneous reaction in the lithium battery, increasing temperature, leading to thermal runaway, combustion, or explosion;

G.2.3.3 Internal failure or external heating/physical impact can generate sufficient

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heat to induce thermal runaway in adjacent lithium batteries or ignite nearby materials. Lithium metal batteries release flammable electrolyte mixed with molten lithium metal, accompanied by a large pressure pulse. The flammable electrolyte and molten lithium metal can create explosive mixtures;

G.2.3.4 A Halon fire extinguisher or equivalent clean agent can extinguish open flames from lithium batteries but cannot stop thermal runaway propagation between cells caused by heat transfer;

G.2.3.5 Complex chemical reactions occur during lithium battery combustion, producing hazardous gases such as hydrogen, oxygen, methane, hydrogen fluoride (HF), etc.

G.2.3.6 Lithium battery combustion also produces large amounts of harmful dust, affecting flight crew visibility and endangering the health of crew and passengers.

G.2.4 Lithium battery damaged, fire ground emergency

G.2.4.1 Lithium metal battery

1) Potential danger

(1) Fire or explosion

A Encounter water will produce flammable gas;

B Contact with water or moisture may be ignited;

C After contact with water, the internal properties of lithium battery become unstable and prone to chemical reaction, and even fire and explosion;

D It may be ignited under high temperature, radio communication or open fire environment;

E The lithium-ion batteries may burn up again when the fire is extinguished;

F A wrong operation can cause a risk of a fire or an explosion.

(2) health hazard

A Lithium battery fire, or after the explosion, when inhalation or contact with lithium battery production (steam) can cause serious injury or death;

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B Corrosive solution occurs after contact with water;

C The fire will produce irritating, corrosive and toxic gases;

D Improper fire control can cause environmental pollution.

(3) public safety

A If the lithium battery packaging is damaged or leaked, emergency measures should be taken immediately to isolate the overflow or leaked packaging area. If the overflow is liquid, the isolated distance shall be at least 50 meters (150 meet), and the isolated distance shall be at least 25 meters (75 meet);

B No one shall be allowed to approach it without permission;

C Ensure that the site is a headwind area;

D The packing parts of the goods shall be placed in a lower-lying area;

E Close the vent before entering the isolation area.

(4) protective clothing

A Wear a self-contained positive pressure respirator (SCBA) when working;

B Manufacturers advise workers to wear chemical protective clothing, but it may do little to provide thermal protection;

C Professional firefighter protective clothing provides only limited protection and cannot effectively block when in contact with overflow.

(5) Evacuation, evacuation

A Mass leakage or overflow

For the leakage of high-risk substances, obvious isolation and protection areas should be set up. For other substances, if necessary, they should widen the isolation distance and mark the "public safety area".

B fire breaking out

If other vehicles such as railway cars, tankers and other vehicles are involved in a fire, the isolation distance is kept at least 800 meters (1 / 2 mile) from four weeks, and evacuate within 800 meters (1 / 2 mile).

(6) outfire

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If the package catch fire, do not use water or foam fire extinguishers.

A Small fire

The fire extinguishing equipment that can be used are: dry powder fire extinguisher, soda ash, lime or sand.

A big fire

a The fire extinguishing equipment that can be used are: dry sand, dry powder, soda ash or lime, or to isolate the fire packaging parts to burn themselves;

b Under the condition of ensuring safety, rush the packaging parts from the fire area to the safe area.

c Metal or powder (such as aluminum, lithium, magnesium, etc.) is involved in the fire

Chemical dry powder fire extinguisher, dry sand or dry sodium chloride or graphite powder can be used to extinguish the fire. In addition, fire extinguishing equipment containing Lith-X ® powder or copper powder can also be used for lithium metal.

(7) Overflow or leak

A All ignition devices shall be excluded near the package (no smoking in the emergency area, no any open fire, turn off the electrical switch);

B Do not touch or deal with the leaking substances at will;

C Prevent leakage under the condition of ensuring safety;

D Use foggy water to reduce the overflow steam or transfer the steam floating clouds. Avoid exposing the water flow to the overflow objects during the operation;

E Avoid water into the overflow container.

F Small area leakage

a Use dry soil, dry sand or other non-flammable materials to cover, while use plastic cloth to reduce the danger;

b Pay attention to the subsequent cleaning treatment, and do not use water

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unless under professional guidance.

G When the powder leaks

a Cover with a plastic or rain cloth to ensure that the leaked powder remains dry throughout the operation.

b Do not clean up, unless operational under the guidance of a professional.

(8) give first aid treatment

A When someone is injured at the scene, the injured personnel should be transferred to a ventilated place in time;

B Call the medical emergency department as soon as possible;

C If the injured person stops breathing, artificial respiration should be taken immediately;

D If the injured person is breathing more difficult, the oxygen equipment should be provided as soon as possible;

E The contaminated clothing and shoes should be isolated;

F When the skin is contaminated with dangerous substances, remove the skin immediately, and wash the hands and eyes with flowing water for at least 20 minutes;

G Ensure that the temperature of the injured is normal and keep calm;

H Ensure that medical emergency personnel can understand the danger of the substance and take preventive measures to protect themselves.

G.2.4.2 Lithium-ion battery

1) If a lithium-ion battery catches fire or explodes, it will contain all the elements and compounds used in the manufacture of lithium-ion batteries. Its products do not contain heavy metal substances, which are mainly toxic gases produced by organic solvents or diaphragm materials.

2) If found that lithium ion battery heat or fire, should first determine the battery is internal short circuit or external short circuit, if it is an external short circuit should break the battery positive and negative pole connection,

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ensure that the battery open, if because of internal short circuit, should try to find a way to take cooling measures to the battery, to reduce the internal temperature of the battery, and consumption of battery internal energy.

3) potential risk

(1) When a fire or explosion occurs

A If the lithium ion battery packaging is damaged or at high temperature (temperature higher than 150℃), the flammable liquid electrolyte contained inside the lithium battery will automatically catch fire or produce sparks;

B It may burn quickly and create sparks;

C Could ignite other battery cargo around it.

(2) health hazard

A Lithium battery electrolyte is irritating to the skin and eye mucosa;

B The fire will produce irritating, corrosive and toxic gases;

C Lithium batteries produce toxic hydrogen fluoride gas when burning;

D Lithium battery fire and smoke will make people dizzy, and even suffocation.

(3) public safety

A If the lithium battery packaging is damaged or leaked, measures should be taken immediately to isolate the overflow or leaked packaging area, the isolation distance is at least 25 meters (75 feed) from the four weeks;

B No one shall be allowed to approach it without permission;

C Ensure that the site is a headwind area;

D The packing parts of the goods shall be placed in a lower-lying area;

E Close the vent before entering the isolation area.

(4) protective clothing

A Wear a self-contained positive pressure respirator (SCBA) when working;

B Professional firefighter protective suits provide only limited protection.

(5) Evacuation, evacuation

A Mass leakage or overflow

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Evacuation and evacuate within at least 100 meters (300 feed) from the leakage or overflow area;

B When the fire

If the cargo trailer is caught in a fire, it shall be isolated within 500 m (1 / 3 Miles) and evacuated within 500 m (1 / 3 Miles).

(6) outfire

A Small fire

Fire extinguishers can be used: dry powder extinguishers, carbon dioxide extinguishers, foggy water or foam extinguishers.

B big fire

Fog water, foam fire extinguisher, to ensure the safety of the packaging from the fire area to safety.

(7) Overflow or leak

A All ignition devices shall be excluded near the package (no smoking in the emergency area, no any open fire, turn off the electrical switch);

B Do not touch or deal with the leaking substances at will;

C Dry sand, dry soil or other materials that do not react with the leakage material can be used for adsorption treatment;

D The leaking batteries and the leaking material should be placed in metal containers.

(8) give first aid treatment

A When someone is injured at the scene, the injured personnel should be transferred to a ventilated place in time;

B Call the medical emergency department as soon as possible;

C If the injured person stops breathing, artificial respiration should be taken immediately;

D If the injured person is breathing more difficult, the oxygen equipment should be provided as soon as possible;

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E The contaminated clothing and shoes should be isolated;

F After the emergency treatment, the operator should use the flowing water to wash the hands and eyes for at least 20 minutes;

G Ensure that medical emergency personnel can understand the danger of the substance and take preventive measures to protect themselves.

G.2.5 Lithium battery air emergency

See the following manual:

G.2.5.1 See Section 8.4.8 of Cabin Flight Manual;

G.2.5.2 See clause (13) of Section 12.5.4 1) of Flight Operation Manual.

G.2.5.3 Emergency handling procedures and precautions for lithium batteries in the cargo compartment

1) Emergency handling procedures for lithium battery in the cargo compartment

Procedure	Crew reaction	Cabin reaction(if appliable)
1. found fire alarm in cargo hold, confirm fire source	Determine the fire source location, phenomenon, involved personnel, and confirm the response measures to be taken	
2. start emergency procedure	Start emergency reaction procedure against manuals	
3. report and tele communication	Report to ATC, prepare related ground aid; report if Dangerous cargo on board; Inform cabin crew to prepare for landing or other assisstance	Reaction per crew instruction
4. self-protect	Wear smoke goggles, oxygen mask or protective breathing device	
5. landing	Landing per ATC code in closet availabel airport; Ask for first to landing and ground assistance if cargo hold fire out of control	Reaction per crew instruction
6. action after landing	Urgent evacuate from the aircraft after landing; React emergency procedure per ground instruction; Cooperate with incident investigation and report related work	Reaction per crew instruction; Cooperate with incident investigation and report related work

Note 1: The action instructions of the actual emergency response crew and the auxiliary emergency response crew are listed in the columns of "flight crew action" and "cabin crew action" respectively.

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Note 2: Although the table lists the steps of emergency disposal according to the serial number, the crew members should combine or adjust the steps according to the actual situation when implementing the emergency disposal, so as to achieve greater disposal effect.

2) Disposal considerations

(1) To prevent smoke or irritating gas from entering the cockpit, always keep the cockpit doors closed.

(2) When the lithium battery cargo is loaded on the plane, no matter whether it is clear that the fire alarm is caused by the combustion of the lithium battery, the relevant situation should be reported to the relevant departments on the ground to request the ground emergency response support after landing.

(3) If the flight crew needs to enter the cargo compartment to confirm the fire source and fire, they should wear protective respiratory protection devices, fire gloves and other necessary protective gear in the smoke-free area, and carry flashlight, fire bottles and other emergency equipment.

(4) After landing, the ground personnel were informed to open the cargo door only after all the flight personnel were evacuated and the ground fire rescue was in place.

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G.2.6 Unnormal transportation report of lithium battery

If the lithium battery occurs in abnormal conditions during the transportation process (including violations), the personnel found on the site should immediately report according to the procedures. The company's 24-hour emergency contact telephone number:

G.2.6.1 Duty officer of the Safety Supervision Department: ajbzbzb @ hnair.com

Safety supervision department headquarters on duty officer: 18907687820

24-hour duty telephone: 0898-65987101 / 7102

G.2.6.2 The report requires

According to the Administrative Measures for the Determination and

Reporting of Dangerous Goods Air Transport Events , the fire or smoke on the lithium battery machine is an emergency of dangerous goods. In the event of the accident, the operator shall immediately report to the initial bureau of the transportation department of the site of the accident (the aircraft landing at the airport in the air); within 12 hours after the incident, the operator shall report to the bureau, more detail: 15.3.2.4. In case of overseas occurrence, the operator shall immediately make an initial report to the transportation department of the local supervision bureau where the incident occured and the airlines belongs by telephone; within 24 hours after the incident, the operator shall use the dangerous goods air transport incident reporting system to report to the bureau.

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G.3 Training requirements

According to the civil aviation administration issued [2011],1987 file: about the lithium battery training program requirements, all involving lithium battery air transport personnel (including security personnel, cargo consignment personnel, etc.) must be in the lithium battery air transport standard training, specific training content see office [2011], no. 1987 file.

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