IATA DGR 54\textsuperscript{th} Edition

\textit{Consolidated Changes for ATS}

The following pages detail the changes to the 54\textsuperscript{th} Edition of the DGR from the 53\textsuperscript{rd}. While every effort to ensure that all changes are captured, any differences and the DGR will take precedence.
Section 1 – Applicability

1.1 Basis of these Regulations

1.1.1 The UN Subcommittee of Experts on the Transport of Dangerous Goods (SCoETDG) develops recommended procedures for the transport of all types of dangerous goods except radioactive materials. These procedures, applicable to all modes of transport, are published in the Recommendations on the Transport of Dangerous Goods—Model Regulations (16th–17th revised edition).

Note: Recommendations on Tests and Criteria, which are incorporated into certain provisions of these Regulations are published as a separate manual (“Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria”) (ST/SG/AC.10/11/Rev.5 and Amendment 1) available from the United Nations. This Manual includes:

- Part I: Classification procedures, test methods and criteria relating to explosives of Class 1.
- Part II: Classification procedures, test methods and criteria relating to self-reactive substances of Division 4.1 and organic peroxides of Division 5.2.
- Part III: Classification procedures, test methods and criteria relating to articles or substances of Class 2, Class 3, Class 4, Division 5.1, Class 8 and Class 9.
- Appendices: Information common to a number of different types of tests and national contacts for test details.

1.1.3 The International Civil Aviation Organization (ICAO) has used these recommendations as the basis for developing the regulations for the safe transport of dangerous goods by air by any aircraft (including both internal and external carriage). The ICAO regulations are codified in Annex 18 to the Convention on International Civil Aviation and in its Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284-AN/905 as amended) (Technical Instructions).

1.2 Application of these Regulations

1.2.5 Approvals

1.2.5.1 Where specifically provided for in these Regulations, the State of Origin and the State of the Operator States concerned may grant an approval to permit the transport of dangerous goods, provided that in such instances an overall level of safety in transport which is at least equivalent to the level of safety provided for in these Regulations is achieved. Transport of dangerous goods under an approval is limited to:

(a) transport of dangerous goods forbidden on passenger and/or cargo aircraft where these Regulations state that such goods may be carried under an approval, e.g. Special Provisions A1 and A2; or

(b) for other purposes as specified in these Regulations.

Note: For the purposes of approvals, “States concerned” are the States of origin and the operator, unless otherwise specified in these Regulations.

1.2.5.2 Acceptance of dangerous goods offered for transport under the provisions of an approval is at the discretion of the operator(s) concerned. Shippers are encouraged to make advance arrangements with the operator(s) as part of the planning process associated with any approval application.

1.2.6 Exemptions

1.2.6.1 In instances of extreme urgency or when other forms of transport are inappropriate or when full compliance with the prescribed requirements is contrary to the public interest, the States concerned may grant exemption from the provisions of the Regulations provided that in such instances every effort is made to achieve an over-all level of safety in transport which is at least equivalent to the level of safety provided for in these Regulations is achieved.
1.2.6.2 For the State of overflight, if none of the criteria for granting an exemption are relevant, an exemption may be granted based solely on whether it is believed that an equivalent level of safety in air transport has been achieved.

Notes:
1. For the purposes of exemptions, “States concerned” are the States of origin, operator, transit, overflight and destination of the consignment and the State of the operator.
2. Guidance for the processing of exemptions, including examples of extreme urgency, may be found in the ICAO Supplement to the Technical Instructions (Part S-1:1.2 and 1.3)
3. Due to the differences in the type of operations carried out by helicopters compared with aeroplanes, some additional considerations need to be made when dangerous goods are carried by helicopter, as described in Subsection 9.9.

1.2.7 Exceptions
1.2.7.1 Except for information provided to operator employees, as shown in 9.5.2, the provisions of these Regulations do not apply to dangerous goods carried on by an aircraft where the dangerous goods are:

... (c) for dropping during flight in connection with agricultural, horticultural, forestry, avalanche control or pollution control activities;

...

1.2.9 Application of Standards
Where the application of a standard is required and there is any conflict between the standard and these Regulations, the Regulations take precedence.

1.4 OPERATOR’S RESPONSIBILITIES
1.4.1 In transporting dangerous goods, an operator must comply with the requirements of Section 9 for:

- Acceptance;
- Storage;
- Loading;
- Inspection;
- Provision of Information, including emergency response information;
- Reporting;
- Retention of Records;
- Training.

Note:
When an operator, its subsidiary or an agent of the operator offers a consignment of dangerous goods for air transport then the operator, its subsidiary or the agent is a shipper and must comply with shipper’s responsibilities (see Subsection 1.3). This is applicable even if the consignment is to be transported on its own or on other operator’s services.

9.5.2 1.4.2 Information to Operator Employees
9.5.2.1 An operator must provide, in the operator’s operations and/or other appropriate manuals, information to employees so as to enable flight crews and other employees to carry out their responsibilities with regard to dangerous goods. Where applicable, this information must also be provided to ground handling agents. This information must include:

a. for passenger handling staff and cabin crew the procedures to be followed to alert passengers that certain items of dangerous goods are specifically prohibited from being in checked baggage, e.g. spare lithium batteries (see Subsection 2.3) and must be removed from baggage where items of carry-on baggage cannot be accommodated in the cabin;
b. the action to be taken in the event of emergencies involving dangerous goods;

c. details of the location and identification of cargo holds;

d. the maximum quantity of dry ice permitted in each compartment; and

e. if radioactive material is to be carried, instructions on the loading of such dangerous goods, based on the requirements of 9.3.10.

9.5.2.2 1.4.2.2 In addition to the above, it is recommended that the operator’s operations and/or other appropriate manuals should contain information specific to dangerous goods permitted in passenger and crew baggage as permitted by Subsection 2.3. The information in the operator’s manuals should address:

a. approval process. It is recommended that a single company policy be set out that identifies the items that have been approved and the person(s) or department(s) responsible for determining how dangerous goods in passenger baggage may be approved;

b. communication. It is recommended that the operator define how approvals for dangerous goods requiring operator approval are communicated to the airport(s) of departure. It is recommended that operators consider a process where such approval is included in the passenger(s) electronic record;

c. limitations. The operator manuals should specify any limitations or procedural requirements that may apply to particular commodities, e.g. inspection at check-in by passenger service agents and/or security;

d. interlining. Where the operator has interline agreements with code share and/or alliance partners the operator should identify what the procedure is for obtaining the approval of the other airline(s) involved, e.g. by advising the passenger that they must obtain approval from the other operator;

e. awareness. The operator should ensure that all staff who have an interaction with passengers, (i.e. reservations agents, passenger service agents, cabin crew and flight crew) are made aware of the process employed to ensure that the operator approval process remains effective.

9.5.3 1.4.3 Provision of Information to Passengers

9.5.3.1 1.4.3.1 An operator must ensure that information as to the types of dangerous goods which a passenger is forbidden from transporting aboard an aircraft is provided at the point of ticket purchase. Information provided via the Internet may be in text or pictorial form but should must be such that ticket purchase cannot be completed until the passenger, or a person acting on their behalf, has indicated that they have understood the restrictions on dangerous goods in baggage.

9.5.3.2 1.4.3.2 An operator or the operator's handling agent and the airport operator must ensure that notices warning passengers as to the type of dangerous goods which are forbidden for transport aboard an aircraft are available and:

a. must be prominently displayed in sufficient number at each of the places at an airport where:
   - tickets are issued,
   - passengers checked in,
   - aircraft boarding areas,

b. prominently displayed at any other location where passengers are checked in; and

c. should be prominently displayed in sufficient numbers in baggage claim areas.

9.5.3.2.1 1.4.3.2.1 These notices must include visual examples of dangerous goods forbidden from transport aboard an aircraft.

9.5.3.3 1.4.3.3 An operator, of passenger aircraft, should have information on those dangerous goods which may be carried by passengers in accordance with 2.3.2 to 2.3.5 available prior to the check-in process on their web sites or other sources of information.

9.5.3.4 1.4.3.4 When provision is made for the check-in process to be completed remotely (e.g. via the Internet), the operator should must ensure that information on the types of dangerous goods which a passenger is forbidden to transport aboard an aircraft is provided to passengers. Information may be in text or pictorial form but should must be such that the check-in process cannot be completed until the passenger or a person acting on their behalf, has indicated that they have understood the restrictions on dangerous goods in baggage.
9.5.3.5 When provision is made for the check-in process to be completed at an airport by a passenger without the involvement of any other person (e.g. automated check-in facility), the operator or the airport operator should ensure that information on the types of dangerous goods which a passenger is forbidden to transport aboard an aircraft is provided to passengers. Information should be in pictorial form and should be such that the check-in process cannot be completed until the passenger has indicated that they have understood the restrictions on dangerous goods in baggage.

Note: The provisions in 9.5.3.1, 9.5.3.4 and 9.5.3.5 with respect to ticket purchase and check-in on operator websites will become mandatory with effect 1 January 2013.

9.5.3.6 Any organization or enterprise other than an operator (such as a travel agent) involved in the air transport of passengers, should provide passengers with information about the types of dangerous goods which they are forbidden from transporting aboard an aircraft. This information should consist as a minimum of notices at those locations where there is an interface with the passengers.

9.5.3.7 Operators’ check-in staff must be adequately trained to assist them to identify and detect dangerous goods carried by passengers other than as permitted in Subsection 2.3.

9.5.3.8 With the aim of preventing dangerous goods which passengers are not permitted to have from being taken on board an aircraft in their baggage or on their person, check-in staff should seek confirmation from a passenger that they are not carrying dangerous goods that are not permitted, and seek further confirmation about the contents of any item where there are suspicions that it may contain dangerous goods that are not permitted. Many innocuous-looking items may contain dangerous goods and a list of general descriptions which, experience has shown, are often applied to such items is shown in Subsection 2.2.

9.5.4 Provision of Information at Cargo Acceptance Areas
An operator or the operator’s handling agent must ensure that sufficient notices, prominently displayed, are provided at visible location(s) at cargo acceptance points, giving information about the transport of dangerous goods to alert shippers/agents about any dangerous goods that may be contained in their cargo consignment(s). These notices must include visual examples of dangerous goods, including batteries.

1.5 TRAINING REQUIREMENTS

1.5.0 General

1.5.0.2 Personnel identified in the categories specified in Tables 1.5.A, or 1.5.B or 1.5.C must be trained or training must be verified prior to the person performing any duty specified in Tables 1.5.A, or 1.5.B or 1.5.C.

1.5.0.3 Recurrent training must be provided within 24 months of previous training to ensure knowledge is current. However, if recurrent training is completed within the final 3 months of validity of previous training, the period of validity extends from the date month on which the recurrent training was completed until 24 months from the expiry date month of that previous training.

1.5.1 Training Programmes
Initial and recurrent training programmes must be established and maintained by or on behalf of:

- operators;
- ground handling agencies which perform, on behalf of the operator, the act of accepting, handling, loading, unloading, transfer or other processing of cargo, mail or stores;
- ground handling agencies located at an airport which perform, on behalf of the operator, the act of processing passengers;
- agencies, not located at an airport, which perform, on behalf of the operator, the act of checking in passengers;
- freight forwarders;
- shippers of dangerous goods, including packers and persons’ or organisations’ undertaking the responsibilities of the shipper; and
• agencies engaged in the security screening of passengers and their baggage and/or cargo, mail or stores; and
• designated postal operators.

1.5.3 Training Curricula—“No Carry” Operators

1.5.3.1 Operators that do not carry dangerous goods as cargo or mail or stores must ensure that personnel must receive training in the requirements commensurate with their responsibilities.

1.5.3.2 The subject matter to which their various categories of personnel must be familiar is indicated in Table 1.5.B.

Note: Security staff are required to be trained irrespective of whether the operator on which passenger or cargo is to be transported carries dangerous goods as cargo.

1.5.4 Training Curricula – Designated Postal Operators

Staff of designated postal operators must be trained commensurate with their responsibilities. The subject matter to which their various categories of staff should be familiar with is indicated in Table 1.5.C.

1.5.45 Approvals

Dangerous goods training programmes for operators’ personnel must be subjected to review and approval by the appropriate authority of the State of the operator. Dangerous goods training programmes of designated postal operators must be subjected to review and approval by the civil aviation authority of the State where the mail was accepted by the designated postal operator. Dangerous goods training programmes for all categories of staff shown in 1.5.1, other than operators and designated postal operators, should be reviewed and approved as determined by the appropriate national authority.

1.5.56 Record of Training

1.5.6.1 A record of training must be maintained, which must include:

• the individual's name;
• the most recent training completion date month;
• a description, copy or reference to training materials used to meet the training requirement;
• the name and address of the organization providing the training; and
• evidence, which shows that a test has been completed satisfactorily.

1.5.6.2 The training records must be retained by the employer for a minimum period of thirty-six months from the most recent training completion date month and must be made available upon request to the employee or appropriate national authority.

1.5.67 Instructor Qualifications

1.5.67.1 Unless otherwise provided for by the appropriate national authority, instructors of initial and recurrent dangerous goods training programmes must have adequate instructional skills and have successfully completed a dangerous goods training programme in the applicable category or Category 6 of Table 1.5.A or another training programme that additionally covers all aspects of Table 1.5.A, prior to delivering such a dangerous goods training programme.

Note: “Adequate instructional skills” can come from a variety of methods. A list of instructional techniques is found in the Guidelines for Instructors of Dangerous Goods Courses.

1.5.67.2 Instructors delivering initial and recurrent dangerous goods training programmes must at least every 24 months deliver such a course, or in the absence of this attend recurrent training. Instructors must receive and understand updates to dangerous goods information and be made familiar with those changes by training or other means on an annual basis or as the Regulations are modified.

1.5.7.3 Organisations must ensure that the instructor receives updates to the Regulations and training material on an annual basis with the issuance of each edition of the DGR.
1.5.8 Competency-Based Training and Assessment

Competency-based training and assessment should be used in accordance with the general provisions contained in Chapter 2 of the ICAO Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868).

TABLE 1.5.A
Minimum Requirements for Training Curricula (1.5.2)

<table>
<thead>
<tr>
<th>KEY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Shippers and persons undertaking the responsibilities of shippers', including operator's staff acting as shippers, operator's staff preparing dangerous goods as Company Materials (COMAT)</td>
</tr>
<tr>
<td>2. Packers</td>
</tr>
<tr>
<td>3. Staff of freight forwarders involved in processing dangerous goods</td>
</tr>
<tr>
<td>4. Staff of freight forwarders involved in processing cargo or mail or stores (other than dangerous goods)</td>
</tr>
<tr>
<td>5. Staff of freight forwarders involved in the handling, storage and loading of cargo or mail or stores</td>
</tr>
<tr>
<td>6. Operator's and ground handling agent's staff accepting dangerous goods</td>
</tr>
<tr>
<td>7. Operator's and ground handling agent's staff accepting cargo or mail or stores (other than dangerous goods)</td>
</tr>
<tr>
<td>8. Operator's and ground handling agent's staff involved in the handling, storage and loading of cargo or mail or stores and baggage</td>
</tr>
<tr>
<td>9. Passenger handling staff</td>
</tr>
<tr>
<td>10. Flight crew members, loadmasters and load planners</td>
</tr>
<tr>
<td>11. Crew members (other than flight crew members)</td>
</tr>
<tr>
<td>12. Security staff who deal with the screening of passengers and their baggage and cargo or mail or stores, e.g. security screeners, their supervisors and staff involved in implementing security procedures.</td>
</tr>
</tbody>
</table>

TABLE 1.5.B
Minimum Requirements for Training Curricula for “No Carry” Operators (1.5.3)

<table>
<thead>
<tr>
<th>KEY</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Operator's and ground handling agent's staff accepting cargo or mail or stores (other than dangerous goods)</td>
</tr>
<tr>
<td>8. Operator's and ground handling agent's staff involved in the handling, storage and loading of cargo or mail or stores and baggage</td>
</tr>
<tr>
<td>9. Passenger handling staff</td>
</tr>
<tr>
<td>10. Flight crew members, loadmasters and load planners</td>
</tr>
<tr>
<td>11. Crew members (other than flight crew members)</td>
</tr>
</tbody>
</table>

TABLE 1.5.C
Minimum Requirements for Training Curricula for Designated Postal Operators (1.5.4)

<table>
<thead>
<tr>
<th>Aspects of transport of dangerous goods by air with which they should be familiar, as a minimum</th>
<th>Designated Postal Operators</th>
</tr>
</thead>
<tbody>
<tr>
<td>General philosophy</td>
<td>A</td>
</tr>
<tr>
<td>Limitations</td>
<td>X</td>
</tr>
<tr>
<td>General requirements for shippers</td>
<td>X</td>
</tr>
<tr>
<td>Classification</td>
<td>X</td>
</tr>
<tr>
<td>List of dangerous goods</td>
<td>X</td>
</tr>
<tr>
<td>Topic</td>
<td>A</td>
</tr>
<tr>
<td>------------------------------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>General packing requirements</td>
<td>X</td>
</tr>
<tr>
<td>Packing instructions</td>
<td>X</td>
</tr>
<tr>
<td>Labelling and marking</td>
<td>X</td>
</tr>
<tr>
<td>Shipper's Declaration and other relevant documentation</td>
<td>X</td>
</tr>
<tr>
<td>Acceptance of the dangerous goods listed in 2.4</td>
<td>X</td>
</tr>
<tr>
<td>Recognition of undeclared dangerous goods</td>
<td>X</td>
</tr>
<tr>
<td>Storage and loading procedures</td>
<td></td>
</tr>
<tr>
<td>Provisions for passengers and crew</td>
<td>X</td>
</tr>
<tr>
<td>Emergency procedures</td>
<td>X</td>
</tr>
</tbody>
</table>

**KEY**

A. **Staff of designated postal operators involved in accepting mail containing dangerous goods**

B. **Staff of designated postal operators involved in processing mail (other than dangerous goods)**

C. **Staff of designated postal operators involved in the handling, storage and loading of mail**
1.6 DANGEROUS GOODS SECURITY

1.6.1 General Security Provisions

... 

1.6.3.1.3 The provisions of this Subsection do not apply to:
(a) UN 2908 and UN 2909 excepted packages;
(b) UN 2910 and UN 2911 excepted packages with an activity level not exceeding the A₂ value; and
(c) UN 2912 LSA-I and UN 2913 SCO-I.

1.6.3 Provisions for High Consequence Dangerous Goods

1.6.3.1 Definition of High Consequence Dangerous Goods

1.6.3.1.1 High consequence dangerous goods are those which have the potential for misuse in a terrorist event and which may, as a result, produce serious consequences such as mass casualties, mass destruction or, particularly for Class 7, mass socio-economic disruption.

1.6.3.1.2 An indicative list of high consequence dangerous goods in classes and divisions other than Class 7 is given in Table 1.6.A below.

**TABLE 1.6.A**

**Indicative List of High Consequence Dangerous Goods (1.6.3.1.2)**

| Class 1 Division 1.1 explosives |
| Class 1 Division 1.2 explosives |
| Class 1 Division 1.3, compatibility group C explosives |
| Class 1 Division 1.4, UN 0104, UN 0237, UN 0255, UN 0267, UN 0289, UN 0361, UN 0365, UN 0366, UN 0440, UN 0441, UN 0455, UN 0456 and UN 0500 |
| Class 1 Division 1.5 |
| Division 2.3 toxic gases, excluding aerosols |
| Class 3 desensitized explosives |
| Division 4.1 desensitized explosives |
| Division 6.1 substances of Packing Group I; except when transported under the excepted quantity provisions (see 2.6) |
| Division 6.2 infectious substances of Category A (UN 2814 and UN 2900) |

1.6.3.1.3 For dangerous goods of Class 7, high consequence radioactive material is that with an activity equal to or greater than a transport security threshold of 3,000 A₂ per single package (see also 10.3.2.1) except for the following radionuclides where the transport security threshold is given in Table 1.6.B below.

**TABLE 1.6.B**

**Transport Security Thresholds for Specific Radionuclides**

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

1.6.3.1.4 For mixtures of radionuclides, determination of whether or not the transport security threshold has been met or exceeded can be calculated by summing the ratios of activity present for each radionuclide divided by the transport security threshold for that radionuclide. If the sum of the fractions is less than 1, then the radioactivity threshold for the mixture has not been met nor exceeded.

This calculation can be made with the formula:

$$\sum \frac{A_i}{T_i} < 1$$

Where:

- $A_i$ = activity of radionuclide $i$ that is present in a package (TBq)
- $T_i$ = transport security threshold for radionuclide $i$ (TBq).

1.6.3.1.5 When radioactive material possess subsidiary risks of other classes or divisions, the criteria of Table 1.6.A should also be taken into account (see also 10.0.5).

1.6.4 Security Plans

1.6.4.1 Applicability
Operators, shippers and others (including infrastructure managers) engaged in the transport of high consequence dangerous goods (see 1.6.3.3 1.6.3) should adopt, implement and comply with a security plan that addresses at least the elements specified in 1.6.3.2 1.6.4.2.

**Note:**
When national authorities issue exemptions, they should consider all of the provisions in this Section.

**1.6.3.4.2 Elements of a Security Plan**

At the minimum, the security plan should comprise of the following elements:

(a) specific allocation of responsibilities for security to competent and qualified persons with appropriate authority to carry out their responsibilities;

(b) records of dangerous goods or types of dangerous goods transported;

(c) review of current operations and assessment of vulnerabilities, including inter-modal transfer, temporary transit storage, handling and distribution as appropriate;

(d) clear statement of measures including training policies (including response to higher threat conditions, new employee/employment verifications etc.), operating practices (e.g. access to dangerous goods in temporary storage proximity to vulnerable infrastructure etc.), equipment and resources that are to be used to reduce security risks;

(e) effective and up to date procedures for reporting and dealing with security threats, breaches of security or security incidents;

(f) procedures for the evaluation and testing of security plans and procedures for periodic review and update of the plans;

(g) measures to ensure the security of transport information contained in the plan; and

(h) measures to ensure that the security of the distribution of transport documentation is limited as far as possible (such measures must not preclude provision of the transport documentation required by Section 8 of these Regulations).

**1.6.4-1.6.5 Radioactive Material**

For radioactive material, the provisions of this Subsection are deemed to be complied with when the provisions of the Convention on Physical Protection of Nuclear Material(1) and of IAEA circular on “The Physical Protection of Nuclear Material and Nuclear Facilities”(2) are applied.(1) (2)


**1.7 Incident and Accident Reporting**

Entities other than operators who are in possession of dangerous goods at the time a dangerous goods accident or incident occurs or at the time a dangerous goods incident is discovered to have occurred should follow the reporting requirements of 9.6.1. Entities other than operators who discover undeclared or misdeclared dangerous goods should follow the reporting requirements of 9.6.2. These entities may include, but are not limited to, freight forwarders, customs authorities and security screening providers.

END
SECTION 2 – LIMITATIONS

2.3 Dangerous Goods Carried by Passengers or Crew

2.3.1 Forbidden Goods

2.3.1.2 Disabling Devices
Disabling devices such as mace, pepper spray, etc. containing an irritant or incapacitating substance are prohibited on the person, in checked and carry-on baggage.

2.3.1.3 Liquid Oxygen Devices
Personal medical oxygen devices that utilize liquid oxygen are prohibited on the person, in checked and carry-on baggage.

2.3.2 Goods Acceptable with Operator Approval, as Checked Baggage Only
The following dangerous goods, as listed in 2.3.2.1 through 2.3.2.6, are permitted on aircraft as checked baggage only and with the approval of the operator(s).

2.3.2.2 Wheelchairs/Mobility Aids with Non-spillable Wet Batteries or with Batteries which Comply with Special Provision A123
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 or with batteries which comply with Special Provision A123:
(a) non-spillable batteries must comply with Special Provision A67 or the vibration and pressure differential tests of Packing Instruction 872;
(b) the operator must verify that:
(1) the battery terminals must be protected from short circuits, e.g. by being enclosed within a battery container;
(2) the battery must be secure attached to the wheelchair or mobility aid. (see 9.3.16.4 and Figure 9.3.H);
(3) electrical circuits have been inhibited.
(c) Operators must ensure that wheelchairs or other battery-powered mobility aids are carried in such a manner so as to prevent unintentional operation and that the wheelchair/mobility aid must be carried such that it is protected from being damaged by the movement of baggage, mail, stores or cargo;
(d) where a battery-powered or other similar mobility aid is specifically designed to allow its battery(ies) to be removed by the user (e.g. collapsible):
(1) the battery(ies) must be removed. The wheelchair / mobility aid may then be carried as checked baggage without restriction;
(2) the removed battery(ies) must be carried in strong, rigid packagings which must be carried in the cargo compartment;
(3) the battery(ies) must be protected from short circuit;
(4) the pilot-in-command must be informed of the location of the packed battery; and
(e) It is recommended that passengers make advance arrangements with each operator.

2.3.2.3 Wheelchairs/Mobility Aids with Spillable Batteries
2.3.2.3.1 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:

(a) provided that the wheelchair or mobility aid can be loaded, stowed, secured and unloaded always in an upright position then the battery may remain installed in the wheelchair; the operator must verify that:

(1) the battery terminals must be protected from short circuits, e.g. by being enclosed within a battery container;

(2) the battery must be securely attached to the wheelchair or mobility aid; and

(3) electrical circuits have been inhibited.

(b) Operators must ensure that wheelchairs or other battery-powered mobility aids are carried in such a manner such that they are so as to prevent unintentional operation and that the wheelchair/mobility aid is protected from being damaged by the movement of baggage, mail stores or cargo;

(c) if the wheelchair or mobility aid cannot be loaded, stowed, secured and unloaded always in an upright position, the battery must be removed. and The wheelchair or mobility aid may then be carried as checked baggage without restriction;

(d) 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 (see Figure 7.3.U) and with the “Package Orientation” label (see Figures 7.4.E and 7.4.F).

2.3.2.3.2 The pilot-in-command must be informed of the location of a wheelchair or mobility aid with an installed battery or the location of a packed battery. It is recommended that passengers make advance arrangements with each operator; also that batteries which are spillable should be fitted with spill-resistant vent caps when feasible (see 9.3.16.4 and Figure 9.3.H).

2.3.2.4 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:

(a) 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;

(b) the operator must verify that:

(1) battery terminals must be protected from short circuits, e.g. by being enclosed within a battery container;

(2) the battery must be securely attached to the wheelchair or mobility aid; and

(3) electrical circuits have been inhibited.

(c) the operator(s) must ensure that such mobility aids are carried in a manner so as to prevent unintentional activation and such that they are protected from being damaged by the movement of baggage, mail stores or other cargo; and

(d) where a battery-powered or other similar mobility aid is specifically designed to allow its battery(ies) to be removed by the user (e.g. collapsible):

(1) the battery(ies) must be removed. The wheelchair / mobility aid may then be carried as checked baggage without restriction;
(2) the battery(ies) must be protected from short circuit by insulating the terminals (e.g., by taping over exposed terminals);

(3) the removed battery(ies) must be protected from damage (e.g., by placing each battery in a protective pouch. The battery(ies) must be carried in the passenger cabin;

(4) removal of the battery from the device must be performed by following the instructions of the manufacturer or device owner;

(5) the battery must not exceed 300 Wh;

(6) a maximum of one spare battery not exceeding 300 Wh or two spares each not exceeding 160 Wh may be carried; and

(e) the pilot-in-command must be informed of the location of the mobility aid with an installed battery or the location of the lithium battery when removed and carried in the cabin.

(f) it is recommended that passengers make advance arrangements with each operator.

2.3.3 Goods Acceptable with Operator Approval as Carry-on Baggage Only

2.3.3.2 Lithium Ion Batteries

Lithium ion batteries exceeding a watt-hour rating of 100 Wh but not exceeding 160 Wh may be carried as spare batteries in carry-on baggage, or in equipment in either checked or carry-on baggage. Batteries must be of a type that meets 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.

2.3.4 Goods Acceptable with Operator Approval as Baggage

2.3.4.1 Medical Oxygen

Gaseous oxygen or air cylinders required for medical use. Each cylinder must not exceed 5 kg gross weight. Cylinders, valves and regulators, where fitted, must be protected from damage that could cause inadvertent release of the contents. This provision also applies where the cylinders are being carried by medically trained persons. The pilot-in-command must be informed of the number of oxygen or air cylinders loaded on board the aircraft and their loading location(s).

Notes:

1. Personal medical oxygen devices that utilise liquid oxygen are forbidden on the person, in checked and carry-on baggage.

2.

2.3.4.2 Small Non-flammable Gas Cylinders of Division 2.2 Fitted into a Life Jacket

2.3.4.2.1 Not more than two small cylinders, containing carbon dioxide or other suitable gas in Division 2.2, per person fitted into a self-inflating life jacket for inflation purposes plus not more than two spare cylinders.

2.3.4.2.2 Not more than four small cylinders of carbon dioxide or other suitable gas in Division 2.2 without a subsidiary risk, per person for other devices. The water capacity of each cylinder must not exceed 50 mL.

Note:
For carbon dioxide a gas cylinder with a water capacity of 50 mL is equivalent to a 28 g cartridge.

2.3.4.3 Insulated Packages Containing Refrigerated Liquid Nitrogen (Dry Shipper)

Insulated packagings containing refrigerated liquid nitrogen fully absorbed in a porous material and intended for transport, at low temperature, of non-dangerous products are not subject to these Regulations provided the design of the insulated packaging would not allow the build-up of pressure within the container and would not permit the release of any refrigerated liquid nitrogen irrespective of the orientation of the insulated packaging.

Editorial Note: The provisions for dry shippers have been moved to paragraph 2.3.5.12

2.3.4.4 Avalanche Rescue Backpack

One avalanche rescue backpack per person containing a cylinder of compressed gas in Division 2.2. The avalanche rescue backpack may also be equipped with a pyrotechnic trigger mechanism containing not more
than 200 mg net of explosives in Division 1.4S and a cylinder of compressed gas in Division 2.2 not exceeding 250 mL. The backpack must be packed in such a manner that it cannot be accidentally activated. The air bags within the backpacks must be fitted with pressure relief valves.

2.3.4.7 Heat Producing Articles

Battery-powered equipment capable of generating extreme heat, which would cause a fire if activated, e.g. underwater high-intensity lamps. Provided that the heat producing component or and the battery is packed separately so as to prevent activation during transport are isolated from each other by the removal of the heat producing component, the battery or another component, e.g. fuse. Any battery that has been removed must be protected against short circuit (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).

2.3.4.8 Portable Medical Electronic Devices

Portable medical electronic devices (Automated External Defibrillators (AED), Nebulizer, Continuous Positive Airway Pressure (CPAP), etc.) containing lithium metal or lithium ion cells or batteries may be carried by passengers for medical use as follows:

(a) no more than two spare batteries may be carried in carry-on baggage only. Spare batteries must be individually protected so as to prevent short circuits (by placement in 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);

(b) each installed or spare battery 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; In addition, each installed or spare battery must not exceed the following:

1. for lithium metal batteries, a lithium content of not more than 8 g; or
2. for lithium ion batteries, a watt-hour rating of not more than 160 Wh.

2.3.5 Goods Acceptable without the Operator's Approval

2.3.5.6 Safety Matches or Cigarette Lighter

One small packet of safety matches or a cigarette lighter that does not contain unabsorbed liquid fuel, other than liquefied gas, intended for use by an individual when carried on the person. Matches and lighters are not permitted in checked or carry-on baggage. Lighter fuel and lighter refills are not permitted on one's person nor in checked or carry-on baggage. Premixing burner lighters which contain liquefied gas, such as butane must have a means of protection against unintentional activation such as a child-resistant lock or a mechanism of activation with two or more actions.

Notes:
1. “Strike anywhere” matches are forbidden for air transport.
2. “Blue Flame” or “Cigar” lighters are not permitted on one's person, carry-on or checked baggage.
3. Cigarette lighters should have two independent actions by the user to activate ignition.

2.3.5.9 Portable Electronic Devices containing Lithium Metal or Lithium Ion Cells or Batteries

2.3.5.9.1 Portable electronic devices (such as watches, calculating machines, cameras, cellular phones, lap-top computers, camcorders, etc.) containing lithium metal or lithium ion cells or batteries when carried by passengers or crew for personal use, which should be carried in carry-on baggage, subject to the following conditions:

(a) spare batteries must be individually protected to prevent short circuits 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, and carried in carry-on baggage only. In addition, each installed or spare battery must not exceed the following:
(b) **each installed or spare battery must not exceed the following:**

- for lithium metal or lithium alloy batteries, a lithium content of not more than 2 g; or
- for lithium ion batteries, a watt-hour rating of not more than 100 Wh.

(c) **batteries and cells must be of a type that meets the requirements of the UN **Manual of Tests and Criteria, Part III, subsection 38.3;**

(d) **if devices are carried in checked baggage the passenger/crew member must take measures to prevent unintentional activation.**

### 2.3.5.10 Fuel Cells Contained in Portable Electronic Devices

#### 2.3.5.10.1 Fuel cell used to power portable electronic devices (for example cameras, cellular phones, laptop computers, and camcorders), and spare fuel cell cartridges, under the following conditions:

(a) fuel cells and fuel cell cartridges may only contain flammable liquids, corrosive substances, liquefied flammable gas, water-reactive substances or hydrogen in metal hydride;

(b) refuelling of fuel cells on board an aircraft is not permitted except that the installation of a spare cartridge is allowed;

(c) 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.

(d) each fuel cell and each fuel cell cartridge must conform to IEC PAS 62282-6-1 Ed. 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;

(e) no more than two spare fuel cell cartridges may be carried by a passenger as follows: in carry-on baggage, in checked baggage or on the person:

1. fuel cell cartridges containing flammable liquids, corrosive substances, liquefied flammable gas or hydrogen in metal hydride in carry-on baggage, in checked baggage, or on the person;
2. fuel cell cartridges containing water-reactive substances may only be carried in carry-on baggage or on the person.

(f) fuel cells containing fuel are permitted in carry-on baggage only;

(g) interaction between fuel cells and integrated batteries in a device must conform to IEC PAS 62282-6-1 Ed. 1. Fuel cells whose sole function is to charge a battery in the device are not permitted;

(h) fuel cell systems 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 manufacturer: “APPROVED FOR CARRIAGE IN AIRCRAFT CABIN ONLY” to so indicate; and

(i) in addition to the languages which may be required by the State of Origin for the markings specified above, English should be used.

...
2.3.5.13 Portable Electronic Equipment Containing Non-Spillable Batteries

In checked or carry-on baggage, portable electronic equipment containing a non-spillable battery meeting the requirements of Special Provision A67. A maximum of two spare non-spillable batteries meeting Special Provision A67 may also be carried. The following requirements apply:

(a) the voltage of each battery must not exceed 12 V and the watt-hour rating must not exceed 100 Wh;
(b) the equipment must either be protected from inadvertent activation, or the battery must be disconnected and the battery terminals insulated;
(c) each spare battery must be protected from short circuit by insulation of the battery terminals.

2.3.5.14 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 requirements of Special Provision A180 are complied with.

2.3.5.15 Internal Combustion or Fuel Cell Engines

In checked baggage only, internal combustion or fuel cell engines being carried separately or incorporated into a machine or other apparatus. The engine must comply with the requirements of Special Provision A70.

2.3.5.16 Permeation Devices

In checked baggage only permeation devices for calibrating air quality monitoring equipment. These devices must comply with the requirements of Special Provision A41.
Dangerous goods must not be carried in or as passengers or crew, checked or carry-on baggage, except as otherwise provided below.

<table>
<thead>
<tr>
<th>Permitted in or as carry-on baggage</th>
<th>Permitted in or as checked baggage</th>
<th>Permitted on one’s person</th>
<th>The approval of the operator(s) is required</th>
<th>The pilot-in-command must be informed of the location</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO  NO  NO  n/a  n/a</td>
<td>Disabling devices such as mace, pepper spray, etc. containing an irritant or incapacitating substance are prohibited on the person, in checked and carry-on baggage.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO  NO  NO  n/a  n/a</td>
<td>Security-type attaché cases, cash boxes, cash bags, etc. incorporating dangerous goods, such as lithium batteries and/or pyrotechnic material, are totally forbidden. See entry in 4.2 - List of Dangerous Goods.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO  YES  NO  YES  NO</td>
<td>Ammunition (cartridges for weapons), securely packaged (in Div. 1.4S, UN 0012 or UN 0014 only), in quantities not exceeding 5 kg (11 lb) gross weight per person for that person’s own use, excluding ammunition with explosive or incendiary projectiles. Allowances for more than one passenger must not be combined into one or more packages.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO  YES  NO  YES  NO</td>
<td>Battery-powered wheelchairs / mobility aids with non-spillable batteries (see Packing Instruction 806 and Special Provision A67), provided the battery terminals are protected from short circuits, e.g. by being enclosed in a battery container, and the battery is securely attached to the wheelchair or mobility aid.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO  YES  NO  YES  YES</td>
<td>Battery-powered wheelchairs / mobility aids with spillable batteries or with lithium ion batteries. (See 2.3.2.3 and 2.3.2.4 for details.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO  YES  NO  YES  NO</td>
<td>Camping stoves and fuel containers that have contained a flammable liquid fuel, with empty fuel tank and/or fuel container (See 2.3.2.5 for details).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YES  NO  YES  YES  NO</td>
<td>Lithium ion batteries with a Watt-hour rating exceeding 100 Wh but not exceeding 160 Wh for consumer electronic devices. No more than two spare batteries may be carried in carry-on baggage only. These batteries must be individually protected to prevent short circuits. Equipment containing such batteries may be in checked or carry-on baggage.</td>
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<td></td>
</tr>
<tr>
<td>YES  NO  NO  YES  YES</td>
<td>Mercury barometer or thermometer carried by a representative of a government weather bureau or similar official agency (see 2.3.3.1 for details.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YES  YES  NO  YES  NO</td>
<td>Avalanche rescue backpack, one (1) per passenger, equipped with a pyrotechnic trigger mechanism containing less than 200 mg net of Div. 1.4S and less than 250 mL of compressed gas in Div. 2.2. The backpack must be packed in such a manner that it cannot be accidentally activated. The airbags within the backpacks must be fitted with pressure relief valves.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YES  YES  NO  YES  NO</td>
<td>Carbon dioxide, solid (dry ice), in quantities not exceeding 2.5 kg (5 lb) per passenger when used to pack perishables 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 must be marked “dry ice” or “carbon dioxide, solid” and with the net weight of dry ice or an indication that there is 2.5 kg or less dry ice.</td>
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</tr>
<tr>
<td>YES  YES  NO  Yes  NO</td>
<td>Chemical Agent Monitoring Equipment, when carried by staff members of the Organization for the Prohibition of Chemical Weapons on official travel (see 2.3.4.5).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YES  YES  NO  YES  NO</td>
<td>Heat producing articles such as underwater torches (diving lamps) and soldering irons. (See 2.3.4.7 for details.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YES  YES  NO  Yes  NO</td>
<td>Insulated packagings containing refrigerated liquid nitrogen (dry shipper), fully absorbed in a porous material and intended for transport, at low temperature, of non-dangerous products are not subject to these Regulations provided the design of the insulated packaging would not allow the build-up of pressure within the container and would not permit the release of any refrigerated liquid nitrogen irrespective of the orientation of the insulated packaging.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Permitted in or as carry-on baggage</strong></td>
<td><strong>Permitted in or as checked baggage</strong></td>
<td><strong>Permitted on one’s person</strong></td>
<td><strong>The approval of the operator(s) is required</strong></td>
<td><strong>The pilot-in-command must be informed of the location</strong></td>
</tr>
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<td>----------------------------------------</td>
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</tr>
<tr>
<td>YES  YES  YES  YES  NO</td>
<td>Non-flammable gas cylinder fitted into a life jacket containing carbon dioxide or other suitable gas in Division 2.2, up to two (2) small cylinders per passenger, and up to two (2) spare cartridges.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| YES  YES  NO  YES  NO                 | Oxygen or air, gaseous, cylinders required for medical use. The cylinder must not exceed 5 kg gross weight.  
*Note: Liquid oxygen systems are forbidden for transport.* | | | |
| NO  YES  NO  NO  NO                  | Aerosols in Division 2.2, with no subsidiary risk, for sporting or home use.  
and | | | |
| YES  YES  YES  NO  NO                | Non-radioactive medicinal or toilet articles (including aerosols) such as hair sprays, perfumes, colognes and medicines containing alcohol.  
The total net quantity of all above mentioned articles must not exceed 2 kg (4.4 lb) or 2 L (2 qt), and the net quantity of each single article must not exceed 0.5 kg (1 lb) or 0.5 L (1 pt). Release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents. | | | |
| YES  YES  YES  NO  NO                | Alcoholic beverages, when in retail packagings, containing more than 24% but not more than 70% alcohol by volume, in receptacles not exceeding 5 L, with a total net quantity per person of 5 L. | | | |
| YES  YES  YES  NO  NO                | Non-flammable, non-toxic gas cylinders 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. | | | |
| YES  YES  YES  NO  NO                | Consumer electronic devices containing lithium metal or lithium ion cells or batteries, such as watches, calculating machines, cameras, cellular phones, lap-top computers, camcorders, etc., when carried by passengers or crew for personal use. | | | |
| YES  NO  NO  NO  NO                  | Spare lithium metal or lithium ion cells or batteries, for such consumer electronic devices may be carried in carry-on baggage only. These batteries must be individually protected to prevent short circuits. | | | |
| YES  YES  NO  NO  NO                | Hair curlers containing hydrocarbon gas, up to one (1) per passenger or crew-member, provided that the safety cover is securely fitted over the heating element. These hair curlers must not be used on board the aircraft at any time. Gas refills for such curlers are not permitted in checked or carry-on baggage. | | | |
| YES  YES  YES  NO  NO                | Medical or clinical thermometer, which contains mercury, one (1) per passenger for personal use, when in its protective case. | | | |
| YES  NO  YES  NO  NO                | Fuel cell systems, and spare fuel cartridges powering portable electronic devices (e.g. cameras, cellular phones, laptop computers, and camcorders), see 2.3.5.10 for details. | | | |
| NO  NO  YES  NO  NO                 | Radioisotopic cardiac pacemakers or other devices, including those powered by lithium batteries, implanted into a person, or radiopharmaceuticals contained within the body of a person as the result of medical treatment. | | | |
| NO  NO  YES  NO  NO                 | Safety matches (one small packet) or a cigarette lighter that does not contain unabsorbed liquid fuel, other than liquefied gas, intended for use by an individual when carried on the person. Lighter fuel and lighter refills are not permitted on one's person or in checked or carry-on baggage.  
*Note: “Strike anywhere” matches are forbidden for air transport.*  
*Note: “Blue flame” or “Cigar” lighters are not permitted on one’s person, carry-on or checked baggage.* | | | |

*Note: n/a means not applicable*
2.4 Transport of Dangerous Goods by Post

2.4.1 The Universal Postal Union Convention forbids the carriage of dangerous goods in mail except as permitted in 2.4.2. Appropriate national authorities should ensure that the provisions of the UPU Convention are complied with in relation to the transport of dangerous goods by air.

2.4.2 The dangerous goods listed in this subsection may be accepted in mail for air carriage subject to the provisions of the appropriate national authorities concerned and the parts of these Regulations which relate to such materials:

(a) Infectious substances, assigned to Biological substance, Category B (UN 3373) only, when packed in accordance with the requirements of Packing Instruction 650, and carbon dioxide, solid (dry ice) when used as a refrigerant for infectious substances (UN 3373);

(b) Patient specimens as defined in 3.6.2.1.4 provided that they are classified, packed and marked as required by 3.6.2.2.3.6; and

(c) Radioactive material, provided the activity does not exceed one tenth of that permitted in Table 10.3.D. The provisions relating to documentation (Subsection 10.8) do not apply to such radioactive material;

(d) 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; and

(e) 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.

2.4.3 The procedures of designated postal operators for controlling the introduction of dangerous goods in mail into air transport are subject to review and approval by the civil aviation authority of the State where the mail is accepted.

2.4.4 Before a designated postal operator can introduce the acceptance of lithium batteries as identified in 2.4.2 d) and e) they must have received specific approval from the civil aviation authority.

Notes:

1. Designated postal authorities may accept the dangerous goods identified in 2.4.2 a), b) and c) without receiving specific approval from the civil aviation authority.

2. Guidelines for appropriate national authorities and civil aviation authorities are contained in the Supplement to the ICAO Technical Instructions (S-1:3).

2.5 Dangerous Goods in Operator's Property

2.5.1.2 Consumer Goods

Aerosols, alcoholic beverages, perfumes, colognes, safety matches and portable electronic devices containing lithium ion or lithium metal cells or batteries provided that the lithium batteries meet the provisions of 2.3.5.9 liquefied gas lighters carried aboard an aircraft by the operator for use or sale on the aircraft during the flight, or series of flights, but excluding non-refillable gas lighters and those lighters liable to leak when exposed to reduced pressure.

2.6 Dangerous Goods in Excepted Quantities

2.6.2 Limitations

2.6.2.2 Dangerous Goods Permitted in Excepted Quantities

Only the following may be carried under the provisions for dangerous goods in excepted quantities:
g) Substances of Class 8, Packing Groups II and III but excluding UN 1774, UN 2794, UN 2795, UN 2800, UN 2803, UN 2809, UN 3028, and UN 3477 and UN 3506; and

2.6.10 De Minimus Quantities

2.6.10.1 Dangerous goods that are assigned codes E1, E2, E4 or E5 in Column F of Table 4.2 are not subject to these Regulations when carried as cargo provided that:

(a) the maximum net quantity of material per inner packaging is limited to 1 mL for liquids and gases and 1 g for solids;

(b) the provisions of 2.6.5 are met, except that an intermediate packaging is not required if the inner packagings are securely packed in an outer packaging with cushioning material in such a way that, under normal conditions of transport, they cannot break, be punctured, or leak their contents; and for liquid dangerous goods, the outer packaging contains sufficient absorbent material to absorb the entire contents of the inner packagings;

(c) the provisions of 2.6.6 are complied with; and

(d) the maximum net quantity of dangerous goods per outer packaging does not exceed 100 g for solids or 100 mL for liquids and gases.

2.7 Dangerous Goods in Limited Quantities

2.7.2 Limitations

2.7.2.1 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:

(f) Class 8: Corrosives of Class 8 in Packing Groups II and III but excluding UN 2794, UN 2795, UN 2803, UN 2809, and UN 3028 and UN 3506;

...
SECTION 3 – CLASSIFICATION

3.1 Class 1 – Explosives

3.1.1 Definition

Class 1 comprises:

... (b) 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 cause any effect external to the device either by projection, fire, smoke, heat or loud noise (see 3.1.7); and

...

3.1.3 Divisions

Class 1 is divided into six divisions.

...

3.1.3.6 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.

Note:
The risk from articles of Division 1.6 is limited to the explosion of a single article.

...

TABLE 3.1.A

Compatibility Group For Explosives (3.1.4)

<table>
<thead>
<tr>
<th>Compatibility Group</th>
<th>Hazard Division</th>
<th>Article or Substance to be Classified</th>
</tr>
</thead>
<tbody>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>N</td>
<td>1.6</td>
<td>Articles containing only extremely insensitive detonating substances</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

...

3.1.5 Classification of Explosives

...

3.1.5.1 Any article or substance having or suspected of having explosive characteristics must first be considered for classification in Class 1 in accordance with the procedures in 3.1.5.2 to 3.1.5.5. Goods are not classified in Class 1 when:

(a) unless specially authorized, the transport of an explosive substance is prohibited forbidden because sensitivity of the substance is excessive;

...

3.1.7 Exclusion from Class 1

...

3.1.7.4 An article may be excluded from Class 1 when three unpackaged articles, each individually activated by its own means of initiation or ignition or external means to function in the designed mode, meet the following test criteria:

(a) no external surface has a temperature of more than 65°C. A momentary spike in temperature up to 200°C is acceptable;
(b) no rupture or fragmentation of the external casing or movement of the article or detached parts thereof of more than 1 m in any direction:

**NOTE:**
Where the integrity of the article may be affected in the event of an external fire these criteria must be examined by a fire test, such as described in ISO 12097-3.

(c) no audible report exceeding 135 dB(C) peak at a distance of 1 m;

(d) no flash or flame capable of igniting a material such as a sheet of 80 ± 10 g/m² paper in contact with the article; and

(e) no production of smoke, fumes or dust in such quantities that the visibility in a 1 m³ chamber equipped with appropriately sized blow out panels is reduced more than 50% as measured by a calibrated light (lux) meter or radiometer located 1 m from a constant light source located at the midpoint on opposite walls. The general guidance on Optical Density Testing in ISO 5659-1 and the general guidance on the Photometric System described in Section 7.5 in ISO 5659-2 may be used or similar optical density measurement methods designed to accomplish the same purpose may also be employed. A suitable hood cover surrounding the front and sides of the light meter must be used to minimize effects of scattered or leaking light not emitted directly from the source.

**NOTES:**
1. If during the tests addressing criteria (a), (b), (c) and (d) no or very little smoke is observed the test described in (e) may be waived.
2. The appropriate national authority may require testing in packaged form if it is determined that, as packaged for transport, the article may pose a greater risk.

### 3.2 Class 2—Gases

### 3.2.2 Divisions

### 3.2.2.1 Division 2.1 Flammable Gas

Gases which at 20°C (68°F) and a standard pressure of 101.3 kPa (1.01 bar, 14.7 lb/in2):

(a) are ignitable when in a mixture of 13% or less by volume with air; or

(b) have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit. Flammability must be determined by tests or by calculation in accordance with methods adopted by ISO (see ISO Standard 10156:1996 ISO 10156:2010). Where insufficient data are available to use these methods, tests by a comparable method recognized by the appropriate national authority must be used.

### 3.2.2.2 Division 2.2 Non-flammable, Non-toxic Gas

Gases which:

(a) are asphyxiant—gases which dilute or replace the oxygen normally in the atmosphere; or

(b) are oxidizing—gases which may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does; or

(c) do not come under the other divisions.

**Note:**
In 3.2.2.2(b) “gases which cause or contribute to the combustion of other material more than air does” means pure gases or gas mixtures with an oxidizing power greater than 23.5 per cent as determined by a method specified in ISO 10156:1996 or 10156-2:2005 ISO 10156:2010.

### 3.2.3 Mixtures of Gases

3.2.3.1 For the classification of gas mixtures into one of the three divisions (including vapours of substance from other classes) the following principles must be used:
3.2.3.1.1 Flammability must be determined by tests or by calculation in accordance with methods adopted by ISO (see ISO Standard 10156:1996 or ISO 10156:2010). Where insufficient data are available to use these methods, tests by a comparable method recognized by the appropriate national authority must be used.

3.2.3.1.4 Oxidizing ability is determined either by tests or by calculation methods adopted by the International Standards Organization (ISO) (see the Note under 3.2.2.2, ISO ISO 10156:1996 and ISO 10156-2:2005 10156:2010).

3.2.5 Aerosols or Aerosol Dispensers

3.2.5.4 Toxic Aerosols

Gases of Division 2.3 contained in an aerosol are prohibited from transport.

3.2.5.5 Aerosols in Packing Group I

Aerosols with contents meeting the criteria for Packing Group I for toxicity or corrosivity are prohibited from transport.

3.3 Class 3—Flammable Liquids

3.3.3 Viscous Substances

The hazard group of viscous flammable substances, 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 the UN Manual of Tests and Criteria Part III, subsection 32.3, by taking the following criteria into consideration:

(a) the closed-cup flash point;
(b) the viscosity expressed as the flow time in seconds;
(c) a solvent separation test; and
(d) the size of the receptacle.

3.3.3.1 Criteria for Inclusion in Packing Group III

3.3.3.1.1 Viscous flammable liquids such as paints, enamels, varnishes, adhesives and polishes with a flash point of less than 23°C (73°F) are included in Packing Group III. They may be assigned to Packing Group III in conformity with the procedures prescribed in the UN Manual of Tests and Criteria Part III, subsection 32.3, provided that:

(a) the viscosity and flash point are in accordance with Table 3.3.B;
(b) less than 3% of the clear solvent layer separates in the solvent separation test;
(c) the capacity of the receptacle used does not exceed 30 L (6.6 gal);
(d) the mixture or any separated solvent does not meet the criteria for Division 6.1 or Class 8;

(d) when assigned to Packing Group III, the flammable liquids must not exceed a net quantity per package of 30 L for passenger aircraft or 100 L for cargo aircraft.
3.6.2.2.3 Substances in a form that any present pathogens have been neutralized or inactivated such that they no longer pose a health risk are not subject to these Regulations unless they meet the criteria for inclusion in another class.

3.6.2.2.3.7 Medical devices or equipment potentially contaminated with or containing infectious substances which are being transported for disinfection, cleaning, sterilization, repair, or equipment evaluation are not subject to the provisions of these Regulations if packed in packagings designed and constructed in such a way that, under normal conditions of transport, they cannot break, be punctured or leak their contents. Packagings must be designed to meet the construction requirements listed in 6.2.

3.6.2.2.3.7.1 These packagings must meet the general packing requirements of 5.0.2.4.1, 5.0.2.6.1.1, 5.0.2.6.1.2 and 5.0.2.7.1. If the outer packaging is not liquid tight and the medical devices or equipment are contaminated with or contain liquid infectious substances, a means of containing the liquid in the event of leakage must be provided in the form of a leakproof liner, plastic bag or other equally effective means of containment. These packages must be capable of retaining the medical devices and equipment when dropped from a height of 1.2 m.

3.6.2.2.3.7.2 Packages must be marked “Used Medical Device” or “Used Medical Equipment”. When packages are placed in an overpack this marking must be reproduced on the outside of the overpack unless the marking remains visible.

3.6.2.2.3.7.3 This exception does not apply to:
(a) medical waste (UN 3291);
(b) medical devices or equipment contaminated with or containing infectious substances in Category A (UN 2814 or UN 2900); and
(c) medical devices or equipment contaminated with or containing other dangerous goods that meet the definition of another hazard class.

3.8 Class 8—Corrosives

3.8.3 Packing Group Test Criteria

<table>
<thead>
<tr>
<th>Packing Group</th>
<th>Exposure Time</th>
<th>Observation Time</th>
<th>Corrosion rate on steel/aluminium</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>≤ 3 min</td>
<td>≤ 60 min</td>
<td>Full thickness destruction of intact skin</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>&gt; 3 min ≤ 60 min</td>
<td>≤ 14 d</td>
<td>Full thickness destruction of intact skin</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>&gt; 60 min ≤ 4 h</td>
<td>≤ 14 d</td>
<td>Full thickness destruction of intact skin</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>—</td>
<td>—</td>
<td>Corrosion rate on steel/aluminium &gt; 6.25 mm (¼ in) a year at a test temperature of 55°C (130°F)</td>
<td></td>
</tr>
</tbody>
</table>

3.9 Class 9 – Miscellaneous Dangerous Goods

3.9.2 Assignment to Class 9

3.9.2.4 Environmentally Hazardous Substances

Environmentally Hazardous substances (aquatic environment) are those that meet the criteria in 2.9.3 of the 15th revised edition of the UN Model Regulations or that meet criteria in national or international regulations established by the appropriate national authority in the State of origin, transit or destination of the consignment.
The detailed classification categories and criteria for environmentally hazardous substances (aquatic environment) as set out in 2.9.3 of the 15th revised edition of the UN Model Regulations can be found at http://www.iata.org/whatwedo/cargo/dangerous_goods/index.htm

Substances or mixtures dangerous to the aquatic environment not presenting a danger covered by other classes, must be assigned to packing group III and designated:

- UN 3077 Environmentally hazardous substance, solid, n.o.s.; or
- UN 3082 Environmentally hazardous substance, liquid, n.o.s.

3.9.2.6 Lithium Batteries

Cells and batteries, cells and batteries contained in equipment, or cells and batteries packed with equipment, containing lithium in any form must be assigned to UN 3090, UN 3091, UN 3480 or UN 3481, as appropriate. They may be transported under these entries if they meet the following provisions:

(a) each cell or battery is of the type proved to meet the requirements of each test of the Manual of Tests and Criteria, Part III, sub-section 38.3. However, batteries and cells manufactured before 1 January 2014 conforming to a design type tested according to the requirements of the 5th revised edition of the UN Manual of Tests and Criteria, Part III, sub-section 38.3 may continue to be transported;

**Note:**
Batteries must be of a design type proved to meet the testing requirements of the Manual of Tests and Criteria, Part III, sub-section 38.3, irrespective of the whether the cells of which they are composed are of a tested design type.

(b) each cell and battery incorporates a safety venting device or is designed to preclude a violent rupture under conditions normally incident to transport;

(c) each cell and battery is equipped with an effective means of preventing external short circuits;

(d) each battery containing cells or series of cells connected in parallel is equipped with effective means as necessary to prevent dangerous reverse current flow (e.g., diodes, fuses, etc.);

(e) cells and batteries must be manufactured under a quality management program that includes:

1. a description of the organizational structure and responsibilities of personnel with regard to design and product quality;
2. the relevant inspection and test, quality control, quality assurance, and process operation instructions that will be used;
3. process controls that should include relevant activities to prevent and detect internal short circuit failure during manufacture of cells;
4. quality records, such as inspection reports, test data, calibration data and certificates. Test data must be kept and made available to the appropriate national authority upon request;
5. management reviews to ensure the effective operation of the quality management programme;
6. a process for control of documents and their revision;
7. a means for control of cells or batteries that are not conforming to the type tested as mentioned in (a) above;
8. training programmes and qualification procedures for relevant personnel; and
9. procedures to ensure that there is no damage to the final product.

**NOTE:**
In house quality management programmes may be accepted. Third party certification is not required, but the procedures listed in (1) to (9) above must be properly recorded and traceable. A copy of the quality management programme must be made available to the appropriate national authority upon request.

3.9.2.67 Miscellaneous Articles and Substances

Examples included in this class:
- Asbestos
- Carbon dioxide, solid (dry ice)
- Consumer commodity
- Chemical and First aid kits
- Life-saving appliances
- Engines, internal combustion
- Vehicles (flammable gas powered), Vehicles (flammable liquid powered)
- Polymeric beads
- Battery-powered equipment or vehicles
- Zinc dithionite
Section 4 — Identification

4.1 Selecting Proper Shipping Name

4.1.3 Mixtures and Solutions not Listed by Name

4.1.3.1 Mixtures or Solutions

A mixture or solution meeting the classification criteria of these Regulations composed of a predominant substance identified by name in the List of Dangerous Goods together with one or more substances not subject to these Regulations and/or traces of one or more substances identified by name in the List of Dangerous Goods must be identified by the proper shipping name of the predominant substance listed in Subsection 4.2; the qualifying word "mixture" or "solution", as appropriate must be added to the proper shipping name.

Example 6: A solution of Acetone is such that its flash point is below 23°C (73°F) and its boiling point is above 35°C (95°F), therefore it is in the same flammability range as pure Acetone (UN 1090, 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 Acetone solution.

In addition, the concentration of the mixture or solution may also be indicated after the basic description of the mixture or solution, e.g. Acetone 75% solution.

The exceptions to this rule are when:

- the mixture or solution is identified by name in Subsection 4.2 – List of Dangerous Goods;
- the name and description of the substance named in the List of Dangerous Goods indicates that it applies only to the pure substance;
- the hazard class or division, subsidiary risk(s), physical state (solid, liquid, gas) or packing group of the mixture or solution differs from that of the substance named in listed Subsection 4.2 – List of Dangerous Goods; or
- the hazard characteristics and properties of the mixture or solution necessitate emergency response measures that are different from those required for the substance identified by name in Subsection 4.2 – List of Dangerous Goods.

Note: Although traces of substances may not need to be taken into account for classification purposes, those traces may affect the properties of the substance and do need to be taken into account when considering the compatibility requirements of 5.0.2.6.3.

For a solution or mixture when the hazard class, the physical state or the packing group is changed in comparison with the listed substance, the appropriate n.o.s. proper shipping name must be assigned, followed by the 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.

Example 7: 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 packing 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).

A mixture or solution meeting the classification criteria of these Regulations that is not identified by name in Subsection 4.2—List of Dangerous Goods and that is composed of two or more dangerous goods must be assigned to an entry that has the proper shipping name, description, hazard class or division, subsidiary risk(s)
and packing group that most precisely describe the mixture or solution (see also Subsection 3.10, 4.1.2.1(c) and 4.1.2.1(d)).

...

4.1.6 Using the List of Dangerous Goods

...

4.1.6.8 Column H

Passenger and Cargo Aircraft Limited Quantity — Maximum Net Quantity per Package — Shows the maximum net quantity (weight or volume) of the article or substance allowed in each package for transport on a passenger or cargo aircraft. The weight quoted is the net weight, unless otherwise indicated by a letter G which refers to the gross weight. In the case of explosive articles and matches, the net weight is the weight of the finished article excluding packagings. Factors for converting imperial or US units to SI units appear in Appendix B. The maximum quantity per package may be further limited by the type of container used (see Section 5). If the word Forbidden is shown, the article or substance cannot be carried under Limited Quantity provisions.

Notes:

1. Where an article or substance is packed according to the packing instruction in Column G or I and is within the maximum net quantity shown in Column 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.

2. Where the maximum quantity per package is shown as “No Limit” or has a packing instruction reference in Column H the quantity must be described as required by 8.1.6.9.2.c.

4.1.6.10 Column J

Passenger and Cargo Aircraft — Maximum Net Quantity per Package — Shows the maximum net quantity (weight or volume) of the article or substance allowed in each package for transport on a passenger or cargo aircraft. The weight quoted is the net weight, unless otherwise indicated by a letter G, which refers to the gross weight. In the case of explosive articles and matches, the net weight is the weight of the finished article excluding packagings. Factors for converting imperial or US units to SI units appear in Appendix B. The maximum quantity per package may be further limited by the type of container used (see Section 5). The maximum net quantities indicated may be exceeded only if specified in these Regulations or as permitted with the approval of the appropriate national authority of the State of Origin and the State of the Operator. If the word Forbidden is shown, the article cannot be carried on a passenger aircraft.

Notes:

1. Where an article or substance is packed according to the packing 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.

2. Where the maximum quantity per package is shown as “No Limit” or has a packing instruction reference in Column J, the quantity must be described as required by 8.1.6.9.2(c) or (d).

4.1.6.12 Column L

Cargo Aircraft Only — Maximum Net Quantity per Package — Shows the maximum net quantity (weight or volume) of the article or substance allowed in each package for transport on a cargo aircraft only. The weight quoted is the net weight, unless otherwise indicated by a letter G, which refers to the gross weight. In the case of explosive articles and matches, the net weight is the weight of the finished article excluding packagings. Factors for converting imperial or US units to SI units appear in Appendix B. The maximum quantity per package may be further limited by the type of container used (see Section 5). The maximum net quantities indicated may be exceeded only if specified in these Regulations or as permitted with the approval of the appropriate national authority of the State of Origin and the State of the Operator. If the word Forbidden is shown, the article cannot be carried on any aircraft unless exempted by States under the provisions of 1.2.6.

Notes:
1. The quantity limitations in Column H, J and L apply only to the amount contained in one package, not in one consignment or aircraft. For example: in the List of Dangerous Goods the maximum net quantity per package of Acetyl chloride, UN 1717 is one litre per package on passenger aircraft. However, a passenger aircraft can carry as many one-litre packages of Acetyl chloride as may be necessary, unless further restricted by State or operator variations.

2. Where the maximum quantity per package is shown as “No Limit” or has a packing instruction reference in Column L, the quantity must be described as required by 8.1.6.9.2(c) or (d).
## 4.2 List of Dangerous Goods

<table>
<thead>
<tr>
<th>UN/ID No.</th>
<th>Proper Shipping Name/Description</th>
<th>Class or Div. (Sub Risk)</th>
<th>Hazard Label(s)</th>
<th>PG</th>
<th>EQ</th>
<th>Ltd Qty</th>
<th>Cargo Aircraft Only</th>
<th>S.P. see 4.4</th>
<th>ERG Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>△ 1002</td>
<td>Air, compressed</td>
<td>2.2</td>
<td>Non-flamm. Gas</td>
<td>E1</td>
<td></td>
<td>Forbidden</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>△ 2571</td>
<td>Alkylsulphuric acids ✔</td>
<td>8</td>
<td>Corrosive</td>
<td>II</td>
<td>E2</td>
<td>Y840 0.5 L</td>
<td>1 L</td>
<td>855</td>
<td>30 L</td>
</tr>
<tr>
<td>△ 2071</td>
<td>Ammonium nitrate based fertilizers</td>
<td>9</td>
<td>Miscellaneous</td>
<td>III</td>
<td>E1</td>
<td>Y958 30 kg G</td>
<td>200 kg</td>
<td>958</td>
<td>200 kg</td>
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<td>Aviation regulated liquid, n.o.s. ✶</td>
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<td>E1</td>
<td>Y964 30 kg G</td>
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<td>E1</td>
<td>Y956 30 kg G</td>
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<td>△ 3028</td>
<td>Batteries, dry, containing potassium hydroxide solid electric storage †</td>
<td>8</td>
<td>Corrosive</td>
<td>E0</td>
<td>Forbidden</td>
<td>871</td>
<td>30 kg G</td>
<td>871</td>
<td>230 kg G</td>
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<tr>
<td>△ 2794</td>
<td>Batteries, wet, filled with acid electric storage †</td>
<td>8</td>
<td>Corrosive</td>
<td>E0</td>
<td>Forbidden</td>
<td>870</td>
<td>30 kg G</td>
<td>870</td>
<td>No limit</td>
</tr>
<tr>
<td>△ 2795</td>
<td>Batteries, wet, filled with alkali electric storage †</td>
<td>8</td>
<td>Corrosive</td>
<td>E0</td>
<td>Forbidden</td>
<td>870</td>
<td>30 kg G</td>
<td>870</td>
<td>No limit</td>
</tr>
<tr>
<td>△ 1008</td>
<td>Boron trifluoride</td>
<td>2.3 (8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ 3499</td>
<td>Capacitor</td>
<td>9</td>
<td>Miscellaneous</td>
<td>E0</td>
<td></td>
<td>Forbidden</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ 0014</td>
<td>Cartridges for tools, blank</td>
<td>1.4S</td>
<td>Explosive 1.4</td>
<td>E0</td>
<td></td>
<td>Forbidden</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ 3292</td>
<td>Cells, containing sodium †</td>
<td>4.3</td>
<td>Dang. when wet</td>
<td>II</td>
<td>E0</td>
<td>Forbidden</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ 3500</td>
<td>Chemical under pressure, n.o.s. ✶</td>
<td>2.2</td>
<td>Non-flamm. Gas</td>
<td>E0</td>
<td></td>
<td>Forbidden</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ 3503</td>
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<td>2.2 (0)</td>
<td>Non-flamm. Gas &amp; Corrosive</td>
<td>E0</td>
<td></td>
<td>Forbidden</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ 3501</td>
<td>Chemical under pressure, flammable, n.o.s. ✶</td>
<td>2.1</td>
<td>Flamm. Gas</td>
<td>E0</td>
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<td>Forbidden</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ 3505</td>
<td>Chemical under pressure, flammable, corrosive, n.o.s. ✶</td>
<td>2.1 (8)</td>
<td>Flamm. Gas &amp; Corrosive</td>
<td>E0</td>
<td></td>
<td>Forbidden</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ 3504</td>
<td>Chemical under pressure, flammable, toxic, n.o.s. ✶</td>
<td>2.1 (6.1)</td>
<td>Flamm. Gas &amp; Toxic</td>
<td>E0</td>
<td></td>
<td>Forbidden</td>
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<td>□ 3502</td>
<td>Chemical under pressure, toxic, n.o.s. ✶</td>
<td>2.2 (6.1)</td>
<td>Non-flamm. Gas &amp; Toxic</td>
<td>E0</td>
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<td>Forbidden</td>
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<tr>
<td>UN/ID No.</td>
<td>Proper Shipping Name/Description</td>
<td>Class or Div. (Sub Risk)</td>
<td>Hazard Label(s)</td>
<td>PG</td>
<td>EQ</td>
<td>Pkg Inst</td>
<td>Max Net Qty/Pkg</td>
<td>Pkg Inst</td>
<td>Max Net Qty/Pkg</td>
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</tr>
<tr>
<td>A</td>
<td>B</td>
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<td>D</td>
<td>E</td>
<td>F</td>
<td>G</td>
<td>H</td>
<td>I</td>
<td>J</td>
</tr>
<tr>
<td>△ 2985</td>
<td>Chlorosilanes, flammable, corrosive, n.o.s.</td>
<td>3 (6)</td>
<td>Flamm. liquid &amp; Corrosive</td>
<td>II</td>
<td>EO</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td>377</td>
<td>5 L</td>
</tr>
<tr>
<td>△ 3361</td>
<td>Chlorosilanes, toxic, corrosive, n.o.s.</td>
<td>6.1 (8)</td>
<td>Toxic &amp; Corrosive</td>
<td>II</td>
<td>EO</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td>681</td>
<td>30 L</td>
</tr>
<tr>
<td>△ 3362</td>
<td>Chlorosilanes, toxic, corrosive, flammable, n.o.s.</td>
<td>6.1 (3, 8)</td>
<td>Toxic &amp; Flamm. Liquid &amp; Corrosive</td>
<td>II</td>
<td>EO</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td>681</td>
<td>30 L</td>
</tr>
<tr>
<td>△ 1162</td>
<td>Dimethyldichlorosilane</td>
<td>3 (8)</td>
<td>Flamm. liquid &amp; Corrosive</td>
<td>II</td>
<td>EO</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td>377</td>
<td>5 L</td>
</tr>
<tr>
<td>△ 2381</td>
<td>Dimethyl disulphide</td>
<td>3 (6.1)</td>
<td></td>
<td>II</td>
<td>EO</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td>377</td>
<td>5 L</td>
</tr>
<tr>
<td>△ 1196</td>
<td>Ethyltrichlorosilane</td>
<td>3 (8)</td>
<td>Flamm. liquid &amp; Corrosive</td>
<td>II</td>
<td>EO</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td>377</td>
<td>5 L</td>
</tr>
<tr>
<td>△ 3468</td>
<td>Hydrogen in a metal hydride storage system</td>
<td>2.1</td>
<td>Flamm. Gas</td>
<td>E0</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>214</td>
<td>100 kg</td>
</tr>
<tr>
<td>△ 3468</td>
<td>Hydrogen in a metal hydride storage system contained in equipment</td>
<td>2.1</td>
<td>Flamm. Gas</td>
<td>E0</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>214</td>
<td>100 kg</td>
</tr>
<tr>
<td>△ 3468</td>
<td>Hydrogen in a metal hydride storage system packed with equipment</td>
<td>2.1</td>
<td>Flamm. Gas</td>
<td>E0</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>214</td>
<td>100 kg</td>
</tr>
<tr>
<td>□ 1968</td>
<td>Insecticide gas, n.o.s.</td>
<td>2.2</td>
<td>Non-flamm. Gas</td>
<td>E1</td>
<td>Y203</td>
<td>30 kg</td>
<td>G</td>
<td>203</td>
<td>75 kg</td>
</tr>
<tr>
<td>□ 3498</td>
<td>Iodine monochloride, liquid</td>
<td>8</td>
<td>Corrosive</td>
<td>II</td>
<td>E2</td>
<td>Forbidden</td>
<td>851</td>
<td>1 L</td>
<td>855</td>
</tr>
<tr>
<td>□ 1792</td>
<td>Iodine monochloride, solid</td>
<td>8</td>
<td>Corrosive</td>
<td>II</td>
<td>E0</td>
<td>Forbidden</td>
<td>863</td>
<td>50 kg</td>
<td>A1</td>
</tr>
<tr>
<td>△ 3480</td>
<td>Lithium ion batteries</td>
<td>9</td>
<td>Miscellaneous</td>
<td>II</td>
<td>E0</td>
<td>Forbidden</td>
<td>See 965</td>
<td>5 kg</td>
<td>G</td>
</tr>
<tr>
<td>△ 3481</td>
<td>Lithium ion batteries contained in equipment</td>
<td>9</td>
<td>Miscellaneous</td>
<td>II</td>
<td>E0</td>
<td>Forbidden</td>
<td>967</td>
<td>5 kg</td>
<td>967</td>
</tr>
<tr>
<td>△ 3481</td>
<td>Lithium ion batteries packed with equipment</td>
<td>9</td>
<td>Miscellaneous</td>
<td>II</td>
<td>E0</td>
<td>Forbidden</td>
<td>966</td>
<td>5 kg</td>
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<td>Cargo Aircraft Only</td>
<td>S.P. see</td>
<td>ERG Code</td>
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<td>A</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>△ 3090</td>
<td>Lithium metal batteries (including lithium alloy batteries)</td>
<td>9</td>
<td>Miscellaneous</td>
<td>II</td>
<td>E0</td>
<td>Forbidden</td>
<td>See 968</td>
<td>2.5 kg G</td>
<td>See 968</td>
</tr>
<tr>
<td>△ 3091</td>
<td>Lithium metal batteries contained in equipment (including lithium alloy batteries)</td>
<td>9</td>
<td>Miscellaneous</td>
<td>II</td>
<td>E0</td>
<td>Forbidden</td>
<td>970</td>
<td>5 kg</td>
<td>970</td>
</tr>
<tr>
<td>△ 3091</td>
<td>Lithium metal batteries packed with equipment (including lithium alloy batteries)</td>
<td>9</td>
<td>Miscellaneous</td>
<td>II</td>
<td>E0</td>
<td>Forbidden</td>
<td>969</td>
<td>5 kg</td>
<td>969</td>
</tr>
<tr>
<td>△ 2809</td>
<td>Mercury</td>
<td>8 (6.1)</td>
<td>Corrosive &amp; Toxic</td>
<td>III</td>
<td>E0</td>
<td>Forbidden</td>
<td>868</td>
<td>35 kg</td>
<td>868</td>
</tr>
<tr>
<td>△ 2809</td>
<td>Mercury contained in manufactured articles</td>
<td>8 (6.1)</td>
<td>Corrosive &amp; Toxic</td>
<td>III</td>
<td>E0</td>
<td>Forbidden</td>
<td>869</td>
<td>No limit</td>
<td>869</td>
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<td>△ 1250</td>
<td>Methylenechlorosilane</td>
<td>3 (8)</td>
<td>Flammable, liquid &amp; Corrosive</td>
<td>II</td>
<td>E0</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td>377</td>
<td>5 L</td>
</tr>
<tr>
<td>△ 3276</td>
<td>Nitriles, toxic, liquid, n.o.s. ★</td>
<td>6.1</td>
<td>Toxic</td>
<td>I</td>
<td>E5</td>
<td>Forbidden</td>
<td>652</td>
<td>1 L</td>
<td>658</td>
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<tr>
<td></td>
<td>Nitriles, liquid, toxic, n.o.s. ★</td>
<td></td>
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<tr>
<td>△ 3439</td>
<td>Nitriles, toxic, solid, n.o.s. ★</td>
<td>6.1</td>
<td>Toxic</td>
<td>I</td>
<td>E5</td>
<td>Forbidden</td>
<td>666</td>
<td>5 kg</td>
<td>673</td>
</tr>
<tr>
<td></td>
<td>Nitriles, solid, toxic, n.o.s. ★</td>
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<td></td>
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<tr>
<td>△ 3064</td>
<td>Nitroglycerin solution in alcohol with 5% or less but more than 1% nitroglycerin</td>
<td>3</td>
<td>Flammable, liquid</td>
<td>II</td>
<td>E0</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td>371</td>
<td>5 L</td>
</tr>
<tr>
<td>△ 3282</td>
<td>Organometallic compound, toxic, liquid, n.o.s. ★</td>
<td>6.1</td>
<td>Toxic</td>
<td>I</td>
<td>E5</td>
<td>Forbidden</td>
<td>652</td>
<td>1 L</td>
<td>658</td>
</tr>
<tr>
<td></td>
<td>Organometallic compound, liquid, toxic, n.o.s. ★</td>
<td></td>
<td></td>
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<tr>
<td>△ 3467</td>
<td>Organometallic compound, toxic, solid, n.o.s. ★</td>
<td>6.1</td>
<td>Toxic</td>
<td>I</td>
<td>E5</td>
<td>Forbidden</td>
<td>666</td>
<td>5 kg</td>
<td>673</td>
</tr>
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<td></td>
<td>Organometallic compound, solid, toxic, n.o.s. ★</td>
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<td></td>
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<tr>
<td>△ 3278</td>
<td>Organophosphorus compound, toxic,</td>
<td>6.1</td>
<td>Toxic</td>
<td>I</td>
<td>E5</td>
<td>Forbidden</td>
<td>652</td>
<td>1 L</td>
<td>658</td>
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<tr>
<td>UN/ID No.</td>
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<td>Cargo Aircraft Only</td>
<td>S.P. see 4.4</td>
<td>ERG Code</td>
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<tr>
<td>B</td>
<td>liquid, n.o.s. ★</td>
<td></td>
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<td></td>
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<tr>
<td>C</td>
<td>Organophosphorus compound, liquid, toxic, n.o.s. ★</td>
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<td></td>
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<tr>
<td>D</td>
<td>3464 Organophosphorus compound, toxic, solid, n.o.s. ★</td>
<td>6.1 Toxic</td>
<td>I E5 Forbidden</td>
<td>666</td>
<td>5 kg</td>
<td>673</td>
<td>50 kg</td>
<td>A3</td>
<td>6L</td>
</tr>
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<td>E</td>
<td>Organophosphorus compound, solid, toxic, n.o.s. ★</td>
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<td>F</td>
<td>3269 Polyester resin kit †</td>
<td>3 Flamm. Liquid</td>
<td>II E0 Y370 1 kg</td>
<td>370</td>
<td>5 kg</td>
<td>370</td>
<td>5 kg</td>
<td>A66</td>
<td>3L</td>
</tr>
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<td>G</td>
<td>1707 Thallium compound, n.o.s. ★</td>
<td>6.1 Toxic</td>
<td>II E4 Y644 1 kg</td>
<td>669</td>
<td>25 kg</td>
<td>676</td>
<td>100 kg</td>
<td>A6</td>
<td>6L</td>
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<td>H</td>
<td>3381 Toxic by inhalation liquid, n.o.s. ★ with a LC₅₀ ≤ 200 mL/m³ and saturated vapour concentration ≥ 500 LC₅₀</td>
<td>6.1</td>
<td>Forbidden</td>
<td>Forbidden</td>
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</tr>
<tr>
<td>I</td>
<td>3382 Toxic by inhalation liquid, n.o.s. ★ with a LC₅₀ ≤ 1,000 mL/m³ and saturated vapour concentration ≥ 10 LC₅₀</td>
<td>6.1</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td></td>
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<tr>
<td>J</td>
<td>3389 Toxic by inhalation liquid, corrosive, n.o.s. ★ with a LC₅₀ ≤ 200 mL/m³ and saturated vapour concentration ≥ 500 LC₅₀</td>
<td>6.1 (8)</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td></td>
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<tr>
<td>K</td>
<td>3390 Toxic by inhalation liquid, corrosive, n.o.s. ★ with a LC₅₀ ≤ 1,000 mL/m³ and saturated vapour concentration ≥ 10 LC₅₀</td>
<td>6.1 (8)</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td>Forbidden</td>
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<tr>
<td>L</td>
<td>2492 Toxic by inhalation liquid, corrosive, flammable, n.o.s. ★</td>
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<tr>
<td>M</td>
<td>3383 Toxic by inhalation liquid, flammable, n.o.s. ★ with a LC₅₀ ≤ 200 mL/m³ and saturated vapour concentration ≥ 500 LC₅₀</td>
<td>6.1 (3)</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td>Forbidden</td>
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<tr>
<td>N</td>
<td>3384 Toxic by inhalation liquid, flammable, n.o.s. ★ with a LC₅₀ ≤ 1,000 mL/m³ and saturated vapour concentration ≥ 10 LC₅₀</td>
<td>6.1 (3)</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td>Forbidden</td>
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<tr>
<td>O</td>
<td>3488 Toxic by inhalation liquid, flammable, corrosive, n.o.s. ★ with a LC₅₀ ≤ 200 mL/m³ and saturated vapour concentration ≥ 500 LC₅₀</td>
<td>6.1 (3, 8)</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td>Forbidden</td>
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<td>P</td>
<td>3489 Toxic by inhalation liquid, flammable, corrosive, n.o.s. ★ with a LC₅₀ ≤ 1,000 mL/m³ and saturated vapour concentration ≥ 10 LC₅₀</td>
<td>6.1 (3, 8)</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td>Forbidden</td>
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<tr>
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<td>Cargo Aircraft Only</td>
<td>S.P. see 4.4</td>
<td>ERG Code</td>
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<td>A</td>
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<td>C</td>
<td>D</td>
<td>E</td>
<td>F</td>
<td></td>
<td></td>
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<td>N</td>
</tr>
<tr>
<td>3387</td>
<td>Toxic by inhalation liquid, oxidizing, n.o.s. ★ with a LC(<em>{50}) ≤ 200 mL/m(^3) and saturated vapour concentration ≥ 500 LC(</em>{50})</td>
<td>6.1 (5.1)</td>
<td>Forbidden</td>
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<tr>
<td>3388</td>
<td>Toxic by inhalation liquid, oxidizing, n.o.s. ★ with a LC(<em>{50}) ≤ 1,000 mL/m(^3) and saturated vapour concentration ≥ 10 LC(</em>{50})</td>
<td>6.1 (5.1)</td>
<td>Forbidden</td>
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<td>3385</td>
<td>Toxic by inhalation liquid, water-reactive, n.o.s. ★ with a LC(<em>{50}) ≤ 200 mL/m(^3) and saturated vapour concentration ≥ 500 LC(</em>{50})</td>
<td>6.1 (4.3)</td>
<td>Forbidden</td>
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<td>3386</td>
<td>Toxic by inhalation liquid, water-reactive, n.o.s. ★ with a LC(<em>{50}) ≤ 1,000 mL/m(^3) and saturated vapour concentration ≥ 10 LC(</em>{50})</td>
<td>6.1 (4.3)</td>
<td>Forbidden</td>
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<td>3490</td>
<td>Toxic by inhalation liquid, water-reactive, flammable, n.o.s. ★ with a LC(<em>{50}) ≤ 200 mL/m(^3) and saturated vapour concentration ≥ 500 LC(</em>{50})</td>
<td>6.1 (3, 4.3)</td>
<td>Forbidden</td>
<td></td>
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</tr>
<tr>
<td>3491</td>
<td>Toxic by inhalation liquid, water-reactive, flammable, n.o.s. ★ with a LC(<em>{50}) ≤ 1,000 mL/m(^3) and saturated vapour concentration ≥ 10 LC(</em>{50})</td>
<td>6.1 (3, 4.3)</td>
<td>Forbidden</td>
<td></td>
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</tr>
<tr>
<td>1298</td>
<td>Trimethylchlorosilane</td>
<td>3 (6)</td>
<td>Flamm. Liquid &amp; Corrosive</td>
<td>II</td>
<td>EO</td>
<td>Forbidden</td>
<td></td>
<td>377</td>
<td>5 L</td>
</tr>
<tr>
<td>1305</td>
<td>Vinyltrichlorosilane</td>
<td>3 (8)</td>
<td>Flamm. Liquid &amp; Corrosive</td>
<td>II</td>
<td>EO</td>
<td>Forbidden</td>
<td></td>
<td>377</td>
<td>5 L</td>
</tr>
</tbody>
</table>

...
4.4 Special Provisions

A21 (240) This entry only applies to vehicles and equipment which are powered by wet batteries, sodium batteries or lithium metal batteries or lithium ion batteries and equipment powered by wet batteries or sodium batteries which are transported with these batteries installed. For the purpose of this special provision, vehicles are self-propelled apparatus designed to carry one or more persons or goods. Examples of such vehicles and equipment are electrically-powered cars, lawn mowers, scooters, three- and four-wheeled vehicles or motorcycles, battery-assisted bicycles (e-bikes), wheelchairs and other mobility aids, lawn tractors, boats and aircraft. Examples of equipment are lawnmowers, cleaning machine, model boats and model aircraft.

Equipment powered by lithium metal batteries or lithium ion batteries must be consigned under the entries UN 3091 Lithium metal batteries contained in equipment or UN 3091 Lithium metal batteries packed with equipment or UN 3481 Lithium ion batteries contained in equipment or UN 3481 Lithium ion batteries packed with equipment, as appropriate. Vehicles or equipment which also contain an internal combustion engine must be consigned under the entries UN 3166 Engine, internal combustion, flammable gas powered or UN 3166 Engine, internal combustion, flammable liquid powered or UN 3166 Vehicle, flammable gas powered or UN 3166 Vehicle, flammable liquid powered, as appropriate. Hybrid electric vehicles powered by both an internal combustion engine and wet batteries, sodium batteries, lithium metal batteries or lithium ion batteries, transported with the battery(ies) installed, must be consigned under the entries UN 3166 Vehicle, flammable gas powered or UN 3166 Vehicle, flammable liquid powered, as appropriate.

Vehicles or equipment powered by a fuel cell engine must be consigned under the entries UN 3166 Engine, fuel cell, flammable gas powered or UN 3166 Engine, fuel cell, flammable liquid powered or UN 3166 Vehicle, fuel cell, flammable gas powered or UN 3166 Vehicle, fuel cell, flammable liquid powered, as appropriate.

A32 Air bag inflators, air bag modules or seat-belt pretensioners installed in conveyances or in completed conveyance components, vehicles, vessels or aircraft or in completed components such as steering columns, door panels, seats, etc. which are not capable of inadvertent activation are not subject to these Regulations when carried as cargo. The words “Not Restricted” and the Special Provision number must be included in the description of the substance on the Air Waybill as required by 8.2.6 when an Air Waybill is issued.

A33 (103) Ammonium nitrites and mixtures of an inorganic nitrite with an ammonium salt are prohibited forbidden.

A34 (113) The transport of chemically unstable mixtures is prohibited forbidden.

A37 This entry is not intended to include Ammonium permanganate, the transport of which is prohibited forbidden under any circumstances.

A41 Permeation devices that contain dangerous goods and that are used for purposes of calibrating air quality monitoring devices are not subject to these Regulations when carried as cargo provided the following requirements are met:

(a) each device must be constructed of a material compatible with the dangerous goods it contains;

A44 The entry chemical kits or first aid kits is intended to apply to boxes, cases, etc. containing small quantities of one or more compatible items of various dangerous goods which are used for example for medical, analytical or testing or repair purposes. Components must not react dangerously (see 5.0.2.11(a)). The packing group assigned to the kit as a whole must be the most stringent packing group assigned to any individual substance in
the kit. The assigned packing group must be shown on the Shipper’s Declaration. Where the kit contains only
dangerous goods to which no packing group is assigned, a packing group must not be indicated on the Shipper’s
Declaration.

The only dangerous goods, which are permitted in the kits, are substances which may be transported as:

- excepted quantities as specified in Column F of Table 4.2, providing the inner packagings and quantities are
  as prescribed in Table 2.6.A and 2.6.5.1(a);
- limited quantities under 2.7.2.1.

**Note:**
If the chemical kit and/or first aid kit contains only substances and/or articles to which no packing group is
assigned, e.g. aerosols, no packing group is required on the Shipper’s Declaration.

A46 Mixtures of solids which are not subject to these Regulations and flammable liquids may be transported
under this entry without first applying the classification criteria of Division 4.1, providing there is no free liquid
visible at the time the substance is packaged and for single packagings the packaging must pass a leakproofness
test at the Packing Group II level. Small inner packagings consisting of sealed packets or articles containing less
than 10 mL of a Packing Group II or III flammable liquid absorbed into a solid material are not subject to these
Regulations provided there is no free liquid in the packet or article.

A47 (219) Genetically modified micro-organisms (GMMO) and genetically modified organisms (GMO), packed
and marked in accordance with Packing Instruction 959 are not subject to any other requirements in these
Regulations when carried as cargo.

If GMMO or GMO meet the definition in 3.6 of a toxic substance or an infectious substance and the criteria for
inclusion in Division 6.1 or 6.2, the requirements in these Regulations for transporting toxic substances or
infectious substances apply.

A50 Mixtures of solids which are not subject to these Regulations and toxic liquids may be transported under this
entry without first applying the classification criteria of Division 6.1, providing there is no free liquid visible at the
time the substance is packaged and for single packagings the packaging must pass a leakproofness test at the
Packing Group II level. This entry must not be used for solids containing a Packing Group I liquid.

A51 Irrespective of the limit specified in Column J in Subsection 4.2 – List of Dangerous Goods, aircraft batteries
may be transported on passenger aircraft as follows:

(a) wet cell batteries, UN 2794 or UN 2795, up to a limit of 100 kg gross mass net weight per package;

(b) lithium ion batteries, UN 3480, packages containing a single aircraft battery with a net weight not exceeding
    35 kg; and may be transported

(c) transport in accordance with this Special Provision must be noted on the Shipper's Declaration for Dangerous
    Goods.

A67 Non-spillable batteries meeting the requirements of Packing Instruction 872 are not subject to these
Regulations when carried as cargo, if, at a temperature of 55°C (131°F), the electrolyte will not flow from a
ruptured or cracked case. The battery must not contain any free or unabsorbed liquid. Any electrical battery or
battery powered device, equipment or vehicle having the potential of dangerous evolution of heat must be
prepared for transport so as to prevent:

A68 (272) This substance must not be transported under the provisions of Division 4.1 unless specifically
authorized by the appropriate national authority (see UN 0143 or UN 0150, as appropriate).

A69 The following are not subject to these Regulations when carried as cargo:
(a) articles such as thermometers, switches and relays, each containing a total quantity of not more than 15 g of mercury, if they are installed as an integral part of a machine or apparatus and so fitted that shock or impact damage, leading to leakage of mercury, is unlikely to occur under normal conditions of transport; 

(b) lamps, each containing not more than 1 g of mercury and packaged so that there is not more than 30 g of mercury per package. Packages must be so designed and constructed such that when subjected to drop tests from a height of not less than 0.5 m the packages must still be fit for transport and there must be no damage to the contents; 

(c) articles, each containing not more than 100 mg of mercury, gallium or inert gas and packaged so that the quantity of mercury, gallium or inert gas per package is 1 g or less. 

The words “Not Restricted” and the Special Provision number must be included in the description of the substance on the Air Waybill as required by 8.2.6, when an Air Waybill is issued.

A70 Internal combustion or fuel cell engines, being shipped either separately or incorporated into a vehicle, machine or other apparatus, the fuel tank of which has never contained any fuel and the fuel system of which is completely empty of fuel or that are powered by a fuel that does not meet the classification criteria for any class or division and without batteries or other dangerous goods, are not subject to these Regulations when carried as cargo, provided that:

(a) for flammable liquid powered engines:
   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 apparatus has never contained any fuel, or the fuel tank has been flushed and purged of vapours and adequate measures taken to nullify the hazard; and
   3. the entire fuel system of the engine has no free liquid and all fuel lines are sealed or capped or securely connected to the engine and vehicle, machinery or apparatus.

(b) for flammable gas powered internal combustion or fuel cell engines:
   1. being shipped without batteries or other dangerous goods either separately or incorporated into a vehicle, machine or other apparatus that have contained fuel but the entire fuel system must have been flushed, purged and filled with a non-flammable gas or fluid to nullify the hazard; are not subject to these Regulations provided that:
      2. the final pressure of the non-flammable gas used to fill the system does not exceed 200 kPa at 20°C.
      3. the shipper has made prior arrangements with the operator; and
      4. the shipper has provided the operator with written or electronic documentation stating that the flushing, purging and filling procedure has been followed and that the final contents of the engine(s) have been tested and verified to be non-flammable; and

Multiple engines meeting the provisions of this special provision may be shipped in a unit load device or other type of pallet provided that the shipper has made prior arrangements with the operator(s) for each consignment.

When this special provision is used, the words “Not Restricted” and the Special Provision number must be included in the description of the substance on the Air Waybill as required by 8.2.6, when an Air Waybill is issued.

A75 Articles such as sterilization devices, when containing less than 30 mL per inner packaging, with not more than 150 mL per outer packaging may be transported on passenger and cargo aircraft in accordance with the provisions in Subsection 2.6 irrespective of 2.6.1 and the indication of “Forbidden” in columns G to L of the List of Dangerous Goods (Section 4.2), provided such packagings were first subjected to comparative fire testing. Comparative fire testing must show no difference in burning rate between a package as prepared for transport (including the substance to be transported) and an identical package filled with water must show that the maximum temperature measured inside the packages during testing does not differ by more than 200°C. Packagings may include a vent to permit the slow escape of gas (i.e. not more than 0.1 mL/hour per 30 mL inner packaging at 20°C) produced from gradual decomposition.
Mixtures of solids which are not subject to these Regulations and corrosive liquids may be transported under this entry without first applying the classification criteria of Class 8, providing there is no free liquid visible at the time the substance is packaged and for single packagings the packaging must pass a leakproofness test at the Packing Group II level.

Batteries or cells containing sodium must not contain dangerous goods other than sodium, sulphur and/or polysulphides, sodium, sulphur or sodium compounds (e.g. sodium polysulphides and sodium tetrachloroaluminate). Batteries or cells must not be offered for transport at a temperature such that liquid elemental sodium is present in the battery or cell unless approved and under conditions established by the appropriate national authority.

Cells must consist of hermetically sealed metal casings which fully enclose the dangerous goods and which are so constructed and closed as to prevent the release of the dangerous goods under normal conditions of transport.

Aerosols, 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 not subject to these Regulations when carried as cargo unless their release could cause extreme annoyance or discomfort to crew members so as to prevent the correct performance of duties.

The words "Not Restricted" and the Special Provision number must be included in the description of the substance on the Air Waybill as required by 8.2.6, when an Air Waybill is issued.

This entry applies to articles which are used as life saving vehicle air bag inflators or air bag modules or seat-belt pretensioners, and which contain dangerous goods of Class 1 or dangerous goods of other classes and when transported as component parts and when these articles are presented for transport have been tested in accordance with Test series 6(c) of Part I of the UN Manual of Tests and Criteria with no explosion of the device, no fragmentation of the device casing or pressure vessel receptacle and no projection hazard nor thermal effect which would significantly hinder fire-fighting or other emergency response efforts in the immediate vicinity.

Wastes infectious substances, which can be specified containing Category A infectious substances must be assigned to UN 2814 or UN 2900. Wastes transported under UN 3291 are wastes derived from the medical treatment of humans or animals or from bio-research, where there is a relatively low probability that infectious substances are present containing infectious substances in Category B or wastes that are reasonably believed to have a low probability of containing infectious substances. Decontaminated wastes, which previously contained infectious substances, may be considered as not subject to these Regulations unless the criteria of another Class or Division are met.

Provided the ammonium nitrate remains in solution under all conditions of transport, aqueous solutions of ammonium nitrate, with not more than 0.2% combustible material, in a concentration not exceeding 80% are not subject to these Regulations when carried as cargo.

Vehicles or machinery powered by a fuel cell engine must be consigned under the entries UN 3166 Vehicle, fuel cell, flammable gas powered or UN 3166 Vehicle, fuel cell, flammable liquid powered, or UN 3166 Engine, fuel cell, flammable gas powered or UN 3166 Engine, fuel cell, flammable liquid powered, as appropriate. These entries include hybrid electric vehicles powered by both a fuel cell and an internal combustion engine with wet batteries, sodium batteries, or lithium metal batteries or lithium ion batteries, transported with the battery(ies) installed.
Other vehicles which contain an internal combustion engine must be consigned under the entries UN 3166 Vehicle, flammable gas powered or UN 3166 Vehicle, flammable liquid powered, as appropriate. These entries include hybrid electric vehicles powered by both an internal combustion engine and wet batteries, sodium batteries, lithium metal batteries or lithium ion batteries, transported with the battery(ies) installed.

...A145 Waste aerosols are prohibited from air transport

A146 (328) This entry applies to fuel cell cartridges including when contained in equipment or packed with equipment. Fuel cell cartridges installed in or integral to a fuel cell system are regarded as contained in equipment. Fuel cell cartridge means an article that stores fuel for discharge into the fuel cell through a valve(s) that controls the discharge of fuel into the fuel cell. Fuel cell cartridges, including when contained in equipment, must be designed and constructed to prevent fuel leakage during normal conditions of transport.

Fuel cell cartridge design types using liquids as fuels, must pass an internal pressure test at a pressure of 100 kPa (gauge), without leakage.

Except for fuel cell cartridges containing hydrogen in metal hydride which must be in compliance with A162, each fuel cell cartridge design type, including fuel cell cartridges installed in or integral to a fuel cell system, must be shown to pass a 1.2 m drop test onto an unyielding surface in the orientation most likely to result in failure of the containment system with no loss of contents.

When lithium metal or lithium ion batteries are contained in the fuel cell system, the consignment must be consigned under this entry and under the appropriate entries for UN 3091 Lithium metal batteries contained in equipment or UN 3481 Lithium ion batteries contained in equipment.

...A161 (338) Each fuel cell cartridge transported under this entry and designed to contain a liquefied flammable gas must:

(a) be capable of withstanding, without leakage or bursting, a pressure of at least two times the equilibrium pressure of the contents at 55°C;

(b) not contain more than 200 mL of liquefied flammable gas with a vapour pressure of which must not exceed 1,000 kPa at 55°C; and

(c) pass the hot water bath test prescribed in 6.4.4.1.

...A176 (356) Metal hydride storage system(s) installed in conveyances or in completed conveyance components vehicles, vessels or aircraft or in completed components or intended to be installed in conveyances or in completed conveyance components vehicles, vessels or aircraft must be approved by the appropriate national authority before acceptance for transport. The Shipper's Declaration must include an indication that the package was approved by the appropriate national authority or a copy of the approval must accompany each consignment.

...A184 (304) This entry may only be used for the transport of non-activated batteries which contain dry potassium hydroxide and which are intended to be activated prior to use by the addition of an appropriate amount of water to the individual cells.

A185 (360) Vehicles only powered by lithium metal batteries or lithium ion batteries must be consigned under the entry UN 3171 Battery-powered vehicle.

A186 (361) This entry applies to electric double layer capacitors with an energy storage capacity greater than 0.3 Wh. Capacitors with an energy storage capacity of 0.3 Wh or less are not subject to these Regulations. Energy storage capacity means the energy held by a capacitor, as calculated using the nominal voltage and capacitance. All capacitors to which this entry applies, including capacitors containing an electrolyte that does not meet the classification criteria of any class or division of dangerous goods, must meet the following conditions:
(a) capacitors not installed in equipment must be transported in an uncharged state. Capacitors installed in equipment must be transported either in an uncharged state or protected against short circuit;

(b) each capacitor must be protected against a potential short circuit hazard in transport as follows:

1) when a capacitor’s energy storage capacity is less than or equal to 10 Wh or when the energy storage capacity of each capacitor in a module is less than or equal to 10 Wh, the capacitor or module must be protected against short circuit or be fitted with a metal strap connecting the terminals; and

2) when the energy storage capacity of a capacitor or a capacitor in a module is more than 10 Wh, the capacitor or module must be fitted with a metal strap connecting the terminals.

(c) capacitors containing dangerous goods must be designed to withstand a 95 kPa pressure differential;

(d) capacitors must be designed and constructed to safely relieve pressure that may build up in use, through a vent or a weak point in the capacitor casing. Any liquid which is released upon venting must be contained by packaging or by equipment in which a capacitor is installed; and

(e) capacitors must be marked with the energy storage capacity in Wh. Capacitors containing an electrolyte not meeting the classification criteria of any class or division of dangerous goods, including when installed in equipment, are not subject to other provisions of these Regulations.

Capacitors containing an electrolyte meeting the classification criteria of any class or division of dangerous goods, with an energy storage capacity of 10 Wh or less are not subject to other provisions of these Regulations when they are capable of withstanding a 1.2 metre drop test unpackaged on an unyielding surface without loss of contents.

Capacitors containing an electrolyte meeting the classification criteria of any class or division of dangerous goods that are not installed in equipment and with an energy storage capacity of more than 10 Wh are subject to these Regulations.

Capacitors installed in equipment and containing an electrolyte meeting the classification criteria of any class or division of dangerous goods are not subject to other provisions of these Regulations provided the equipment is packaged in a strong outer packaging constructed of suitable material and of adequate strength and design in relation to the packaging’s intended use and in such a manner as to prevent accidental functioning of capacitors during transport. Large robust equipment containing capacitors may be offered for transport unpackaged or on pallets when capacitors are afforded equivalent protection by the equipment in which they are contained.

Note:
Capacitors which by design maintain a terminal voltage (e.g. asymmetrical capacitors) do not belong to this entry.

A187 (362) This entry applies to liquids, pastes or powders, pressurized with a propellant which meets the definition of a gas in 3.2.1.1 and 3.2.1.2(a) or (b).

Note:
A chemical under pressure in an aerosol dispenser must be transported under UN 1950.

The following provisions must apply:

(a) the chemical under pressure must be classified based on the hazard characteristics of the components in the different states:

1) the propellant;

2) the liquid; or

3) the solid.

(b) If one of the components in (a), which can be a pure substance or a mixture, needs to be classified as flammable, the chemical under pressure must be classified as flammable in Division 2.1. Flammable components are flammable liquids and liquid mixtures, flammable solids and solid mixtures or flammable gases and gas mixtures meeting the following criteria:
1) a flammable liquid is a liquid having a flashpoint of not more than 93°C;
2) a flammable solid is a solid which meets the criteria in 3.4.1.1 of these Regulations;
3) a flammable gas is a gas which meets the criteria in 3.2.2.1 of these Regulations;
(c) gases of Division 2.3 and gases with a subsidiary risk of 5.1 must not be used as a propellant in a chemical under pressure;
(d) where the liquid or solid components are classified as dangerous goods of Division 6.1, Packing Groups II or III, or Class 8, Packing Groups II or III, the chemical under pressure must be assigned a subsidiary risk of Division 6.1 or Class 8 and the appropriate UN number must be assigned. Components classified in Division 6.1, Packing Group I, or Class 8, Packing Group I, must not be used for transport under this proper shipping name;
(e) in addition, chemicals under pressure with components meeting the properties of: Class 1, explosives; Class 3, liquid desensitized explosives; Division 4.1, self-reactive substances and solid desensitized explosives; Division 4.2, substances liable to spontaneous combustion; Division 4.3, substances which, in contact with water, emit flammable gases; Division 5.1 oxidizing substances; Division 5.2, organic peroxides; Division 6.2, Infectious substances or Class 7, Radioactive material, must not be used for transport under this proper shipping name.

A188 (359) Nitroglycerin solution in alcohol with more than 1% but not more than 5% nitroglycerin must be classified in Class 1 and assigned to UN 0144 if not all the requirements of Packing Instruction 371 are complied with.

A189 Except where the defining criteria of another class or division are met, concentrations of formaldehyde solution:
• with 10% or more, but less than 25 % formaldehyde must be classified as UN 3334 Aviation regulated liquid, n.o.s.; and
• with less than 10% formaldehyde are not subject to these Regulations.

A190 Neutron radiation detectors containing non-pressurized boron trifluoride gas in excess of 1 g and radiation detection systems containing such neutron radiation detectors as components may be transported on cargo aircraft in accordance with these Regulations irrespective of the indication of “forbidden” in Columns K / L of Table 4.2, provided:

a) the pressure in each neutron radiation detector must not exceed 105 kPa absolute at 20°C;
b) the amount of gas must not exceed 12.8 g per detector and the amount per outer packaging or per radiation detection system must not exceed 51.2 g;
c) each neutron radiation detector must be of welded metal construction with brazed metal to ceramic feed through assemblies. They must have a minimum burst pressure of 1,800 kPa;
d) each neutron radiation detector must be packed in a sealed intermediate plastic liner with sufficient absorbent material to absorb the entire gas contents. Neutron radiation detectors must be packed in strong outer packagings that are capable of withstanding a 1.8 m drop test without leakage. Radiation detector systems containing neutron radiation detectors must also include absorbent material sufficient to absorb the entire gas contents of the neutron radiation detectors. Absorbent material must be surrounded by a liner or liners, as appropriate. They must be packed in strong outer packagings unless neutron radiation detectors are afforded equivalent protection by the radiation detection system; and
e) transport in accordance with this special provision need not be noted on the Shipper’s Declaration and a packing instruction must not be shown on the Shipper’s Declaration. The package must be labelled with “Toxic gas” and “Corrosive” hazard labels.

When transported as cargo, neutron radiation detectors containing not more than 1 g of boron trifluoride, including those with solder glass joints, and radiation detection systems containing such detectors where the neutron radiation detectors meet and are packed in accordance with the above conditions, are not subject to these Regulations irrespective of the indication of “forbidden” in Columns J / K and L / M of Table 4.2.
The words “Not Restricted” and the Special Provision number must be included in the description of the substance on the Air Waybill as required by 8.2.6, when an Air Waybill is issued.

A191 Notwithstanding the Division 6.1 subsidiary risk shown in Column C of Table 4.2, the toxic subsidiary risk label and an indication of this subsidiary risk on the Shipper’s Declaration are not required when the manufactured articles contain not more than 5 kg of mercury. Transport in accordance with this special provision must be noted on the Shipper’s Declaration.

…

A202 For the purposes of providing life support for aquatic animals during transport, the appropriate authorities of the States of origin, destination and of the operator may approve the carriage of cylinders containing Oxygen compressed, UN 1072 or Air, compressed, UN 1002, with the valves open to supply a controlled quantity of oxygen gas through a regulator into water containing the aquatic animals. The cylinder or cylinder valve must be fitted with a self-sealing device to prevent uncontrolled release of oxygen gas should the regulator malfunction or be broken or damaged. The oxygen cylinder must meet those parts of Packing Instruction 200 that apply, except for the need for valves to be closed. In addition, the following conditions apply as a minimum:

…
SECTION 5 – PACKING

5.0 General

5.0.1.5 Overpacks

The shipper must ensure that where an overpack is used to enclose packages of dangerous goods, the requirements of 5.0.1.5.1 to 5.0.1.5.4 must be met:

5.0.1.5.1 The overpack must not contain packages enclosing different substances which might react dangerously with each other or packages of dangerous goods which require segregation according to Table 9.3.A.

5.0.1.5.2 Each package contained within an overpack must be properly packed, marked, labelled and be free of any indication of damage or leakage and in all respects be properly prepared as required in these Regulations. Packages must be secured within the overpack.

5.0.1.5.3 The overpack must not contain packages bearing the “Cargo Aircraft Only” label except where:

(a) only one package is contained in the overpack; or

(b) 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

(c) the packages contain substances of:
   - flammable liquids (Class 3), Packing Group III, other than those with a subsidiary risk of Class 8;
   - toxic substances (Division 6.1) with no subsidiary risk other than Class 3;
   - infectious substances (Division 6.2);
   - radioactive materials (Class 7);
   - miscellaneous dangerous goods (Class 9).

Note:
For cooling purposes, an overpack may contain carbon dioxide, solid (dry ice), provided that the overpack meets the requirements of Packing Instruction 954.

5.0.1.5.4 The intended function of each package must not be impaired by the overpack.

5.0.1.8 Carriage of Oxygen and Air with Live Animals

With the approval of the appropriate authorities of the States of origin, destination and of the operator, for the purpose of providing life support to aquatic animals during transport, a cylinder containing oxygen compressed, UN 1072, or air compressed, UN 1002, may be carried to oxygenate the water in accordance with the provisions of Special Provision A202.

5.0.1.11 Open External Carriage

When dangerous goods are prepared for open external carriage (e.g. suspended from a helicopter or in open external carrying devices), consideration should be given to the type of packaging used and, where necessary, protection of those packagings from the effects of airflow and weather (e.g. by damage from rain or snow).

5.0.2 General Packing Requirements

5.0.2.1 Packing Groups

5.0.2.1.1 For packing purposes, Packing Group numbers I, II or III are assigned to dangerous goods in Classes 3, 4, 5, 6, 8 and 9 substances other than those in Classes 1, 2 and 7, self-reactive substances of Division 4.1, Divisions 5.2 and 6.2, according to the relative degree of danger presented by the article or substance.
• Packing Group I—Substances presenting high danger.
• Packing Group II—Substances presenting medium danger.
• Packing Group III—Substances presenting low danger.

5.0.2.1.2 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. The packing group to which a listed substance is assigned is given in the List of Dangerous Goods. The packing group criteria for the classes and divisions are given in Section 3.

...  

5.0.2.7 Temperature and Vibration Resistance  

...  

5.0.2.7.2 In addition, for inner packagings containing liquids, closures must be held securely, tightly and effectively in place by secondary means. Examples of such methods include: adhesive tape, friction sleeves, welding or soldering, positive locking wires, locking rings, induction heat seals and child-resistant closures. The closure device must be so designed that it is unlikely that it can be incorrectly or incompletely closed. When secondary means of closure cannot be applied to an inner packaging containing liquids, the inner packaging must be securely closed and placed in a leakproof liner and then placed in an outer packaging.

...  

5.0.2.10 Change of Phase  

Packagings used for solids, which may become liquid at temperatures likely to be encountered during air transport, must also be capable of containing that substance in the liquid state.  

Notes:  

1. Packagings 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 packagings unlined fibre drums as single packagings, should not be used.

2. Where single packagings are permitted for such substances, only single packagings approved for solid materials may be used.

5.0.2.11 Different Dangerous Goods Packed in One Outer Packaging  

An outer packaging may contain more than one item of dangerous goods or other goods provided that:  

...  

(h) the following dangerous goods do not need to be taken into account in the calculation of the “Q” value:  

• Carbon dioxide, solid (dry ice) UN 1845;

• those where Columns J or L of the List of Dangerous Goods indicate “No limit”;

• those with the same UN number, packing group and physical state (i.e. solid or liquid), 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;

• those where Columns J and L of the List of Dangerous Goods indicate a gross weight per package.

(i) For packages containing dangerous goods where the letter “G” follows the quantity shown in Column J or L in the List of Dangerous Goods, the gross weight of the completed package does not exceed the lowest applicable gross weight.

...  

5.0.2.13 Other Packaging Requirements  

...  

5.0.2.13.3 Orientation
**5.0.2.13.3.1** Except as provided in 5.0.2.13.2, combination packagings having inner packagings containing liquid dangerous goods must be packed so that the closures on the inner packagings are upward and the upright position of the package must be indicated on it by the "Package Orientation" label shown in Figure 7.4.E and Figure 7.4.F. The words "This Side Up" or "This End Up" may also be displayed on the top cover of the package.

**5.0.2.13.3.2** Excluded from this rule are: Orientation arrows are not required on outer packagings containing:

- flammable liquids in inner packagings not exceeding 120 mL (4 Fl.oz) dangerous goods in inner packagings each containing not more than 120 mL with sufficient absorbent material between the inner and outer packagings to completely absorb the liquid contents;
- hermetically sealed inner packagings, each containing not more than 500 mL dangerous goods in gas tight inner packagings such as tubes, bags or vials which are opened by breaking or puncturing. Each inner packaging must not contain more than 500 mL;
- infectious substances in primary receptacles not exceeding 50 mL (1.7 Fl.oz); or
- radioactive material.

**5.0.2.13.6** Wet Ice as Coolant

Where ice is used as a coolant it must not affect the integrity of the packaging.

... 

### 5.0.7 List of Packagings

<table>
<thead>
<tr>
<th>Description</th>
<th>Codes</th>
<th>Cross-Reference</th>
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<td></td>
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<td>4A</td>
<td>6.2.8</td>
</tr>
<tr>
<td>Aluminium</td>
<td>4B</td>
<td>6.2.8</td>
</tr>
<tr>
<td>Other metal</td>
<td>4N</td>
<td>6.2.8</td>
</tr>
</tbody>
</table>

### 5.1 Packing Instructions—Class 1—Explosives

**PACKING INSTRUCTION 114**

This instruction applies to UN 0407, UN 0447 and UN 0509 on Cargo Aircraft Only.

...
### PACKING INSTRUCTION 130

This instruction applies to explosives on passenger and cargo aircraft and CAO.

#### OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Boxes</th>
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<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Aluminium</td>
</tr>
<tr>
<td>Spec</td>
<td>1A1, 1A2</td>
<td>1B1, 1B2</td>
</tr>
</tbody>
</table>

### PACKING INSTRUCTION 131

This instruction applies to explosives on passenger and cargo aircraft and CAO.

#### OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Aluminium</td>
</tr>
<tr>
<td>Spec</td>
<td>1A1, 1A2</td>
<td>1B1, 1B2</td>
</tr>
</tbody>
</table>

### PACKING INSTRUCTION 133

This instruction applies to Div. 1.4B and Div. 1.4G explosives on CAO and Div. 1.4S explosives on passenger and cargo aircraft and CAO.

#### OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Aluminium</td>
</tr>
<tr>
<td>Spec</td>
<td>1A1, 1A2</td>
<td>1B1, 1B2</td>
</tr>
</tbody>
</table>

### PACKING INSTRUCTION 134

This instruction applies to Div. 1.3C and Div. 1.4C explosives on CAO and Div. 1.4S explosives on passenger and cargo aircraft and CAO.

#### OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Aluminium</td>
</tr>
<tr>
<td>Spec</td>
<td>4A</td>
<td>4B</td>
</tr>
</tbody>
</table>
**PACKING INSTRUCTION 135**

This instruction applies to Div. 1.3G and Div. 1.4G explosives on CAO and Div. 1.4S explosives on passenger and cargo aircraft and CAO.

---

### OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Aluminium</td>
</tr>
<tr>
<td>Spec</td>
<td>1A1, 1A2, 1B1, 1B2</td>
<td>1D</td>
</tr>
</tbody>
</table>

**PACKING INSTRUCTION 136**

This instruction applies to Div. 1.4C explosives on CAO and Div. 1.4S explosives on passenger and cargo aircraft and CAO.

---

### OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Aluminium</td>
</tr>
<tr>
<td>Spec</td>
<td>1A1, 1A2, 1B1, 1B2</td>
<td>1D</td>
</tr>
</tbody>
</table>

**PACKING INSTRUCTION 137**

This instruction applies to Div. 1.4D explosives on CAO and Div. 1.4S explosives on passenger and cargo aircraft and CAO.

---

### COMBINATION PACKAGINGS

<table>
<thead>
<tr>
<th>INNER PACKAGINGS</th>
<th>Type</th>
<th>Bags</th>
<th>Boxes</th>
<th>Tubes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc.</td>
<td>Plastic</td>
<td>Fibreboard</td>
<td>Wood</td>
<td>Fibreboard</td>
</tr>
</tbody>
</table>

### OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
</tr>
<tr>
<td>Spec</td>
<td>4A</td>
</tr>
</tbody>
</table>

**PACKING INSTRUCTION 138**

This instruction applies to UN 0237 on CAO.

---

### OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Aluminium</td>
</tr>
<tr>
<td>Spec</td>
<td>1A1, 1A2, 1B1, 1B2</td>
<td>1D</td>
</tr>
</tbody>
</table>
PACKING INSTRUCTION 139

This instruction applies to explosives in compatibility group D on CAO.

<table>
<thead>
<tr>
<th>OUTER PACKAGINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Desc</td>
</tr>
<tr>
<td>Spec</td>
</tr>
<tr>
<td>Steel</td>
</tr>
<tr>
<td>aluminium</td>
</tr>
<tr>
<td>Plywood</td>
</tr>
<tr>
<td>Fibre</td>
</tr>
<tr>
<td>Plastic</td>
</tr>
<tr>
<td>Other metal</td>
</tr>
<tr>
<td>Steel</td>
</tr>
<tr>
<td>aluminium</td>
</tr>
<tr>
<td>Plywood</td>
</tr>
<tr>
<td>Wood</td>
</tr>
<tr>
<td>Plywood</td>
</tr>
<tr>
<td>Reconstituted</td>
</tr>
<tr>
<td>wood</td>
</tr>
<tr>
<td>Fibre-board</td>
</tr>
<tr>
<td>Plastic</td>
</tr>
<tr>
<td>Other metal</td>
</tr>
</tbody>
</table>

PACKING INSTRUCTION 140

This instruction applies to Div. 1.4G explosives on CAO and Div. 1.4S explosives on passenger and cargo aircraft and CAO.

<table>
<thead>
<tr>
<th>COMBINATION PACKAGINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>INNER PACKAGINGS</td>
</tr>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Desc.</td>
</tr>
<tr>
<td>Spec</td>
</tr>
<tr>
<td>OUTER PACKAGINGS</td>
</tr>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Desc.</td>
</tr>
<tr>
<td>Spec</td>
</tr>
</tbody>
</table>

PACKING INSTRUCTION 141

This instruction applies to Div. 1.4 compatibility group B, D and G explosives on CAO and Div. 1.4S explosives on passenger and cargo aircraft and CAO.

<table>
<thead>
<tr>
<th>OUTER PACKAGINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Desc</td>
</tr>
<tr>
<td>Spec</td>
</tr>
</tbody>
</table>

PACKING INSTRUCTION 142

This instruction applies to Div. 1.4G explosives on CAO and Div. 1.4S explosives on passenger and cargo aircraft and CAO.

<table>
<thead>
<tr>
<th>OUTER PACKAGINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Desc</td>
</tr>
<tr>
<td>Spec</td>
</tr>
</tbody>
</table>
PACKING INSTRUCTION 143

This instruction applies to explosives in compatibility group on CAO.

COMBINATION PACKAGINGS

INNER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Bags</th>
<th>Receptacles</th>
<th>Trays, fitted with dividing partitions</th>
</tr>
</thead>
</table>

OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc.</td>
<td>Steel</td>
<td>Alum- inium</td>
</tr>
<tr>
<td>Spec</td>
<td>1A1, 1A2</td>
<td>1B1, 1B2</td>
</tr>
</tbody>
</table>

5.2 Packing Instructions—Class 2—Gases

PACKING INSTRUCTION 200

This instruction applies to gases in Divisions 2.1, 2.2 & 2.3 on passenger and cargo aircraft and CAO.

Note:
The carriage of Oxygen, oxygen, compressed and air, compressed to provide life support to aquatic animals must comply with 5.0.1.8 of these Regulations.

TABLE 200.A
Compressed Gases (6.4.1.1.5)

TABLE 200.B
Liquefied Gases and Dissolved Gases (6.4.1.1.5)

PACKING INSTRUCTION 202

This instruction applies to Division 2.2 refrigerated liquefied gases in open and closed cryogenic receptacles on passenger and cargo aircraft and CAO.
Requirements for closed cryogenic receptacles

(h) periodic inspection. The periodic inspection and test frequencies of pressure relief valves must not exceed five years.

Note:
Insulated packagings containing refrigerated liquid nitrogen fully absorbed in a porous material are not subject to these Regulations when carried as cargo provided they meet the requirements of Special Provision A152

Requirements for open cryogenic receptacles

Note:
The marking on open cryogenic receptacles will become mandatory with effect 1 January 2012 for open cryogenic receptacles manufactured after 1 January 2012. The size of the marking must be as set out for cylinders in 6.4.2.7.1. Open cryogenic receptacles manufactured prior to 1 January 2012 are not required to be so marked.

PACKING INSTRUCTION Y03

This instruction applies to limited quantities of aerosols and UN 2037.

... Metal Aerosols and Non-refillable Receptacles Containing Gas (Gas Cartridges)

Non-refillable metal aerosols and non-refillable receptacles containing gas (gas cartridges) containing toxic substances must not exceed 120 mL capacity.

All other non-refillable metal aerosols and non-refillable receptacles containing gas (gas cartridges) must not exceed 1 L (34 Fl.oz) capacity. The following conditions must be met:

PACKING INSTRUCTION 206

This instruction applies to Gas samples, non-pressurized in Division 2.3 on CAO and in Division 2.1 on passenger and cargo aircraft and CAO.

The General Packing Requirements of 5.0.2 must be met.

A gas sample may only be accepted for transport as a non-pressurized gas providing it is at a pressure corresponding to ambient atmospheric pressure at the time the containment system is closed and this must not exceed 105 kPa absolute.

Cylinders and gas receptacles conforming to the construction, testing and filling requirements approved by the appropriate national authority are permitted.

Compatibility Requirements

... OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Alum-</td>
<td>Ply-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>inium</td>
<td>wood</td>
</tr>
<tr>
<td>Spec</td>
<td>1A1,</td>
<td>1B1,</td>
<td>1D</td>
</tr>
</tbody>
</table>

PACKING INSTRUCTION 214

This instruction applies to UN 3468, Hydrogen in a metal hydride storage system, individually or when contained in equipment and apparatus when transported on cargo aircraft only.

...
(i) maximum net quantity per package for cargo aircraft is 100 kg of metal hydride storage systems, including when such storage systems are packed with equipment or contained in equipment.

PACKING INSTRUCTION 215

PACKING INSTRUCTION 218

This instruction applies to UN 3500, UN 3501, UN 3502, UN 3503, UN 3404 and UN 3505 on passenger aircraft and Cargo Aircraft Only.

The requirements of 5.0.2.4.1 and 5.2.0 must be met. Cylinders other than UN marked and certified cylinders may be used if the design, construction, testing, approval and markings conform to the requirements of the appropriate national authority of the State in which they are approved and filled. The substances contained must be permitted in cylinders and permitted for air transport according to these Regulations. Cylinders for which prescribed periodic tests have become due must not be charged and offered for transport until such retests have been successfully completed.

Unless otherwise indicated in these Regulations, cylinders conforming to the applicable requirements of Subsection 6.4 are permitted.

Compatibility Requirements

• the construction materials of the cylinders and their accessories must be compatible with the contents and must not react to form harmful or dangerous compounds therewith;

• the necessary steps must be taken to prevent dangerous reactions (i.e. polymerization or decomposition) during transport. If necessary, stabilization or addition of an inhibitor may be required.

Periodic Inspection

• the maximum test period for periodic inspection must be 5 years.

Additional Packing Requirements

• cylinders must be so filled that at 50°C the non-gaseous phase does not exceed 95% of their water capacity and they are not completely filled at 60°C. When filled, the internal pressure at 65°C must not exceed the test pressure of the cylinders. The vapour pressures and volumetric expansion of all substances in the cylinders must be taken into account;

• the minimum test pressure must be in accordance with Packing Instruction 200 for the propellant but must not be less than 20 bar;

• non-refillable cylinders used may have a water capacity in litres not exceeding 1,000 L divided by the test pressure expressed in bars provided capacity and pressure restrictions of the construction standard comply with ISO 11118:1999, which limits the maximum capacity to 50 L;

• cylinders must not be offered for transport when connected with spray application equipment such as a hose and wand assembly;

• cylinders must be packed in strong outer packagings.

OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
</tr>
</thead>
</table>

5.3 Packing Instructions—Class 3—Flammable Liquids
In Packing Instructions Y340 – Y344, Y374, Y374 add in “Other metal” for packaging type “Boxes”.

In Packing Instruction 374 add “4H1” into Plastic and “Other metal 4N” for packaging type “Boxes” to outer packagings table.

In Packing Instructions 350 – 355, 360 – 366, 371, 373 add in “1A1, 1B1, 1H1, 1N1, 3A1, 3B1, 3H1” and “Other metal 4N” for packaging type “Boxes” to outer packagings table.

Packing Instructions 350, 351, 360 and 361 revise applicable paragraph as shown:

**Additional Packing Requirements**

Inner packagings must be packed with sufficient absorbent material to absorb the entire contents of the inner packagings and placed in a rigid leakproof receptacle before packing in outer packagings.

…

**PACKING INSTRUCTION 370**

This instruction applies to UN 3269, Polyester resin kit on passenger aircraft and Cargo Aircraft Only.

The General Packing Requirements of Subsection 5.0.2 must be met.

Polyester resin kits and fibreglass repair kits consist of two components: a base material in Class 3, Packing Group II or III, and an activator (organic peroxide).

**Compatibility Requirements**

- Substances must be compatible with their packagings as required by 5.0.2.6;
- Metal packagings must be corrosion resistant or be protected against corrosion for substances with a Class 8 subsidiary risk.

**Closure Requirements**

Closures must meet the requirements of 5.0.2.7

**Additional Packing Requirements**

Outer packagings must be Packing Group II or III according to the criteria for Class 3, applied to the base material. Single packagings are not permitted.

### COMBINATION PACKAGINGS

<table>
<thead>
<tr>
<th>Polyester resin kits</th>
<th>Inner Packaging (see 6.1)</th>
<th>Net quantity per inner packaging (BASE MATERIAL)</th>
<th>Net quantity per inner packaging (LIQUID ACTIVATOR)</th>
<th>Net quantity per inner packaging (SOLID ACTIVATOR)</th>
<th>Total net quantity per package</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activator (organic peroxide)</td>
<td>Metal *</td>
<td>n/a</td>
<td>125 mL</td>
<td>500 g</td>
<td>5.0 kg</td>
</tr>
<tr>
<td>Plastic</td>
<td>n/a</td>
<td>125 mL</td>
<td>500 g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base material (Class3, PG II and III)</td>
<td>Glass</td>
<td>1.0 L</td>
<td>1.0 L</td>
<td>n/a</td>
<td>1.0 L</td>
</tr>
<tr>
<td>Metal</td>
<td>5.0 L</td>
<td>5.0 L</td>
<td>n/a</td>
<td>5.0 L</td>
<td>n/a</td>
</tr>
<tr>
<td>Plastic</td>
<td>5.0 L</td>
<td>5.0 L</td>
<td>n/a</td>
<td>5.0 L</td>
<td>n/a</td>
</tr>
<tr>
<td>Activator (organic peroxide)</td>
<td>Metal *</td>
<td>n/a</td>
<td>125 mL</td>
<td>500 g</td>
<td>10.0 kg</td>
</tr>
<tr>
<td>Plastic</td>
<td>n/a</td>
<td>125 mL</td>
<td>500 g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base material (Class3, PG III)</td>
<td>Glass</td>
<td>2.5 L</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Metal</td>
<td>10.0 L</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plastic</td>
<td>10.0 L</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Including tubes

The total quantity of dangerous goods in kits in each package is to be calculated such that liquids are treated as solids on a one-to-one basis of their volume, i.e. 1 L equals 1 kg.

### OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Alumin-ium</td>
<td>Ply-wood</td>
</tr>
<tr>
<td>Spec</td>
<td>1A1, 1A2</td>
<td>1B1, 1B2</td>
<td>1D</td>
</tr>
</tbody>
</table>
PACKING INSTRUCTION Y370

For Limited Quantities of flammable liquid and organic peroxide in polyester resin kits.

The General Packing Requirements of Subsection 5.0.2 (with the exception of 5.0.2.3, 5.0.2.5, 5.0.2.11(f), 5.0.2.11(g) and 5.0.2.14) must be met except that the packagings do not have to meet the marking and testing requirements of 6.0.4 and Subsection 6.3. Packagings must meet the construction criteria specified in Subsections 6.1 and 6.2 and the test criteria specified in Subsection 6.7.

Polyester resin kits and fibreglass repair kits consist of two components: a base material in Class 3, Packing Group II or III, and an activator (organic peroxide).

The maximum net quantity of organic peroxide per package must not exceed 125 mL or 0.5 kg.

Limited Quantity Requirements

The requirements of Subsection 2.8 must be met including:

♦ the capability of the package to pass a drop test of 1.2m;
♦ a 24 hour stacking test;
♦ inner packagings for liquids must be capable of passing a pressure differential test (5.0.2.9);
♦ the gross weight of the completed package must not exceed 30 kg.

Single packagings are not permitted.

**COMBINATION PACKAGINGS**

<table>
<thead>
<tr>
<th>Polyester resin kits</th>
<th>Inner Packaging (see 6.1)</th>
<th>Net quantity per inner packaging (BASE MATERIAL)</th>
<th>Net quantity per inner packaging (LIQUID ACTIVATOR)</th>
<th>Net quantity per inner packaging (SOLID ACTIVATOR)</th>
<th>Total net quantity per package</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activator (organic peroxide)</td>
<td>Metal *</td>
<td>n/a</td>
<td>30 mL</td>
<td>100 g</td>
<td>1.0 kg</td>
</tr>
<tr>
<td>Plastic *</td>
<td>n/a</td>
<td>30 mL</td>
<td>100 g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base material (Class 3, PG II or III)</td>
<td>Glass</td>
<td>1.0 L</td>
<td>1.0 L</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Metal</td>
<td>1.0 L</td>
<td>1.0 L</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plastic</td>
<td>1.0 L</td>
<td>1.0 L</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activator (organic peroxide)</td>
<td>Metal *</td>
<td>n/a</td>
<td>30 mL</td>
<td>100 g</td>
<td>5.0 kg</td>
</tr>
<tr>
<td>Plastic *</td>
<td>n/a</td>
<td>30 mL</td>
<td>100 g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base material (Class 3, PG III)</td>
<td>Glass</td>
<td>2.5 L</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Metal</td>
<td>5.0 L</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plastic</td>
<td>5.0 L</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Including tubes

The total quantity of dangerous goods in kits in each package is to be calculated such that liquids are treated as solids on a one-to-one basis of their volume, i.e. 1 L equals 1 kg.

**OUTER PACKAGINGS**

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Aluminium</td>
<td>Ply-wood</td>
</tr>
</tbody>
</table>

Packing Instruction 372 change “vessel” to read “receptacle”.

Packing Instruction 373 revise applicable paragraph as shown:

**Additional Packing Requirements**

Glass inner packagings must be packed with sufficient absorbent material to absorb the entire contents of the inner packagings and placed in a rigid leakproof receptacle before packing in outer packagings.

Packing Instruction Y373 insert additional paragraph as shown:

**Additional Packing Requirements**

Glass inner packagings must be packed with sufficient absorbent material to absorb the entire contents of the inner packagings and placed in a rigid leakproof receptacle before packing in outer packagings.
PACKING INSTRUCTION 375

This instruction applies to UN 3473 contained in equipment on passenger aircraft and Cargo Aircraft Only

Additional Packing Requirements

• on passenger aircraft, each fuel cell system and each fuel cell cartridge must conform to IEC PAS 62282-6-1 62282-6-100 Ed. 1 or a standard approved by the appropriate authority of the State of Origin.

PACKING INSTRUCTION 377

This instruction applies to chlorosilanes, liquid, flammable, corrosive in Packing Group II on passenger aircraft and Cargo Aircraft Only.

Combination and single packagings are permitted for Cargo Aircraft Only.

COMBINATION PACKAGINGS

<table>
<thead>
<tr>
<th>UN Numbers</th>
<th>Inner Packaging (see 6.1)</th>
<th>Net quantity per inner packaging</th>
<th>Total net quantity per package</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Passenger aircraft</td>
<td>Cargo Aircraft Only</td>
</tr>
<tr>
<td>UN 1162, UN 1196, UN 1250, UN 1298, UN 1305, UN 2985</td>
<td>Glass</td>
<td>1.0 L</td>
<td>1.0 L</td>
</tr>
<tr>
<td></td>
<td>Metal-Steel</td>
<td>1.0 L</td>
<td>5.0 L</td>
</tr>
<tr>
<td></td>
<td>Plastic</td>
<td>Forbidden</td>
<td>Forbidden</td>
</tr>
</tbody>
</table>

OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Plywood</td>
</tr>
<tr>
<td>Spec</td>
<td>1A1, 1A2</td>
<td>1D</td>
</tr>
</tbody>
</table>

SINGLE PACKAGINGS — CARGO AIRCRAFT ONLY

5.4 Packing Instructions—Class 4—Flammable Solids; Substances Liable to Spontaneous Combustion; Substances which, in Contact with Water, Emit Flammable Gases

In Packing Instructions Y440 – Y443, Y454, Y455, Y457, Y458, Y474 – Y477, Y495 add in “Other metal” for packaging type “Boxes”.

In Packing Instructions 445 – 446 and 448 – 449, 454, 455, 462, 463, 464, 465, 466 – 469, 470, 471, 473, 478, 479, 480 – 482, 483 – 486, 487 – 491, 493, 494, add in “1A1, 1B1, 1H1, 1N1, 3A1, 3B1, 3H1” and “Other metal 4N” for packaging type “Boxes” to outer packagings table.

In packing instructions 448 / 449:

Additional Packing Requirements

• fibre, fibreboard, wood and plywood single packagings must be fitted with a suitable liner.

In single packagings table add “Other metal 4N” for packaging type “Boxes”.

In packing instructions 451, 452, 453 add “1H1” to plastic drums, “3H1” to plastic jerricans and “Other metal 4N” for packaging type “Boxes”.

In packing instruction 453 revise paragraph as shown:

Additional Packing Requirements
- fibre, fibreboard, wood and plywood single packagings must be fitted with a suitable liner.

In Packing instruction 457 delete “other metal 1N2” for packaging type drums in outer packaging table. Add “1A1, 1B1, 1H1, 3A1, 3B1, 3H1” and “Other metal 4N” for packaging type “Boxes” to outer packagings table.

In Packing Instruction 458 add “Other metal 4N” for packaging type “Boxes” to outer packagings table.

In Packing Instruction 459 add “1H1” to plastic drums and “3H1” to plastic jerricans in outer packagings table.

In packing instruction 470 and 471 revise paragraph as shown:

**Additional Packing Requirements**

- fibreboard, wood and plywood single packagings must be fitted with a suitable liner.

In single packagings table add “Other metal 4N” for packaging type “Boxes”.

In Packing Instruction 472 add 1A1, 1B1, to drums and 3A1 and 3B1 to jerricans in outer packagings table.

In packing instruction 489 – 491 revise paragraph as shown:

**Additional Packing Requirements**

- fibreboard, wood and plywood single packagings must be fitted with a suitable liner.

In single packagings table add “Other metal 4N” for packaging type “Boxes”.

**PACKING INSTRUCTION 492**

This instruction applies to Cells, containing sodium and Batteries, containing sodium (UN 3292) on passenger aircraft and Cargo Aircraft Only.

...
on passenger aircraft, each fuel cell system and each fuel cell cartridge must conform to IEC PAS 62282-6-1 Ed. 1 or a standard approved by the appropriate authority of the State of Origin.

5.5 Packing Instructions—Class 5—Oxidizing Substances; Organic Peroxides

In Packing Instructions Y540 – Y541, Y543 – Y546 add in “Other metal” for packaging type “Boxes”.

In Packing Instructions 550 – 551 and 553 – 555, 557, 561 add in “1A1, 1B1, 1H1, 1N1” and “Other metal 4N” for packaging type “Boxes” to outer packagings table.

Packing Instruction 553 revise applicable paragraph as shown:

Additional Packing Requirements

Glass inner packagings must be packed with sufficient absorbent material to absorb the entire contents of the inner packagings and placed in a rigid leakproof receptacle before packing in outer packagings.

In Packing Instructions 558, 559, 562 and 563 add in “1A1, 1B1, 1H1, 1N1, 3A1, 3B1, 3H1” and “Other metal 4N” for packaging type “Boxes” to outer packagings table.

In packing instructions 562 and 563 insert new bullet as shown:

Additional Packing Requirements

- fibre, fibreboard, wood and plywood single packagings must be fitted with a suitable liner.

In single packagings table add “Other metal 4N” for packaging type “Boxes”.

Packing instruction 570 add “Other metal 4N” for packaging type “Boxes”, 1H1 and 3H1 for plastic drums and jerricans.

5.6 Packing Instructions—Class 6—Toxic and Infectious Substances

PACKING INSTRUCTION 622

This instruction applies to UN 3291 on passenger and cargo aircraft and Cargo Aircraft Only.

<table>
<thead>
<tr>
<th>OUTER PACKAGINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Drums</td>
</tr>
<tr>
<td>Jerricans</td>
</tr>
<tr>
<td>Boxes</td>
</tr>
<tr>
<td>Desc, Steel, Alum-</td>
</tr>
<tr>
<td>inium Ply-wood Fibre Plastic Other</td>
</tr>
<tr>
<td>metal</td>
</tr>
<tr>
<td>inium Plastic</td>
</tr>
<tr>
<td>inium</td>
</tr>
<tr>
<td>wood Reconsti-</td>
</tr>
<tr>
<td>tuted wood Fibre</td>
</tr>
<tr>
<td>board Plastic Other</td>
</tr>
<tr>
<td>metal</td>
</tr>
<tr>
<td>Spec</td>
</tr>
</tbody>
</table>

In Packing Instructions Y640 – Y642, Y644 – Y645, Y680 add in “Other metal” for packaging type “Boxes”.

In Packing Instructions 651 – 655, 657 – 663, 665 – 670, 672 – 677, 680, add in “1A1, 1B1, 1H1, 1N1, 3A1, 3B1, 3H1” and “Other metal 4N” for packaging type “Boxes” to outer packagings table.

Packing Instructions 651, 652, 657, 658, 680 revise applicable paragraph as shown:

Additional Packing Requirements

Inner packagings must be packed with sufficient absorbent material to absorb the entire contents of the inner packagings and placed in a rigid leakproof receptacle before packing in outer packagings.

In packing instruction 670, 672 – 677 revise paragraph as shown:

Additional Packing Requirements

- fibre, fibreboard, wood and plywood single packagings must be fitted with a suitable liner.

In packing instruction 670, 674 – 677, in single packagings table add “Other metal 4N” for packaging type “Boxes”.

In Packing Instruction 679 add in “1A1, 1B1, 1H1, 1N1” and “Other metal 4N” for packaging type “Boxes” to outer packagings table.
PACKING INSTRUCTION 681

This instruction applies to chlorosilanes, liquid, toxic on passenger aircraft and Cargo Aircraft Only.

... Combination and single packagings are permitted for Cargo Aircraft Only.

<table>
<thead>
<tr>
<th>UN Numbers</th>
<th>Inner Packaging (see 6.1)</th>
<th>Net quantity per inner packaging Passenger aircraft</th>
<th>Net quantity per inner packaging Cargo Aircraft Only</th>
<th>Total net quantity per package Passenger aircraft</th>
<th>Total net quantity per package Cargo Aircraft Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN 3361, UN 3362</td>
<td>Glass</td>
<td>1.0 L</td>
<td>1.0 L</td>
<td>1.0 L</td>
<td>30.0 L</td>
</tr>
<tr>
<td></td>
<td>Metal Steel</td>
<td>1.0 L</td>
<td>5.0 L</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plastic</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel, Plywood, Fibre, Plastic</td>
<td>Steel, Wood, Plywood, Reconstituted wood, Fibreboard, Plastic</td>
</tr>
<tr>
<td>Sp</td>
<td>1A1, 1A2, 1D, 1G, 1H1, 1H2</td>
<td>4A, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2</td>
</tr>
</tbody>
</table>

SINGLE PACKAGINGS — CARGO AIRCRAFT ONLY

5.8 Packing Instructions—Class 8—Corrosives

In Packing Instructions Y840 – Y841, Y843 – Y845, Y873 add in “Other metal” for packaging type “Boxes”.

In Packing Instructions Y840 insert new paragraph as shown:

Additional Packing Requirements

- glass inner packagings must be packed with sufficient absorbent material to absorb the entire contents of the inner packagings and placed in a compatible and rigid intermediate packaging before packing in outer packagings.

In Packing Instructions 850 – 852, 854 – 856, 858 – 860, 862 – 864 add in “1A1, 1B1, 1H1, 1N1, 3A1, 3B1, 3H1” and “Other metal 4N” for packaging type “Boxes” to outer packagings table.

Packing Instructions 850 and 854 revise applicable paragraph as shown:

Additional Packing Requirements

inner packagings must be packed with sufficient absorbent material to absorb the entire contents of the inner packagings and placed in a rigid leakproof receptacle before packing in outer packagings.

In packing instructions 863, 864 in single packagings table add “Other metal 4N” for packaging type “Boxes”.

In packing instructions 866 in combination packagings table add “Other metal 4N” for packaging type “Boxes”.

In Packing Instructions 867 and 868 add in “1A1, 1H1, 1N1” and “Other metal 4N”, and for packaging type “Boxes” to outer packagings table. Delete aluminium 1B2 and aluminium 4B.
PACKING INSTRUCTION 869

This instruction applies to mercury contained in manufactured articles (UN 28093506) on passenger aircraft and Cargo Aircraft Only.

The General Packing Requirements of Subsection 5.0.2 must be met.

Compatibility Requirements
- Substances must be compatible with their packagings as required by 5.0.2.6;
- Metal packagings must be corrosion resistant or with protection against corrosion.

Closure Requirements
Closures must meet the requirements of 5.0.2.7;

Additional Packing Requirements
- manufactured articles or apparatus of which metallic mercury is a component part, such as manometers, pumps, thermometers and switches must be packed in sealed inner liners or bags of strong leak-proof and puncture-resistant material impervious to mercury and which will prevent escape of mercury from the package irrespective of the position of the package. The inner liners or bags must be packed in strong outer packagings.
  
  Note: Mercury switches and relays are excepted from the requirement for a sealed inner liner or bag providing they are of the totally enclosed, leak-proof type in sealed metal or plastic units.

- electron tubes, mercury vapour tubes (tubes with less than a total net quantity of 450 g of mercury) must be packed in strong outer packagings with all seams and joints sealed with self-adhesive, pressure-sensitive tape which will prevent the escape of mercury from the package.
  
  Note: Tubes with more than 450 g of mercury must be packed according to the requirements for manufactured articles or apparatus (above).

- electron tubes which are packed in sealed leakproof metal cases may be shipped in the manufacturer’s original packagings.

  For electron tubes, mercury vapour tubes and similar tubes the shipper must indicate the quantity of mercury on the Shipper’s Declaration for Dangerous Goods.

  Thermometers, switches and relays each containing a total quantity of not more than 15 g (0.5 oz) of mercury are excepted from the requirements of these Regulations if they are installed as an integral part of a machine or apparatus and so fitted that shock or impact damage, leading to leakage of mercury, is unlikely to occur under conditions normally incident to transport.

<table>
<thead>
<tr>
<th>UN Number</th>
<th>Net Quantity* per package</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN 28093506, Mercury contained in manufactured articles</td>
<td><strong>Manufactured articles or apparatus of which metallic mercury is a component part, such as manometers, pumps, thermometers, switches, etc.</strong> Must have sealed inner liners or bags of strong leak-proof and puncture-resistant material impervious to mercury and which will prevent escape of mercury from the package irrespective of the position of the package. The inner liners or bags must be packed in strong outer packagings. Note: Mercury switches and relays are excepted from the requirement for a sealed inner liner or bag providing they are of the totally enclosed, leak-proof type in sealed metal or plastic units. No limit</td>
</tr>
<tr>
<td><strong>Electron tubes, mercury vapour tubes (tubes with less than a total net quantity of 450 g (16 oz) of mercury)</strong></td>
<td>Tubes must be packed in strong outer packagings with all seams and joints sealed with self-adhesive, pressure-sensitive tape which will prevent the escape of mercury from the package. Note: Tubes with more than 450 g (16 oz) of mercury must be packed according to the requirements for manufactured articles or apparatus (above).</td>
</tr>
</tbody>
</table>
for the purposes of 8.1.6.9.2, Step 6 (a) the “net quantity” shown on the Shipper’s Declaration is the net weight of the manufactured articles in each package.

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Aluminium</td>
<td>Plywood</td>
</tr>
</tbody>
</table>

PACKING INSTRUCTION 870

This instruction applies to UN 2794 and UN 2795 on passenger aircraft and Cargo Aircraft Only.

<table>
<thead>
<tr>
<th>UN Number</th>
<th>Quantity per package passenger aircraft</th>
<th>Quantity per package Cargo Aircraft Only</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Batteries, wet, filled with acid</strong> and UN 2795 Batteries, wet, filled with alkali</td>
<td>30 kg G</td>
<td>No limit</td>
</tr>
</tbody>
</table>

Batteries must be packed in one of the outer packagings shown below and must incorporate an acid/alkali-proof liner of sufficient strength and adequately sealed to positively preclude leakage in the event of spillage. The batteries must be packed so that the fill openings and vents, if any, are upward; they are incapable of short-circuiting and they are securely cushioned in the packagings. The upright position of the packaging must be indicated on it by the “Package Orientation” label. The words “THIS SIDE UP” or “THIS END UP” may also be displayed on the top of the package.

OUTER PACKAGINGS

PACKING INSTRUCTION 871

This instruction applies to UN 3028 on passenger aircraft and Cargo Aircraft Only.

<table>
<thead>
<tr>
<th>UN Number</th>
<th>Quantity per package passenger aircraft</th>
<th>Quantity per package Cargo Aircraft Only</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Batteries, dry, containing potassium hydroxide</strong></td>
<td>25 kg G</td>
<td>230 kg G</td>
</tr>
</tbody>
</table>

Batteries must be packed in one of the outer packagings shown below and must be securely cushioned in the packagings.

OUTER PACKAGINGS

In Packing Instruction 873 add in “Other metal 4N” for packaging type “Boxes” to outer packagings table.

PACKING INSTRUCTION 874

This instruction applies to UN 3477 contained in equipment on passenger aircraft and Cargo Aircraft Only

Additional Packing Requirements
• on passenger aircraft, each fuel cell system and each fuel cell cartridge must conform to IEC PAS 62282-6-1 Ed. 1 or a standard approved by the appropriate authority of the State of Origin.

In packing instruction 876: in inner packagings table delete “Metal” and replace with “Steel”. Add 1A1 and 1H1 into steel and plastic drums in outer packagings table.

5.9 Packing Instructions—Class 9—Miscellaneous Dangerous Goods

PACKING INSTRUCTION 953
This instruction applies to UN 2807, Magnetized material on passenger aircraft and Cargo Aircraft Only.
Magnetized materials with field strengths causing a compass deflection of more than 2 degrees at a distance of 2.1 m but not more than 2 degrees at a distance of 4.6 m (equivalent to 0.418 A/m or 0.00525 Gauss measured at a distance of 4.6 m) are not subject to any other requirements in these Regulations when carried as cargo except for the following:
(a) 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 air waybill when used, or in the appropriate location on alternate transport documentation. Where an agreement exists with the operator, the shipper may provide the information by EDP or EDI techniques;

PACKING INSTRUCTION 955
This instruction applies to UN 2990, Life-saving appliances, self-inflating and UN 3072, Life saving appliances, not self-inflating on passenger aircraft and Cargo Aircraft Only.
The description “Life-saving appliances, self-inflating”, (UN 2990) is intended to apply to life-saving appliances that present a hazard if the self-inflating device is activated accidentally.
Life-saving appliances, such as life-rafts, life-vests, aircraft survival kits or aircraft evacuation slides, may only contain the dangerous goods listed below:
(a) Division 2.2 gases, must be contained in cylinders which conform to the requirements of the appropriate national authority of the country in which they are approved and filled. Such cylinders may be connected to the life-saving appliance. These cylinders may include installed actuating cartridges (cartridges, power device of Division 1.4C and 1.4S) provided the aggregate quantity of deflagrating (propellant) explosives does not exceed 3.2 g per unit. When the cylinders are shipped separately, they shall be classified as appropriate for the Division 2.2 gas contained and need not be marked, labelled or described as explosive articles;
(b) signal devices (Class 1), which may include smoke and illumination signal flares; signal devices must be packed in plastic or fibreboard inner packagings;
(c) small quantities of flammable substances, corrosive solids and organic peroxides (Classes 3 and 8, Divisions 4.1 and 5.2), which may include a repair kit and not more than 30 strike-anywhere matches. The organic peroxide may only be a component of a repair kit and the kit must be packed in strong inner packaging. The strike-anywhere matches must be packed in a cylindrical metal or composition packaging with a screw-type closure and be cushioned to prevent movement;
(d) electric storage batteries (Class 8) and lithium batteries (Class 9); and
(e) first aid kits which may include flammable, corrosive and toxic articles or substances.
The appliances must be packed so that they cannot be accidentally activated, in strong outer packagings and except for life-vests, the dangerous goods must be in inner packagings packed so as to prevent movement. The dangerous goods must be an integral part of the appliance without which it would not be operational and in quantities which do not exceed those appropriate for the actual appliance when in use.
Passenger restraint systems consisting of a cylinder charged with a non-liquefied, non-flammable compressed gas and no more than two actuating cartridges per passenger restraint system that meet the requirements of the State of manufacture must be packed in strong outer packagings so they cannot be accidentally activated.
Life-saving appliances packed in strong rigid outer packagings with a total maximum gross weight of 40 kg, containing no dangerous goods other than Division 2.2 compressed or liquefied gases with no subsidiary risk in receptacles with a capacity not exceeding 120 mL, installed solely for the purpose of the activation of the appliance, are not subject to these Regulations when carried as cargo.
Life-saving appliances may also include articles and substances, not subject to these Regulations, which are an integral part of the appliance.
<table>
<thead>
<tr>
<th>UN number</th>
<th>UN description</th>
<th>Total net quantity per package</th>
<th>Total net quantity per package</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>passenger aircraft</td>
<td></td>
<td>Cargo Aircraft Only</td>
</tr>
<tr>
<td>UN 1841</td>
<td>Acetaldehyde ammonia</td>
<td>200 kg</td>
<td>200 kg</td>
</tr>
<tr>
<td>UN 1931</td>
<td>Zinc dithionite or Zinc hydrosulphite</td>
<td>100 kg</td>
<td>200 kg</td>
</tr>
<tr>
<td>UN 3152</td>
<td>Polyhalogenated biphenyls, solid or Polyhalogenated terphenyls, solid</td>
<td>400 kg</td>
<td>400 kg</td>
</tr>
<tr>
<td>UN 3245</td>
<td>Aviation regulated solid, n.o.s.</td>
<td>No limit</td>
<td>No limit</td>
</tr>
<tr>
<td>UN 3335</td>
<td>Aviation regulated solid, n.o.s.</td>
<td>No limit</td>
<td>No limit</td>
</tr>
</tbody>
</table>

### PACKING INSTRUCTION 956

This instruction applies to UN 1841, UN 1931, UN 2969, UN 3077, UN 3152, UN 3335 and UN 3432 on passenger aircraft and Cargo Aircraft Only.

**Additional Packing Requirements**

- fibre, fibreboard, wood and plywood single packagings must be fitted with a suitable liner.

---

### OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Aluminium</td>
<td>Plywood</td>
</tr>
<tr>
<td>Spec</td>
<td>1A1, 1B1</td>
<td>1A2, 1B2</td>
<td>1D</td>
</tr>
</tbody>
</table>

### SINGLE PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
<th>Bags</th>
<th>Composites</th>
<th>Cylinders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Aluminium</td>
<td>Plywood</td>
<td>Fibre</td>
<td>Plastic</td>
<td>Other metal</td>
</tr>
<tr>
<td>Spec</td>
<td>1A1, 1A2</td>
<td>1B1, 1B2</td>
<td>1D</td>
<td>1G</td>
<td>1H1, 1H2</td>
<td>1N1, 1N2</td>
</tr>
</tbody>
</table>

In Packing Instructions Y956, Y958, Y960, Y964 add in "Other metal" for packaging type “Boxes”.

In packing instructions 957, 958 in single packagings table add “Other metal 4N” for packaging type “Boxes”.

---

### PACKING INSTRUCTION 959

This instruction applies to UN 3245 on passenger aircraft and Cargo Aircraft Only.

**GMOS or GMMOs assigned to UN 3245 which are packed and marked in accordance with this packing instruction are not subject to any other requirement in these Regulations except for the following:**

(a) the name and address of the shipper and of the consignee must be provided on each package;

(b) classification must be in accordance with 3.9.1.5;
(c) the inspection for damage or leakage requirements in 9.4.1 and 9.4.2;
(d) the incident reporting requirements in 9.6 must be met;
(e) passengers and crew members are prohibited from transporting UN 3245 either as, or in, carry-on baggage or checked baggage or on their person.
(f) if an air waybill is used, the "Nature and Quantity of Goods" box must show "UN 3245", the text "GMO" or "GMMO" and the number of packages (unless these are the only packages within the consignment).

…

PACKING INSTRUCTION 960

This instruction applies to UN 3316 on passenger aircraft and Cargo Aircraft Only.
The description “Chemical Kit” and/or “First Aid Kit” is intended to apply to boxes, cases, etc., containing small amounts of one or more compatible items of various dangerous goods which are used for example for medical, analytical, testing or repair purposes. Components must not react dangerously (see 5.0.2.11(a)).
The General Packing Requirements of Subsection 5.0.2 must be met, except that the requirements of 5.0.2.11(b) through 5.0.2.11(h) and 5.0.2.14 do not apply.
Compatibility Requirements
• substances must be compatible with their packagings as required by 5.0.2.6.
Closure Requirements
• closures must meet the requirements of 5.0.2.7.
Additional Packing Requirements
• kits may contain dangerous goods which require segregation according to Table 9.3.A;
• packagings must meet the performance standards of the most stringent packing group assigned to any individual substance in the kit. Where the kit contains dangerous goods to which no packing group is assigned, packagings must meet Packing Group II performance standards;
• kits must not be packed with other dangerous goods in the same outer packaging with the exception of dry ice. If dry ice is used, the provisions of Packing Instruction 954 must be met.
Single packagings are not permitted.

…

OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
</tr>
<tr>
<td>Spec</td>
<td>4A</td>
</tr>
</tbody>
</table>

PACKING INSTRUCTION 961

This instruction applies to UN 3268 on passenger aircraft and Cargo Aircraft Only.

…

Additional Packing Requirements

…
• any pressure vessel receptacle must be in accordance with the requirements of the appropriate national authority for the substance(s) contained in the pressure vessel(s) therein.

…

OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Aluminium</td>
<td>Plywood</td>
</tr>
<tr>
<td>Spec</td>
<td>1A2</td>
<td>1B2</td>
<td>1D</td>
</tr>
</tbody>
</table>
PACKING INSTRUCTION 964

This instruction applies to UN 1941, UN 1990, UN 2315, UN 3151, UN 3082 and UN 3334 on passenger aircraft and Cargo Aircraft Only.

<table>
<thead>
<tr>
<th>UN numbers</th>
<th>Total net quantity per package passenger aircraft</th>
<th>Total net quantity per package Cargo Aircraft Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN 1941 Dibromodifluoromethane</td>
<td>100 L</td>
<td>220 L</td>
</tr>
<tr>
<td>UN 1990 Benzaldehyde</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UN 2315 Polychlorinated biphenyls, liquid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UN 3151 Polyhalogenated biphenyls, liquid or Polyhalogenated terphenyls, liquid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UN 3334 Aviation regulated liquid, n.o.s.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UN 3082 Environmentally hazardous substance, liquid, n.o.s.</td>
<td>450 L</td>
<td>450 L</td>
</tr>
<tr>
<td>UN 3334 Aviation regulated liquid, n.o.s.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Alum-</td>
<td>Ply-</td>
</tr>
<tr>
<td>Spec</td>
<td>1A1, 1A2</td>
<td>1B1, 1B2</td>
<td>1D</td>
</tr>
</tbody>
</table>

PACKING INSTRUCTION 965

Introduction

This instruction applies to lithium ion or lithium polymer cells and batteries (UN 3480) on passenger and Cargo Aircraft Only.

The general requirements apply to all lithium ion cells and batteries prepared for transport according to this packing instruction. Section I then applies to cells and batteries that are fully regulated for transport and assigned to Class 9; Section II contains the requirements applicable to “small” cells and batteries that when packed and labelled as described are otherwise excepted from the Regulations.

— Section IA applies to lithium ion cells with a Watt-hour rating in excess of 20 Wh and lithium ion batteries with a Watt-hour rating in excess of 100 Wh, or to quantities of lithium ion cells or batteries in excess of those permitted in Section IB of this packing instruction which must be assigned to Class 9 and are subject to all of the applicable requirements of these Regulations;

— Section IB applies to lithium ion cells with a Watt-hour rating not exceeding 20 Wh and lithium ion batteries with a Watt-hour rating not exceeding 100 Wh packed in quantities that exceed the allowance permitted in Section II, Table 965-II; and

— Section II applies to lithium ion cells with a Watt-hour rating not exceeding 20 Wh and lithium ion batteries with a Watt-hour rating not exceeding 100 Wh packed in quantities not exceeding the allowance permitted in Section II, Table 965-II.

General Requirements

The following requirements apply to all lithium ion or lithium polymer cells and batteries:

(a) each cell and 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. However, batteries and cells manufactured before 1 January 2014 conforming to a design type tested according to the requirements of the fifth revised edition of the UN Manual of Tests and Criteria, Part III, subsection 38.3 may continue to be transported;

Note: Batteries, including those which have been refurbished or otherwise altered, are subject to these tests irrespective of whether the cells of which they are composed have been so tested.

(b) cells and batteries must be manufactured under a quality management program as described in 3.9.2.6(e);

(c) cells and batteries identified by the manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport (e.g. those being returned to the manufacturer for safety reasons);
(d) waste lithium batteries and lithium batteries being shipped for recycling or disposal are prohibited from air transport unless approved by the appropriate national authority of the State of origin and the State of the operator;

(e) cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit.

Section IA – Fully Regulated Class 9 Lithium Ion Cells and Batteries

These requirements apply to each cell or battery type lithium ion cells with a Watt-hour rating in excess of 20 Wh and lithium ion batteries with a Watt-hour rating in excess of 100 Wh that have been determined to meet the criteria for assignment to Class 9.

Additional Requirements – Section IA

• lithium ion cells and batteries must be placed in inner packagings that completely enclose the cell or battery then placed in an outer packaging. The completed package for the cells or batteries must meet the Packing Group II performance standards;

• lithium batteries with a mass of 12 kg or greater and having a strong, impact-resistant outer casing, or assemblies of such batteries, may be transported when packed in strong outer packagings or protective enclosures (e.g. in fully enclosed or wooden slatted crates). The packagings need not meet the requirements of Section 6 of these Regulations. The packagings must be approved by the appropriate authority of the State of origin. A copy of the document of approval must accompany the consignment;

• batteries manufactured after 31 December 2011 must be marked with the Watt-hour rating on the outside case.

Table 965-IA

<table>
<thead>
<tr>
<th>UN number</th>
<th>Net quantity per package passenger aircraft</th>
<th>Net quantity per package Cargo Aircraft Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN 3480, Lithium ion batteries</td>
<td>5 kg G</td>
<td>35 kg G</td>
</tr>
</tbody>
</table>

OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Aluminium</td>
<td>Ply-wood Fibre Plastic Other metal</td>
</tr>
<tr>
<td>Spec</td>
<td>1A2</td>
<td>1B2</td>
<td>1D</td>
</tr>
</tbody>
</table>

Section IB

Section IB requirements apply to lithium ion cells with a Watt-hour rating not exceeding 20 Wh and lithium ion batteries with a Watt-hour rating not exceeding 100 Wh packed in quantities that exceed the allowance permitted in Section II, Table 965-II.

Quantities of lithium ion cells or batteries that exceed the allowance permitted in Section II, Table 965-II must be assigned to Class 9 and are subject to all of the applicable provisions of these Regulations (including the General Requirements of this packing instruction), except for the following:

(a) the provisions of Section 6;

(b) a Shipper’s Declaration is not required, provided that the following information must be contained on the air waybill when used, or in the appropriate location on alternative transport documentation. The information required by 2, 3 and 4 below must be shown in the “Nature and Quantity of Goods” box of the air waybill. Where an agreement exists with the operator, the shipper may provide the information by electronic data processing (EDP) or electronic data interchange (EDI) techniques. The information required is as follows and should be shown in the following order:

1) the name and address of the shipper and consignee;
2) UN 3480;
3) Lithium ion batteries PI 965 IB;
4) the number of packages and the gross weight of each package.

Lithium ion cells and batteries may be offered for transport if they meet all of the following:

(a) for lithium ion cells, the Watt-hour rating is not more than 20 Wh; and
For lithium ion batteries, the Watt-hour rating is not more than 100 Wh. The Watt-hour rating must be marked on the outside of the battery case except for those batteries manufactured before 1 January 2009.

Cells and batteries must be packed in strong outer packagings that conform to 5.0.2.4, 5.0.2.6.1 and 5.0.2.12.1.

**Additional Requirements – Section IB**

Cells and batteries must be packed in inner packagings that completely enclose the cell or battery then placed in a strong outer packaging.

Each package must be capable of withstanding a 1.2 m drop test in any orientation without:

- damage to cells or batteries contained therein;
- shifting of the contents so as to allow battery to battery (or cell to cell) contact;
- release of contents.

Each consignment must be accompanied with a document with an indication that:

- the package contains lithium ion cells or batteries;
- the package must be handled with care and that a flammability hazard exists if the package is damaged;
- special procedures must be followed in the event the package is damaged, to include inspection and repacking if necessary; and
- a telephone number for additional information.

Each package must be labelled with a lithium battery handling label (Figure 7.4.I) in addition to the Class 9 hazard label.

Each package must be marked in accordance with the requirements of 7.1.5.1(a) and (b) and in addition must be marked with the gross weight of the package.

<table>
<thead>
<tr>
<th>Table 965-IB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quantity per package</strong></td>
</tr>
<tr>
<td><strong>passenger aircraft</strong></td>
</tr>
<tr>
<td>Lithium ion cells and batteries</td>
</tr>
</tbody>
</table>

**Outer Packagings**

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
</tr>
</thead>
</table>

**Section II – Excepted Lithium Ion Cells and Batteries**

The words “Lithium ion batteries not restricted and in compliance with Section II of PI 965” must be included on the air waybill, when an air waybill is used. The information should be shown in the “Nature and Quantity of Goods” box of the air waybill.

<table>
<thead>
<tr>
<th>Table 965-II</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quantity per package</strong></td>
</tr>
<tr>
<td><strong>passenger aircraft</strong></td>
</tr>
<tr>
<td>Lithium ion cells and batteries</td>
</tr>
</tbody>
</table>
Lithium ion cells and/or batteries with a Watt-hour rating not more than 2.7 Wh
Lithium ion cells with a Watt-hour rating more than 2.7 Wh, but not more than 20 Wh
Lithium ion batteries with a Watt-hour rating more than 2.7 Wh, but not more than 100 Wh

<table>
<thead>
<tr>
<th>Contents</th>
<th>Lithium ion cells and/or batteries with a Watt-hour rating not more than 2.7 Wh</th>
<th>Lithium ion cells with a Watt-hour rating more than 2.7 Wh, but not more than 20 Wh</th>
<th>Lithium ion batteries with a Watt-hour rating more than 2.7 Wh, but not more than 100 Wh</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No limit</td>
<td>8 cells</td>
<td>2 batteries</td>
</tr>
<tr>
<td>Maximum number of cells / batteries per package</td>
<td>2.5 kg</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Maximum net quantity (mass) per package</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The limits specified in columns 2, 3 and 4 of Table 965-II must not be combined in the same package.

OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
</tr>
</thead>
</table>

PACKING INSTRUCTION 966

Introduction
This instruction applies to lithium ion or lithium polymer cells and batteries packed with equipment (UN 3481) on passenger and Cargo Aircraft Only.

The general requirements apply to all lithium ion cells and batteries packed with equipment prepared for transport according to this packing instruction. Section I then applies to cells and batteries that are fully regulated for transport and assigned to Class 9; Section II contains the requirements applicable to “small” cells and batteries that when packed and labelled as described are otherwise excepted from the Regulations.

— Section I applies where the equipment is packed with lithium ion cells with a Watt-hour rating in excess of 20 Wh or lithium ion batteries with a Watt-hour rating in excess of 100 Wh which must be assigned to Class 9 and are subject to all of the applicable requirements of these Regulations; and

— Section II applies where the equipment is packed with lithium ion cells with a Watt-hour rating not exceeding 20 Wh or lithium ion batteries with a Watt-hour rating not exceeding 100 Wh.

General Requirements
The following requirements apply to all lithium ion or lithium polymer cells and batteries:

(a) each cell and 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. However, batteries and cells manufactured before 1 January 2014 conforming to a design type tested according to the requirements of the 5th revised edition of the UN Manual of Tests and Criteria, Part III, subsection 38.3 may continue to be transported;

Note: Batteries, including those which have been refurbished or otherwise altered, are subject to these tests irrespective of whether the cells of which they are composed have been so tested.

(b) cells and batteries must be manufactured under a quality management program as described in 3.9.2.6(e);

(c) cells and batteries identified by the manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport (e.g. those being returned to the manufacturer for safety reasons);

(d) cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit.

Section I — Fully Regulated Class 9 Lithium Ion Cells and Batteries
These requirements apply to each cell or battery type lithium ion cells with a Watt-hour rating in excess of 20 Wh and lithium ion batteries with a Watt-hour rating in excess of 100 Wh that have been determined to meet the criteria for assignment to Class 9.

…

| Table 966-I |
|-------------|-------------|-------------|
| UN number   | Net quantity per package | Net quantity per package |
| passenger aircraft | Cargo Aircraft Only | |

…
### OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Aluminiun</td>
<td>Ply-wood</td>
</tr>
<tr>
<td>Spec</td>
<td>1A2</td>
<td>1B2</td>
<td>1D</td>
</tr>
</tbody>
</table>

### Section II – Excepted Lithium Ion Cells and Batteries

Additional Requirements – Section II

The words “Lithium ion batteries not restricted” and in compliance with Section II of PI 966” must be included on the air waybill, when an air waybill is used. The information should be shown in the “Nature and Quantity of Goods” box of the air waybill.

### Table 966-II

<table>
<thead>
<tr>
<th></th>
<th>Passenger aircraft</th>
<th>Cargo Aircraft Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net quantity of Lithium ion cells or batteries per package</td>
<td>5 kg</td>
<td>5 kg</td>
</tr>
</tbody>
</table>

### PACKING INSTRUCTION 967

**Introduction**

This instruction applies to lithium ion or lithium polymer cells and batteries contained in equipment (UN 3481) on passenger and Cargo Aircraft Only.

The general requirements apply to all lithium ion cells and batteries contained in equipment prepared for transport according to this packing instruction. Section I then applies to cells and batteries that are fully regulated for transport and assigned to Class 9; Section II contains the requirements applicable to “small” cells and batteries that when packed and labelled as described are otherwise excepted from the Regulations.

— Section I applies where the equipment contains lithium ion cells with a Watt-hour rating in excess of 20 Wh or lithium ion batteries with a Watt-hour rating in excess of 100 Wh which must be assigned to Class 9 and are subject to all of the applicable requirements of these Regulations; and

— Section II applies where the equipment contains lithium ion cells with a Watt-hour rating not exceeding 20 Wh or lithium ion batteries with a Watt-hour rating not exceeding 100 Wh.

**General Requirements**

The following requirements apply to all lithium ion or lithium polymer cells and batteries:

(a) each cell and 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. However, batteries and cells manufactured before 1 January 2014 conforming to a design type tested according to the requirements of the 5th revised edition of the UN Manual of Tests and Criteria, Part III, subsection 38.3 may continue to be transported;

Note: **Batteries, including those which have been refurbished or otherwise altered, are subject to these tests irrespective of whether the cells of which they are composed have been so tested.**

(b) cells and batteries must be manufactured under a quality management program as described in 3.9.2.6(e):
(c) cells and batteries identified by the manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport (e.g. those being returned to the manufacturer for safety reasons);

(d) cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit;

(e) equipment must be equipped with an effective means of preventing accidental activation;

(f) equipment containing batteries must be packed in strong outer packagings that conform to 5.0.2.4, 5.0.2.6.1 and 5.0.2.12.1;

(g) the equipment containing the cells or batteries must be secured against movement within the outer packaging and be packed so as to prevent accidental operation during air transport;

Section I – Fully Regulated Class 9 Lithium Ion Cells and Batteries

These requirements apply to each cell or battery type lithium ion cells with a Watt-hour rating in excess of 20 Wh and lithium ion batteries with a Watt-hour rating in excess of 100 Wh that have been determined to meet the criteria for assignment to Class 9.

| Table 967-I |
|-----------------|-----------------|-----------------|
| UN number | Net quantity per package passenger aircraft | Net quantity per package Cargo Aircraft Only |
| UN 3481, Lithium ion batteries contained in equipment | 5 kg | 35 kg |

Section II – Excepted Lithium Ion Cells and Batteries

Additional Requirements – Section II

Where a consignment includes packages bearing the lithium battery handling label, the words "Lithium ion batteries not restricted" and in compliance with Section II of PI 967” must be included on the air waybill, when an air waybill is used. The information should be shown in the "Nature and Quantity of Goods" box of the air waybill.

| Table 967-II |
|-----------------|-----------------|-----------------|
| Net quantity of Lithium ion cells or batteries per package | Passenger aircraft | Cargo Aircraft Only |
| 5 kg | 5 kg |

PACKING INSTRUCTION 968

Introduction

This instruction applies to lithium metal or lithium alloy cells and batteries (UN 3090) on passenger and Cargo Aircraft Only. The general requirements apply to all lithium metal cells and batteries prepared for transport according to this packing instruction. Section I then applies to cells and batteries that are fully regulated for transport and assigned to Class 9; Section II contains the requirements applicable to “small” cells and batteries that when packed and labelled as described are otherwise excepted from the Regulations;

— Section IA applies to lithium metal cells with a lithium metal content in excess of 1 g and lithium metal batteries with a lithium metal content in excess of 2 g, or to quantities of lithium metal cells or batteries in excess of those permitted in Section IB of this packing instruction, which must be assigned to Class 9 and are subject to all of the applicable requirements of these Regulations;

— Section IB applies to lithium metal cells with a lithium metal content not exceeding 1 g and lithium metal batteries with a
lithium metal content not exceeding 2 g packed in quantities that exceed the allowance permitted in Section II, Table 968-II; and

---

Section II applies to lithium metal cells with a lithium metal content not exceeding 1 g and lithium metal batteries with a lithium metal content not exceeding 2 g packed in quantities not exceeding the allowance permitted in Section II, Table-968-II.

### General Requirements

The following requirements apply to all lithium metal or lithium alloy cells and batteries:

(a) each cell and 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. However, batteries and cells manufactured before 1 January 2014 conforming to a design type tested according to the requirements of the 5th revised edition of the UN Manual of Tests and Criteria, Part III, subsection 38.3 may continue to be transported;

   **Note:**

   Batteries, including those which have been refurbished or otherwise altered, are subject to these tests irrespective of whether the cells of which they are composed have been so tested.

(b) cells and batteries must be manufactured under a quality management program as described in 3.9.2.6(e);

(c) cells and batteries identified by the manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport (e.g. those being returned to the manufacturer for safety reasons);

(d) waste lithium batteries and lithium batteries being shipped for recycling or disposal are prohibited from air transport unless approved by the appropriate national authority of the State of origin and the State of the operator;

(e) cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit.

### Section IA – Fully Regulated Class 9 Lithium Metal and Lithium Alloy Cells and Batteries

These requirements apply to each cell or battery type apply to lithium metal cells with a lithium metal content in excess of 1 g and lithium metal batteries with a lithium metal content in excess of 2 g that have been determined to meet the criteria for assignment to Class 9.

---

**Additional Requirements – Section IA**

- lithium metal cells and batteries must be placed in inner packagings that completely enclose the cell or battery then placed in an outer packaging. The completed package for the cells or batteries must meet the Packing Group II performance standards;
- lithium batteries with a mass of 12 kg or greater and having a strong, impact-resistant outer casing, or assemblies of such batteries, may be transported when packed in strong outer packagings or protective enclosures (e.g. in fully enclosed or wooden slated crates). The packagings need not meet the requirements of Section 6 of these Regulations. The packagings must be approved by the appropriate authority of the State of origin. A copy of the document of approval must accompany the consignment.

Lithium metal and lithium alloy cells and batteries prepared for transport on Passenger Aircraft as Class 9:

- must be packed in either a rigid metal intermediate or a metal outer packaging;
- cells and batteries must be surrounded by cushioning material that is non-combustible and non-conductive before being placed in either the metal intermediate or metal outer packaging;

[DGB/99, S05/03]

- when the package does not meet the above requirements, the package(s) must bear the “Cargo Aircraft Only” label and the Shipper’s Declaration must indicate “Cargo Aircraft Only”.

### Table 968-IA

<table>
<thead>
<tr>
<th>UN number</th>
<th>Net quantity per package passenger aircraft</th>
<th>Net quantity per package Cargo Aircraft Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN 3090, Lithium metal batteries</td>
<td>2.5 kg G</td>
<td>35 kg G</td>
</tr>
</tbody>
</table>
OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td>Steel</td>
<td>Alum-</td>
<td>Ply-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>inium</td>
<td>wood</td>
</tr>
<tr>
<td>Spec</td>
<td>1A2</td>
<td>1B2</td>
<td>1D</td>
</tr>
</tbody>
</table>

SECTION IB

Section IB requirements apply to lithium metal cells with a lithium metal content not exceeding 1 g and lithium metal batteries with a lithium metal content not exceeding 2 g packed in quantities that exceed the allowance permitted in Section II, Table 968-II.

Quantities of lithium metal cells or batteries that exceed the allowance permitted in Section II. Table 968-II must be assigned to Class 9 and are subject to all of the applicable provisions of these Instructions (including the requirements in paragraph 2 of this packing instruction and of this section) except for the following:

(a) the provisions of Section 6; and
(b) a Shipper’s Declaration is not required, provided that the following information must be contained on the air waybill when used, or in the appropriate location on alternative transport documentation. The information required by 2, 3 and 4 below must be shown in the “Nature and Quantity of Goods” box of the air waybill. Where an agreement exists with the operator, the shipper may provide the information by electronic data processing (EDP) or electronic data interchange (EDI) techniques. The information required is as follows and should be shown in the following order:

1) the name and address of the shipper and consignee;
2) UN 3090;
3) Lithium metal batteries PI 968 IB;
4) the number of packages and the gross mass of each package.

Lithium metal or lithium alloy cells and batteries may be offered for transport if they meet all of the following:

1) for cells, the lithium content is not more than 1 g; and
2) for batteries, the aggregate lithium content is not more than 2 g.

Cells and batteries must be packed in strong outer packagings that conform to 5.0.2.4, 5.0.2.6.1 and 5.0.2.12.1.

Additional Requirements – Section IB

Cells and batteries must be packed in inner packagings that completely enclose the cell or battery then placed in a strong outer packaging.

Each package must be capable of withstanding a 1.2 m drop test in any orientation without:

- damage to cells or batteries contained therein;
- shifting of the contents so as to allow battery to battery (or cell to cell) contact;
- release of contents.

Each consignment must be accompanied with a document with an indication that:

- the package contains lithium metal cells or batteries;
- the package must be handled with care and that a flammability hazard exists if the package is damaged;
- special procedures must be followed in the event the package is damaged, to include inspection and repacking if necessary; and
- a telephone number for additional information.

Each package must be labelled with a lithium battery handling label (Figure 7.4.I) in addition to the Class 9 hazard label.

Each package must be marked in accordance with the requirements of 7.1.5.1(a) and (b) and in addition must be marked with the gross weight of the package.
### Table 968-IB

<table>
<thead>
<tr>
<th>Contents</th>
<th>Quantity per package passenger aircraft</th>
<th>Quantity per package Cargo Aircraft Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium metal cells and batteries</td>
<td>2.5 kg G</td>
<td>2.5 kg G</td>
</tr>
</tbody>
</table>

### OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
</tr>
</thead>
</table>

### Section II – Excepted Lithium Metal and Lithium Alloy Cells and Batteries

...  

### Additional Requirements – Section II

...  

The words "Lithium metal batteries "not restricted" and in compliance with Section II of PI 968" must be included on the air waybill, when an air waybill is used. The information should be shown in the "Nature and Quantity of Goods" box of the air waybill.

...  

### Table 968-II

<table>
<thead>
<tr>
<th>Contents</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium metal cells and/or batteries with a lithium content of not more than 0.3 g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithium metal cells with a lithium content of more than 0.3 g but not more than 1 g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithium metal batteries with a lithium content of more than 0.3 g but not more than 2 g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maximum number of cells / batteries per package</th>
<th>No limit</th>
<th>8 cells</th>
<th>2 batteries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum net quantity (mass) per package</td>
<td>2.5 kg</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

The limits specified in columns 2, 3 and 4 of Table 968-II must not be combined in the same package.

### OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
</tr>
</thead>
</table>

### PACKING INSTRUCTION 969

**Introduction**

This instruction applies to lithium metal or lithium alloy cells and batteries packed with equipment (UN 3091) on passenger and Cargo Aircraft Only.

The general requirements apply to all lithium metal batteries packed with equipment prepared for transport according to this packing instruction. Section I then applies to cells and batteries that are fully regulated for transport and assigned to Class 9; Section II contains the requirements applicable to “small” cells and batteries that when packed and labelled as described are otherwise excepted from the Regulations.

— Section I applies where equipment is packed with lithium metal cells with a lithium metal content in excess of 1 g or lithium metal batteries with a lithium metal content in excess of 2 g which must be assigned to Class 9 and are subject to all of the applicable requirements of these Regulations; and...
Section II applies where equipment is packed with lithium metal cells with a lithium metal content not exceeding 1 g or lithium metal batteries with a lithium metal content not exceeding 2 g.

General Requirements

The following requirements apply to all lithium metal or lithium alloy cells and batteries:

(a) each cell and 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. However, batteries and cells manufactured before 1 January 2014 conforming to a design type tested according to the requirements of the fifth revised edition of the UN Manual of Tests and Criteria, Part III, subsection 38.3 may continue to be transported;

Note: Batteries, including those which have been refurbished or otherwise altered, are subject to these tests irrespective of whether the cells of which they are composed have been so tested.

(b) cells and batteries must be manufactured under a quality management program as described in 3.9.2.6(e);

(c) cells and batteries identified by the manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport (e.g. those being returned to the manufacturer for safety reasons);

(d) cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit.

Section I — Fully Regulated Class 9 Lithium Metal Cells and Batteries

These requirements apply to each cell or battery type apply to lithium metal cells with a lithium metal content in excess of 1 g and lithium metal batteries with a lithium metal content in excess of 2 g that has have been determined to meet the criteria for assignment to Class 9.

Lithium metal and lithium alloy cells and batteries prepared for transport on Passenger Aircraft as Class 9:

- must be packed in either a rigid metal intermediate or a metal outer packaging;
- cells and batteries must be surrounded by cushioning material that is non-combustible and non-conductive before being placed in either the metal intermediate or metal outer packaging;

[DGB/99, S05/03]

- when the package does not meet the above requirements, the package(s) must bear the “Cargo Aircraft Only” label and the Shipper’s Declaration must indicate “Cargo Aircraft Only”.

Table 969-I

<table>
<thead>
<tr>
<th>UN number</th>
<th>Net quantity per package passenger aircraft</th>
<th>Net quantity per package Cargo Aircraft Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity (weight)</td>
<td>5 kg</td>
<td>35 kg</td>
</tr>
<tr>
<td>of lithium metal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cells and batteries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>per package,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>excluding weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>of equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UN 3091, Lithium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>metal batteries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>packed with</td>
<td></td>
<td></td>
</tr>
<tr>
<td>equipment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OUTER PACKAGINGS

<table>
<thead>
<tr>
<th>Type</th>
<th>Drums</th>
<th>Jerricans</th>
<th>Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desc</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spec</td>
<td>1A2</td>
<td>1B2</td>
<td>1D</td>
</tr>
<tr>
<td></td>
<td>1G</td>
<td>1H2</td>
<td>1N2</td>
</tr>
<tr>
<td></td>
<td>3A2</td>
<td>3B2</td>
<td>3H2</td>
</tr>
<tr>
<td></td>
<td>4A</td>
<td>4B</td>
<td>4C1</td>
</tr>
<tr>
<td></td>
<td>4C2</td>
<td>4D</td>
<td>4F</td>
</tr>
<tr>
<td></td>
<td>4G</td>
<td>4H1</td>
<td>4H2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4N</td>
<td></td>
</tr>
</tbody>
</table>

Section II — Excepted Lithium Metal Cells and Batteries

Additional Requirements – Section II

...
The words “Lithium metal batteries “not restricted” and in compliance with Section II of PI 969” must be included on the air waybill, when an air waybill is used. The information should be shown in the “Nature and Quantity of Goods” box of the air waybill.

Table 969-II

<table>
<thead>
<tr>
<th>Net quantity of Lithium metal cells or batteries per package</th>
<th>Passenger aircraft</th>
<th>Cargo Aircraft Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 kg</td>
<td>5 kg</td>
<td></td>
</tr>
</tbody>
</table>

PACKING INSTRUCTION 970

Introduction

This instruction applies to lithium metal or lithium alloy cells and batteries contained in equipment (UN 3091) on passenger and Cargo Aircraft Only.

The general requirements apply to all lithium metal cells and batteries contained in equipment prepared for transport according to this packing instruction. Section I then applies to cells and batteries that are fully regulated for transport and assigned to Class 9. Section II contains the requirements applicable to “small” cells and batteries that when packed and labelled as described are otherwise excepted from the Regulations.

— Section I applies where the equipment contains lithium metal cells with a lithium metal content in excess of 1 g or lithium metal batteries with a lithium metal content in excess of 2 g which must be assigned to Class 9 and are subject to all of the applicable requirements of these Regulations; and

— Section II applies where the equipment contains lithium metal cells with a lithium metal content not exceeding 1 g or lithium metal batteries with a lithium metal content not exceeding 2 g.

General Requirements

The following requirements apply to all lithium metal or lithium alloy cells and batteries:

(a) each cell and 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. However, batteries and cells manufactured before 1 January 2014 conforming to a design type tested according to the requirements of the 5th revised edition of the UN Manual of Tests and Criteria, Part III, subsection 38.3 may continue to be transported;

Note: Batteries, including those which have been refurbished or otherwise altered, are subject to these tests irrespective of whether the cells of which they are composed have been so tested.

(b) cells and batteries must be manufactured under a quality management program as described in 3.9.2.6(e);

(c) cells and batteries identified by the manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport (e.g. those being returned to the manufacturer for safety reasons);

(d) cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit;

(e) equipment must be equipped with an effective means of preventing accidental activation;

(f) equipment containing batteries must be packed in strong outer packagings that conform to 5.0.2.4, 5.0.2.6.1 and 5.0.2.12.1;

(g) the equipment containing the cells or batteries must be secured against movement within the outer packaging and be packed so as to prevent accidental operation during air transport;

Section I – Fully Regulated Class 9 Lithium Metal Cells and Batteries

These requirements apply to each cell or battery type apply to lithium metal cells with a lithium metal content in excess of 1 g and lithium metal batteries with a lithium metal content in excess of 2 g that have been determined to meet the criteria for assignment to Class 9.

Table 970-I
Section II – Excepted Lithium Metal Cells and Batteries

Table 970-II

<table>
<thead>
<tr>
<th>Net quantity of Lithium metal cells or batteries per package</th>
<th>Passenger aircraft</th>
<th>Cargo Aircraft Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 kg</td>
<td></td>
<td>5 kg</td>
</tr>
</tbody>
</table>

PACKING INSTRUCTION 971

This instruction applies to UN 3499 on passenger aircraft and Cargo Aircraft Only (see also Special Provision A186). The General Packing Requirements of 5.0.2.4.1 and 5.0.2.11(a) must be met. For the purposes of this packing instruction, a capacitor is considered an inner packaging.

<table>
<thead>
<tr>
<th>UN number</th>
<th>Net quantity per package passenger aircraft</th>
<th>Net quantity per package Cargo Aircraft Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN 3499 Capacitor, electric double layer</td>
<td>No limit</td>
<td>No limit</td>
</tr>
</tbody>
</table>

Additional Packing Requirements

- each capacitor must be transported in an uncharged state. The capacitor or, when fitted in a module, the module must be fitted with a metal strap connecting the terminals;
- capacitors must be securely cushioned in the outer packagings

OUTER PACKAGINGS - strong outer packagings, such as:

Liquefied

END
SECTION 6 – PACKAGING SPECIFICATIONS AND PERFORMANCE TESTS

6.2 Specifications for UN Outer, Single and Composite Packagings

6.2.8 Steel, or Aluminium or Other Metal Boxes
6.2.8.1 This paragraph contains the specifications for:
- 4A—steel boxes;
- 4B—aluminium boxes;
- 4N—metal, other than steel or aluminium.

6.4 Requirements for the Construction and Testing of Cylinders and Closed Cryogenic Receptacles, Aerosol Dispensers and Small Receptacles Containing Gas (Gas Cartridges)

6.4.1 General Requirements

6.4.1.1 Design and Construction

6.4.1.1.1 Cylinders and closed cryogenic receptacles and their closures must be designed, manufactured, tested and equipped in such a way as to withstand all conditions including fatigue, to which they will be subjected during normal conditions of transport.

6.4.1.1.2 In recognition of scientific and technological advances, and recognizing that cylinders and closed cryogenic receptacles other than those that are marked with a UN certification marking may be used on a national or regional basis, cylinders and closed cryogenic receptacles conforming to requirements other than those specified in these Regulations may be used if approved by the appropriate national authorities in the countries of transport and use.

6.4.1.1.3 In no case must the minimum wall thickness be less than that specified in the design and construction technical standards.

6.4.1.1.4 For welded cylinders and closed cryogenic receptacles, only metals used must be of weldable quality.

6.4.1.1.5 The test pressure requirements for cylinders must be in accordance with Subsection 5.2 and Packing Instruction 200 or, for a chemical under pressure with Packing Instruction 218. The test pressure requirements for closed cryogenic receptacles must be in accordance with Packing Instruction 202. The test pressure of a metal hydride storage system must be in accordance with Packing Instruction 214.

6.4.1.6 Periodic Inspection and Test

6.4.1.6.1 Refillable cylinders must be subjected to periodic inspections and tests by a body authorized by the appropriate national authority, in accordance with the following:

(a) check of the external conditions of the cylinder and verification of the equipment and the external markings;
(b) check of the internal conditions of the cylinder (e.g. internal inspection, verification of minimum wall thickness);
(c) checking of the threads if there is evidence of corrosion or if the fittings are removed;
(d) a hydraulic pressure test and, if necessary, verification of the characteristics of the material by suitable tests.
Notes:
1. With the agreement of the appropriate national authority, the hydraulic pressure test may be replaced by a test using a gas, where such an operation does not entail any danger.

2. With the agreement of the appropriate national authority, the hydraulic pressure test of cylinders may be replaced by an equivalent method based on acoustic emission, testing or a combination of acoustic emission testing and ultrasound examination. ISO 16147:2006 may be used as a guide for acoustic emission testing procedures.

3. The hydraulic pressure test may be replaced by ultrasonic examination carried out in accordance with ISO 10461:2005+A1:2006 for seamless aluminium alloy gas cylinders and in accordance with ISO 6406:2005 for seamless steel gas cylinders.

(e) check of service equipment, other accessories and pressure-relief devices, if to be reintroduced into service.

Note:
For the periodic inspection and test frequencies, see Packing Instruction 200 or, for a chemical under pressure Packing Instruction 218.

6.4.1.6.2 Cylinders intended for the transport of UN 1001 Acetylene, dissolved and UN 3374 Acetylene, solvent free must be examined only as specified in 6.4.1.6.1 a), c) and e). In addition, the condition of the porous material (e.g. cracks, top clearance, loosening, settlement) must be examined.

6.4.1.6.3 Pressure relief valves for closed cryogenic receptacles must be subject to periodic inspections and tests.

6.4.2.3 Service Equipment

6.4.2.3.1 The following standards apply to closures and their protection:

<table>
<thead>
<tr>
<th>Standard Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 11117:1998</td>
<td>Gas cylinders—Valve protection caps and valve guards for industrial and medical gas cylinders—Design, construction and tests</td>
</tr>
<tr>
<td>ISO 11117:2008+ Cor 1:2009</td>
<td>Gas cylinders—Valve protection caps and valve guards—Design, construction and tests</td>
</tr>
<tr>
<td>ISO 10297:2006</td>
<td>Gas cylinders—Refillable gas cylinder valves—Specification and type testing</td>
</tr>
<tr>
<td>ISO 13340:2001</td>
<td>Transportable gas cylinders—Cylinder valves for non-refillable cylinders—Specification and prototype testing</td>
</tr>
</tbody>
</table>

Note: Construction according to ISO 11117:1998 may continue until 31 December 2014.

6.4.2.4 Periodic Inspection and Test

6.4.2.4.1 The following standards apply to the periodic inspection and testing of UN cylinders:

<table>
<thead>
<tr>
<th>Standard Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 11623:2002</td>
<td>Seamless steel gas cylinders—Periodic inspection and testing.</td>
</tr>
<tr>
<td>ISO 11623:2002</td>
<td>Transportable gas cylinders—Periodic inspection and testing of composite gas cylinders.</td>
</tr>
<tr>
<td>ISO 16111:2008</td>
<td>Transportable gas storage devices—Hydrogen absorbed in reversible metal hydride</td>
</tr>
<tr>
<td>ISO 10460:2005</td>
<td>Gas cylinders—Welded carbon-steel gas cylinders—Periodic inspection and testing</td>
</tr>
</tbody>
</table>

Note: The repair of welds described in clause 12.1 of this standard is not permitted. Repairs described in clause 12.2 require the approval of the appropriate national authority which approved the periodic inspection and test body in accordance with...
SECTION 7 – MARKING AND LABELLING

7.1 Marking

7.1.4 Markings for Overpacks

7.1.4.1 Unless all markings representative of all dangerous goods in the overpack are clearly visible, the overpack must be marked with:

- the word “overpack”;
- the required markings of 7.1.5.1(a), (b), (e) through (i);
- the required markings of 7.1.5.4;
- the required markings of 7.1.6.1, 7.1.6.2 and 7.1.6.3;
- any special handling instructions appearing on packages inside the overpack.

Package specification marking must not be reproduced on the overpack as the word “Overpack” indicates that packages contained within, comply with the prescribed specifications. When packages containing dangerous goods in limited quantities are placed in an overpack, the outside of the overpack must also be marked with the limited quantity marking shown in Figure 7.1.A unless the limited quantity marking on the packages is visible. For an overpack containing packages of radioactive material, see 10.7.1.4.

7.1.4.2 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 alphanumeric format) and the total quantity of dangerous goods, as indicated on the Shipper’s Declaration.

7.1.5 Packaging Use Marking (Packages and Salvage Packagings)

7.1.5.1 General

Unless otherwise specified in these Regulations, each package containing dangerous goods must be marked, durably and legibly on the outside of the package with each of the following:

(a) the PROPER SHIPPING NAME(S) of the contents (see 8.1.3) (supplemented with the technical name or chemical group 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 Subsection 4.2–List of Dangerous Goods. The size of these package markings is set out in 7.1.5.5. In the case of unpackaged articles, these markings must be displayed on the article, on its cradle or on its handling, storage or launching device. 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) UN 3265.

For solid substances, unless the word “molten” is already included in the Proper Shipping Name, it must be added to the Proper Shipping Name on the package when a substance is offered for air transport in the molten state (see 8.1.3.6).

Note: Additional descriptive text in the entries in Column B of the List of Dangerous Goods are not part of the Proper Shipping Name but may be used in addition to the Proper Shipping Name.

(b) the full NAME AND ADDRESS of the shipper and the consignee must be provided on each package and should be located on the same surface of the package near the proper shipping name marking, if the package dimensions are adequate;

(c) except for ID 8000, Consumer commodity and packages containing radioactive material (Class 7) the NET QUANTITY of dangerous goods contained in each package must be shown. Where the maximum quantity shown in Columns H, J or L in Subsection 4.2 is a gross weight, the GROSS WEIGHT of the package must be shown. This quantity must be marked adjacent to the UN number and Proper Shipping Name required by (a), above. Where the weight shown on the Shipper’s Declaration is a gross weight and the letter “G” is
shown, the weight marked on the package must also indicate the letter "G" following the unit of measurement. The requirement to mark the package with Net Quantity or Gross Weight only applies to consignments of more than one package with dangerous goods contents. In case of consignments of multiple packages with identical dangerous goods contents (i.e. each package with same UN number, proper shipping name, packing group, and quantity) this marking is not mandatory.

The NET QUANTITY of dangerous goods contained in each package must be shown. Where the maximum quantity shown in Columns H, J, or L in Subsection 4.2 is a gross weight, the GROSS WEIGHT of the package must be shown with the letter “G” following the unit of measurement. This quantity must be marked adjacent to the UN number and Proper Shipping Name required by (a), above. The requirement does not apply to:

- consignments of only one package;
- consignments of multiple packages with identical dangerous goods contents (i.e. each package with same UN number, proper shipping name, packing group, and quantity);
- ID 8000, Consumer commodity and Radioactive material (Class 7).

...  
7.1.5.5 Size  
7.1.5.5.1 The marking of the UN number and the letters "UN" as specified in 7.1.5.1(a) must be at least 12 mm high, except for packagings of 30 L or 30 kg capacity or less, when they must be at least 6 mm in height and for packagings of 5 L or 5 kg or less when they must be of an appropriate size.

Note: The mandatory size requirements for the UN number marking become effective as from 1 January 2014.

7.1.5.5.2 Package and overpack use markings 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.

...  
7.2 Labelling  
...

7.2.4 Handling Labels  
...

7.2.4.3 Cryogenic Liquids (Refrigerated Liquefied Gases)  
The “Cryogenic Liquids” handling label (see Figure 7.4.D) must be used in addition to the Non-flammable gas (Division 2.2) hazard label on packages and overpacks containing cryogenic liquids referenced to Packing Instruction 202.

7.2.4.4 Package Orientation  
Either the “Package Orientation” (This Way Up) labels (see Figure 7.4.E and Figure 7.4.F) or pre-printed package orientation labels meeting the same specifications as Figure 7.4.E or Figure 7.4.F (ISO Standard 780:1997) must be used on combination packagings and overpacks containing liquid dangerous goods. Excluded from this rule are:

- flammable liquids in inner packagings not exceeding 120 mL (4 Fl. oz) dangerous goods in inner packagings each containing not more than 120 mL with sufficient absorbent material between the inner and outer packagings to completely absorb the liquid contents;
- hermetically sealed inner packagings, each containing not more than 500 mL dangerous goods in gas tight inner packagings such as tubes, bags or vials which are opened by breaking or puncturing. Each inner packaging must not contain more than 500 mL;
- infectious substances in primary receptacles up to 50 mL; or
- 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 (see also 5.0.2.13.3).

...  

7.2.4.7 Lithium Batteries

7.2.4.7.1 Packages containing lithium batteries packed according to that meet the requirements of Section II of Packing Instructions 965 to 970 that are not subject to other additional requirements of these Regulations must bear a “Lithium Battery” handling label (see Figure 7.4.I) as required by the applicable packing instruction. The label must be a minimum dimension of 120 mm × 110 mm except labels of 74 mm × 105 mm may be used on packages containing lithium batteries where the packages are of dimensions such that they can only bear smaller labels. The label must show “Lithium metal batteries” or “Lithium ion batteries”, as applicable, and a telephone number for additional information. Where the package contains both types of batteries, the label must show “Lithium metal and lithium ion batteries”. The information on the lithium battery handling label must be in English. Additionally, if required, the wording in English may be supplemented by an accurate printed translation in another language.

7.2.4.7.2 Packages containing lithium batteries that meet the requirements of Section IB of Packing Instructions 965 and 968 must bear both a “Lithium battery” handling label shown in Figure 7.4.I and a Class 9 hazard label (Figure 7.3.V).

...

7.2.6 Affixing of Labels

...

7.2.6.2 Label Location

7.2.6.2.1 When the package dimensions are adequate, labels must be located on the same surface of the package near the Proper Shipping Name marking.

7.2.6.2.2 Labels should be affixed adjacent to the shipper's or consignee's address appearing on the package.

7.2.6.2.3 When labels identifying the primary and subsidiary risk are required, they must be affixed adjacent to each other on the same surface of the package.

[DGB/99 S07-04]

7.2.6.2.4 When different items of dangerous goods are packed in the same outer packaging and require multiple hazard labels, they must be affixed adjacent to each other.

7.2.6.2.5 Unless the package dimensions are inadequate hazard labels must be affixed at an angle of 45° (diamond shaped).

END
SECTION 8 – DOCUMENTATION

8.0 General

8.0.1 Required Documentation

Except as otherwise specified in these Regulations, a “Shipper’s Declaration for Dangerous Goods” form and an “Air Waybill” must be completed for each consignment of dangerous goods.

8.0.1.1 A “Shipper’s Declaration for Dangerous Goods” must be completed by the shipper for each consignment of dangerous goods, except as provided in 8.0.1.2.

8.0.1.2 The following articles or substances do not require a “Shipper’s Declaration for Dangerous Goods”:

- Dangerous goods in excepted quantities (see 2.6.8);
- UN 3373, Biological substance, Category B (see Packing Instruction 650);
- UN 2807, Magnetized material (see Packing Instruction 953);
- UN 1845, Carbon dioxide, solid (Dry ice) when used as a refrigerant for other than dangerous goods (see Packing Instruction 954(c));
- UN 3245, Genetically modified organisms, Genetically modified microorganisms (see Packing Instruction 959);
- Lithium ion or lithium metal batteries meeting the provisions of Section IB of Packing Instructions 965 and 968;
- Lithium ion or lithium metal batteries meeting the provisions of Section II of Packing Instructions 965-970;
- Radioactive material, excepted packages (RRE) (see 10.5.8.2.2);

Note:
All references to “Shipper’s Declaration for Dangerous Goods” in this Section also include provision of the required information by use of electronic data processing (EDP) and electronic data interchange (EDI) transmission techniques.

8.1 Shipper’s Declaration for Dangerous Goods

8.1.6 Detailed Instructions for Completing the Declaration Form

8.1.6.9 Nature and Quantity of Dangerous Goods

8.1.6.9.1 First Sequence—Identification

The Shipper’s Declaration must contain the following information for each substance or article described:

Step 1. UN number or ID number (from Column A) preceded by the prefix “UN” or “ID” as appropriate.

Step 2. Proper shipping name (from Column B) as determined by 4.1.2 and 8.1.3.

Step 3. The Class or, when assigned the Division of the goods, including for Class 1, the Compatibility Group letter (all from Column C).

Step 4. Any assigned subsidiary hazard class or division number(s) (from Column C) corresponding to the to subsidiary risk label(s) to be applied must be entered following the numerical hazard class or division and must be enclosed in brackets.

Note:
A subsidiary risk must also have to may also have to must 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—Organic peroxides
according to Table C.1 and Table C.2 respectively. The word “Class” or “Division” may be included preceding the primary and/or subsidiary hazard class or division numbers.

Step 5. The applicable packing group (Column E) for the substance or article which may be preceded by “PG” (e.g. “PG II”). For chemical kits and/or first aid kits the most stringent packing group assigned to any individual substance contained in the kit. For samples transported under the provisions of 3.11, the most stringent packing possible for the proper shipping name must be assigned (3.11.1).

8.1.6.9.2 Second Sequence—Number and Type of Packagings, Quantity of Dangerous Goods

Step 6. Number of packages (of same type and content), their type of packaging e.g. “Fibreboard box”, “steel drum”, etc., and:

(a) the net quantity of dangerous goods in each package (by volume or weight as appropriate) must be indicated for each item of dangerous goods bearing a different proper shipping name, UN/ID number or packing group. Abbreviations may be used to specify the unit of measurement for the quantity. For packages containing the same dangerous goods and quantity per package, a multiple of the quantity may be used. For example:

UN 1263, Paint, 3, PG II, 5 fibreboard boxes × 5 L

Consignments comprising packages of different quantities of the same dangerous good must be clearly identified. For example:

UN 1263, Paint, 3, PG II, 5 fibreboard boxes × 5 L, 10 fibreboard boxes × 10 L

UN packaging codes may only be used to supplement the description of the kind of package (e.g. one steel drum (1A1)).

(b) for empty uncleaned packagings containing a residue of dangerous goods, other than Class 7, must be described as such by, for example, placing the words “EMPTY UNCLEANED” or “RESIDUE LAST CONTAINED” before or after the first sequence as shown in 8.1.6.9.1. There is no requirement to show a quantity, only the number and type of packagings;

(c) 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;

(d) where the maximum quantity per package is shown as “No Limit” or has a packing instruction reference in Columns H, J or L of the List of Dangerous Goods, the quantity shown must be for dangerous goods in limited quantity with a 30 kg G limit in column H in the List of Dangerous Goods, where different dangerous goods are packed together in the same outer packaging, the net quantity of each dangerous goods followed by the gross weight of the completed package;

1. for substances, the net weight or volume, (e.g. UN 2969, UN 3291);
2. for lithium batteries packed with equipment (UN 3091 and UN 3481) in accordance with packing instruction 969 and packing instruction 966 respectively, the net quantity of battery(ies) per package; or
3. for articles, the gross weight followed by the letter “G” (e.g. UN 2794, UN 2800, UN 2990, UN 3166).

Note: If the proper shipping name indicates the physical form of the substance the unit of measurement must be in kg in the case of solids and L in case of liquids.

(e) for chemical kits or first aid kits, the total net quantity (including the unit of measure) of dangerous goods must be shown. The net weight of liquids within the kits are to be calculated on a 1 to 1 basis of their volume, i.e. 1 L equal to 1 kg;

(f) 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) × ....”. (insert the actual number of packages.);

(g) when two or more different items of dangerous goods are packed in the same outer packaging in accordance with 5.0.2.11 or 5.0.3.2, the “Q” value rounded up to the first decimal place;

**Note:**
A “Q” value does not need to be shown on the Shipper’s Declaration for carbon dioxide, solid (dry ice), dangerous goods with “No Limit” in columns I/J or K/L in Subsection 4.2 or those with the same UN Number, packing group and physical state.

(h) for dangerous goods transported in Salvage Packagings, an estimate of the remaining quantity must be entered and the words “SALVAGE PACKAGE” must be included.

(i) for explosive articles of Class 1, the net quantity indicated for each package must be supplemented with the net explosive mass (see Appendix A for the definition of net explosive mass) contained in the package followed by the unit of measurement. The abbreviations “NEQ”, “NEM” or “NEW” may be indicated in association with the value provided.

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8.1.6.11 Additional Handling Information

8.1.6.11.5 Firework Classification Reference

When fireworks of UN 0336 or UN 0337 are transported, the Shipper’s Declaration must include a classification reference(s) issued by the appropriate national authority.

The classification reference(s) must consist of the appropriate national authority’s State, indicated by the distinguishing sign for motor vehicles in international traffic (VRI Code), the appropriate national authority identification and a unique serial reference. Examples of such classification references are:

- GB/HSE123456
- D/BAM1234
- USA EX20091234

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FIGURE 8.1.N
Shipper’s Declaration Completion – Example 10

Multi-Overpacks with identical contents, but comprising both solid and liquid dangerous goods. Note this consignment comprises 16 fibreboard boxes containing a solid substance and 24 steel drums containing a liquid, split across four identical overpacks. To facilitate identification, loading and notification, the operator requires an overpack to show an identification mark (which may be any alpha-numeric format) and the total quantity of dangerous goods. The total quantity of dangerous goods should be shown by UN number. This information must also be entered on the Declaration. The total quantity on the Declaration must match the total quantities shown on the overpack.

[DGB/99 S08-01]
SECTION 9 – HANDLING

9.1 Acceptance

9.1.1 Cargo Acceptance Procedures

[...]

9.1.1.2 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.

Note: Often general names are used in the description of the content of a cargo shipment. To assist in the detection of undeclared dangerous goods, acceptance staff should check shipping documents with the general description stated on the air waybill and, if necessary, request documentary evidence from shippers that the shipment does not contain dangerous goods as indicated in Subsection 2.2.

9.1.3 Acceptance Checklist

An operator must not accept for transport aboard an aircraft a package or overpack containing dangerous goods or a freight container containing radioactive material or a unit load device or other type of pallet containing dangerous goods as described in 9.1.4 unless the operator has, by use of a checklist, verified the following:

(a) the documentation complies with the detailed requirements of Subsection 10.8 for radioactive material and Section 8 for other dangerous goods;
(b) the quantity of dangerous goods stated on the Shipper's Declaration is within the limits per package on a passenger or cargo aircraft as appropriate;
(c) the marking of the package(s), overpack(s) or freight container(s) accords with the details stated on the accompanying Shipper's Declaration and is clearly visible;
(d) where required, the letter in the packaging specification marking designating the packing group for which the design type has been successfully tested is appropriate for the dangerous goods contained within. This does not apply to overpacks where the specification marks are not visible;
(e) proper shipping names, UN numbers, labels and special handling instructions appearing on the interior package(s) are clearly visible or reproduced on the outside of an overpack;
(f) the labelling of the package(s), overpack(s) or freight container(s) is as required by 10.7.2 for radioactive material and 7.2 for other dangerous goods;
(g) the outer packaging of a combination packaging package, or the single packaging is permitted by the applicable packing instruction, and when visible, is of the type stated on the accompanying dangerous goods transport document and is permitted by the applicable packing instruction;
(h) the package or overpack does not contain different dangerous goods which require segregation according to Table 9.3.A;
(i) the package, overpack, freight container or unit load device is not leaking and there is no indication that its integrity has been compromised;
(j) the overpack does not contain package(s) bearing the “Cargo Aircraft Only” label unless:
   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 are not required to be accessible under 9.3.4.
9.2 Storage

9.2.3 Visibility of Markings and Labels

During the course of air transport, including storage, markings and labels required by these Regulations must not be covered or obscured by any part of or attachment to the packaging or any other label or marking.

9.3 Loading

9.3.1 Loading Restrictions on Flight Deck and for Passenger Aircraft

9.3.1.3 For additional requirements concerning the loading of dangerous goods for carriage by helicopters, see 9.9.

9.3.4 Loading on Cargo Aircraft

9.3.4.1 Packages or overpacks of dangerous goods bearing the “Cargo Aircraft Only” label must be loaded on for carriage by a cargo aircraft in accordance with one of the following provisions:

(a) in a Class C aircraft cargo compartment; or

(b) in a unit load device equipped with a fire detection/suppression system equivalent to that required by the certification requirements of a Class C aircraft cargo compartment as determined by the appropriate national authority (a ULD that is determined by the appropriate national authority to meet the Class C aircraft cargo compartment standards must include “Class C compartment” on the ULD tag); or

(c) in such a manner that in the event of an emergency involving such packages or overpacks, a crew member or other authorized person can access those packages or overpacks, and can handle and, where size and weight permit, separate such packages from other cargo; or

(d) external carriage by helicopter; or

(e) with the approval of the State of the operator, for helicopter operations, in the cabin (see Supplement to the ICAO Technical Instructions (Doc 9284 AN/905 Supplement), Part S-7.2.4).

Note: Cargo compartment classification is defined in Appendix A—Glossary.

9.3.4.2 When requested, packages or overpacks bearing the “Cargo Aircraft Only” label should be made available to the crew for inspection prior to departure.

9.3.4.3 The requirements of 9.3.4.1 and 9.3.4.2 do not apply to:

- substances of flammable liquids (Class 3), Packing Group III, other than those with a subsidiary risk of Class 8;
- toxic and infectious substances (Class 6) substances (Division 6.1) with no subsidiary risk other than Class 3;
- infectious substances (Division 6.2);
- radioactive materials (Class 7);
- miscellaneous dangerous goods (Class 9).

Note: When transporting goods in a non-pressurised cargo hold, there will be a large pressure differential up to 75 kPa at cruise altitudes. Packages that are filled at normal atmospheric pressure may not be capable of withstanding this pressure differential. Operators should seek confirmation from the shipper that the package is suitable.

9.3.16 Loading of Wheelchairs or other Battery Operated Mobility Aids as Checked Baggage
9.3.16.1: Wheelchairs or other battery-powered mobility aids with non-spillable wet batteries or batteries which comply with Special Provision A123, being carried with the approval of the operator as checked baggage, must be loaded as follows in accordance with 2.3.2.2.

9.3.16.2 Wheelchairs or other battery-powered mobility aids with spillable batteries, being carried with the approval of the operator as checked baggage, must be loaded as follows in accordance with 2.3.2.3.

9.3.16.3 Lithium-ion battery powered wheelchairs or other similar mobility aids being carried with the approval of the operator, 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 must be loaded in accordance with 2.3.2.4.

9.3.16.4 The pilot-in-command must be informed of the location of a wheelchair or mobility aid with an installed battery or the location of a packed battery. It is recommended that passengers make advance arrangements with each operator; also that batteries which are spillable should be fitted with spill-resistant vent caps when feasible.

9.3.16.3 Wheelchairs or other battery-powered mobility aids with non-spillable batteries, being carried with the approval of the operator as checked baggage only, must be loaded with the battery terminals insulated to prevent accidental short circuits, e.g. by being enclosed within a battery container, and the battery securely attached to the wheelchair or mobility aid. Operators must ensure that wheelchairs or other battery-powered mobility aids are carried in such a manner so as to prevent unintentional operation and that the wheelchair/mobility aid is protected from being damaged by the movement of baggage, mail, stores or cargo.

9.3.16.5 To assist the handling of wheelchairs and mobility aids with batteries, Figure 9.3.H shows an example of a label which may be used to assist in identifying 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.

…

9.3.18 Handling and Loading of Intermediate Bulk Containers (IBC)

During handling and loading of intermediate bulk containers (IBC), account must be taken of the IBC markings specified in Figure 6.8.E.

…

9.5 Provision of Information

9.5.1 Pilot-in-Command

9.5.1.1 Notification to Captain

9.5.1.1.1 As early as practicable prior to departure of the aircraft, but in no case later than when the aircraft moves under its own power, the operator of an aircraft in which dangerous goods are to be carried must:

(a) provide the pilot-in-command as soon as practicable prior to departure of the aircraft, with accurate and legible written or printed information concerning dangerous goods that are to be carried as cargo; and

(b) from 1 January 2014, provide personnel with responsibilities for operational control of the aircraft (e.g. the flight operations officer, flight dispatcher, or designated ground personnel responsible for flight operations) with the same information that is required to be provided to the pilot-in-command (e.g. a copy of the written information provided to the pilot-in-command). Each operator must specify the personnel (job title or function) to be provided this information in their operations manual and/or other appropriate manuals.

Notes:

1. This includes information about dangerous goods loaded at a previous departure point and which are to be carried on the subsequent flight.

2. Information required under 9.5.1.1.1(b) should be readily available to the operator’s personnel whose responsibilities most closely align with the duties of the flight operations officer/flight dispatcher described in ICAO Annex 6, Part I, Chapter 4.6. These personnel are intended to provide the information required by 9.6.3 to facilitate emergency response.

3. The provision in 9.5.1.1.1(b) is recommended until 1 January 2014 when it will become mandatory.
For helicopter operations, with the approval of the appropriate national authority of the State of the operator, the notification to the pilot-in-command may be abbreviated or be by other means (e.g. radio communication, as part of the working flight documentation such as a journey log or operational flight plan) where circumstances make it impractical to produce written or printed information or on a dedicated form (see Supplement to the ICAO Technical Instructions (Doc 9284 AN/905 Supplement), Part S-7;4.8).

This written information to the pilot-in-command must include the following:

(a) the Air Waybill number (when issued);
(b) the proper shipping name, supplemented with the technical or chemical group name(s) if appropriate (see 4.1.2.1(d) and 8.1.3) and UN number or ID number as listed in these Regulations. When chemical oxygen generators contained in Protective Breathing Equipment (PBE) are being transported under Special Provision A144, the proper shipping name of “Oxygen generator, chemical” must be supplemented with the statement “Air crew Protective Breathing Equipment (smoke hood) in accordance with Special Provision A144”;
(c) the class or division, and subsidiary risk(s) corresponding to label(s) applied (see also 8.1.6.9.1, Steps 4 and 5), by numerals and in the case of Class 1, the compatibility group;
(d) the Packing Group as shown on the Shipper's Declaration;
(e) (for non-radioactive material) the number of packages, the net quantity, or gross weight if applicable, of each package, except that this does not apply to dangerous goods where the net quantity or gross weight is not required on the Shipper's Declaration for Dangerous Goods (see 8.1.6.9.2, Step 6), or, when applicable, alternative written documentation and their exact loading location. For a consignment consisting of multiple packages containing dangerous goods bearing the same proper shipping name and UN number or ID number, only the total quantity and an indication of the largest and smallest package at each loading location need to be provided. For unit load devices or other types of pallets containing consumer commodities accepted from a single shipper, the number of packages and the average gross weight;
(f) (for radioactive material) the number of packages, overpacks, or freight containers, their category, their transport index, if applicable, and their exact loading location;
(g) whether the package must be carried on cargo aircraft only;
(h) the airport at which the package(s) is to be unloaded; and
(i) (where applicable) an indication that the dangerous goods are being carried under a State exemption.

Note: The following substances and articles are not required to be shown on the Notification to Captain:
- Dangerous goods in excepted quantities (REQ);
- UN 3373, Biological substance, Category B (RDS);
- UN 2807, Magnetized material (MAG);
- UN 3245, Genetically modified organisms, Genetically modified microorganisms;
- Lithium ion or lithium metal batteries meeting the provisions of Section II of Packing Instructions 965-970 (ELL ELM);
- Radioactive material, excepted packages (RRE).

Where the operator intends to make it possible for the pilot-in-command to provide a telephone number instead of the details about the dangerous goods on board the aircraft as specified in 9.5.1.3, the telephone number from where a copy of the information to the pilot-in-command can be obtained during the flight must be provided in addition to the information specified above in 9.5.1.3.1.

The dangerous goods listed in Table 9.5.A need not appear on the information provided to the pilot-in-command.

<p>| TABLE 9.5.A |
| Dangerous Goods Not Required to Appear on the Information to Pilot-in-Command (9.5.1.3.2) |</p>
<table>
<thead>
<tr>
<th>UN Number</th>
<th>Item</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>n/a</td>
<td>Dangerous goods in excepted quantities</td>
<td>2.6.1</td>
</tr>
<tr>
<td>UN 2807</td>
<td>Magnetized material</td>
<td>Packing instruction 953</td>
</tr>
<tr>
<td>UN 2908</td>
<td>Radioactive material, excepted package – empty packaging</td>
<td>10.5.8.2.2</td>
</tr>
<tr>
<td>UN 2909</td>
<td>Radioactive material, excepted package – articles manufactured from depleted uranium or natural thorium or natural uranium</td>
<td>10.5.8.2.2</td>
</tr>
<tr>
<td>UN 2910</td>
<td>Radioactive material, excepted package – limited quantity of material</td>
<td>10.5.8.2.2</td>
</tr>
<tr>
<td>UN 2911</td>
<td>Radioactive material, excepted package – instruments or articles</td>
<td>10.5.8.2.2</td>
</tr>
<tr>
<td>UN 3090</td>
<td>Lithium metal batteries (including lithium alloy batteries) when meeting the requirements of Section II of Packing Instruction 968</td>
<td>Packing Instruction 968, Section II</td>
</tr>
<tr>
<td>UN 3091</td>
<td>Lithium metal batteries contained in equipment (including lithium alloy batteries) when meeting the requirements of Section II of Packing Instruction 970</td>
<td>Packing Instruction 970, Section II</td>
</tr>
<tr>
<td>UN 3091</td>
<td>Lithium metal batteries packed with equipment (including lithium alloy batteries) when meeting the requirements of Section II of Packing Instruction 969</td>
<td>Packing Instruction 969, Section II</td>
</tr>
<tr>
<td>UN 3245</td>
<td>Genetically modified micro-organisms or Genetically modified organisms</td>
<td>Packing Instruction 959</td>
</tr>
<tr>
<td>UN 3373</td>
<td>Biological substance, Category B</td>
<td>Packing Instruction 650</td>
</tr>
<tr>
<td>UN 3480</td>
<td>Lithium ion batteries (including lithium polymer batteries) when meeting the requirements of Section II of Packing Instruction 965</td>
<td>Packing Instruction 965, Section II</td>
</tr>
<tr>
<td>UN 3481</td>
<td>Lithium ion batteries contained in equipment (including lithium polymer batteries) when meeting the requirements of Section II of Packing Instruction 967</td>
<td>Packing Instruction 967, Section II</td>
</tr>
<tr>
<td>UN 3481</td>
<td>Lithium ion batteries packed with equipment (including lithium polymer batteries) when meeting the requirements of Section II of Packing Instruction 966</td>
<td>Packing Instruction 966, Section II</td>
</tr>
</tbody>
</table>

**Editorial note: renumber subsequent paragraphs.**

...  

**9.5.1.5** For UN 3480 (Lithium ion batteries) and UN 3090 (lithium metal batteries), only the UN number, proper shipping name, class, total quantity at each loading location, and whether the package must be carried on a cargo only aircraft need be provided. UN 3480 (Lithium ion batteries) and UN 3090 (lithium metal batteries) carried under a State exemption must meet all of the requirements in 9.5.1.1.1.  

...  

**9.5.1.4.4 9.5.1.7** The information to the pilot-in-command must also include signed confirmation, or some other indication, from the person responsible for loading the aircraft, that there was no evidence of any damage to or leakage from the packages or any leakage from the unit load devices loaded on the aircraft.  

...  

**9.5.1.4.6 9.5.1.9** A legible copy of the information to the pilot-in-command must be retained on the ground. This copy must have an indication on it or with it that the pilot-in-command has received the information. The A copy, or the information contained in the notice to the pilot-in-command, it must be readily accessible to the airport of last departure and next scheduled arrival, until after the flight to which the information refers, flight operations officer, flight dispatcher, or designated ground personnel responsible for flight operations until after the arrival of the flight.  

...  

**9.5.1.2 Emergency Response Information**
The operator must ensure that for consignments requiring a Shipper’s Declaration for Dangerous Goods, appropriate information is immediately available at all times for use in emergency response to accidents and incidents involving dangerous goods in air transport. The information must be available to the pilot-in-command and can be provided by:

- The Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods (ICAO Doc.9481–AN/928); or
- any other document, which provides similar appropriate information concerning dangerous goods on board.

**Note:**

... All of the following moved to Section 1.

### 9.5.2 Information to Operator Employees

9.5.2.1 An operator must provide, in the operator’s operations and/or other appropriate manuals, information to employees so as to enable flight crews and other employees to carry out their responsibilities with regard to dangerous goods. Where applicable, this information must also be provided to ground handling agents. This information must include:

- for passenger handling staff and cabin crew the procedures to be followed to alert passengers that certain items of dangerous goods are specifically prohibited from being in checked baggage, e.g. spare lithium batteries (see Subsection 2.3) and must be removed from baggage where items of carry-on baggage cannot be accommodated in the cabin;
- the action to be taken in the event of emergencies involving dangerous goods;
- details of the location and identification of cargo holds;
- the maximum quantity of dry ice permitted in each compartment; and
- if radioactive material is to be carried, instructions on the loading of such dangerous goods, based on the requirements of 9.3.10.

9.5.2.2 In addition to the above, it is recommended that the operator’s operations and/or other appropriate manuals should contain information specific to dangerous goods permitted in passenger and crew baggage as permitted by Subsection 2.3. The information in the operator’s manuals should address:

- **approval process.** It is recommended that a single company policy be set out that identifies the items that have been approved and the person(s) or department(s) responsible for determining how dangerous goods in passenger baggage may be approved;
- **communication.** It is recommended that the operator define how approvals for dangerous goods requiring operator approval are communicated to the airport(s) of departure. It is recommended that operators consider a process where such approval is included in the passenger(s) electronic record;
- **limitations.** The operator manuals should specify any limitations or procedural requirements that may apply to particular commodities, e.g. inspection at check-in by passenger service agents and/or security;
- **interlining.** Where the operator has interline agreements with code-share and/or alliance partners the operator should identify what the procedure is for obtaining the approval of the other airline(s) involved, e.g. by advising the passenger that they must obtain approval from the other operator;
- **awareness.** The operator should ensure that all staff who have an interaction with passengers, (i.e. reservations agents, passenger service agents, cabin crew and flight crew) are made aware of the process employed to ensure that the operator approval process remains effective.

### 9.5.3 Provision of Information to Passengers

9.5.3.1 An operator must ensure that information as to the types of dangerous goods which a passenger is forbidden from transporting aboard an aircraft is provided at the point of ticket purchase. Information provided via the Internet may be in text or pictorial form but should must be such that ticket purchase cannot be completed
until the passenger, or a person acting on their behalf, has indicated that they have understood the restrictions on dangerous goods in baggage.

9.5.3.2 An operator or the operator's handling agent and the airport operator must ensure that notices warning passengers as to the type of dangerous goods which are forbidden for transport aboard an aircraft are available and:

(a) must be prominently displayed in sufficient number at each of the places at an airport where:
   - tickets are issued,
   - passengers checked in,
   - aircraft boarding areas,

(b) prominently displayed at any other location where passengers are checked in; and

(c) should be prominently displayed in sufficient numbers in baggage claim areas.

9.5.3.2.1 These notices must include visual examples of dangerous goods forbidden from transport aboard an aircraft.

9.5.3.3 An operator, of passenger aircraft, should have information on those dangerous goods which may be carried by passengers in accordance with 2.3.2 to 2.3.5 available prior to the check-in process on their web sites or other sources of information.

9.5.3.4 When provision is made for the check-in process to be completed remotely (e.g. via the Internet), the operator should ensure that information on the types of dangerous goods which a passenger is forbidden to transport aboard a plane is provided to passengers. Information may be in text or pictorial form but must be such that the check-in process cannot be completed until the passenger, or a person acting on their behalf, has indicated that they have understood the restrictions on dangerous goods in baggage.

9.5.3.5 When provision is made for the check-in process to be completed at an airport by a passenger without the involvement of any other person (e.g. automated check-in facility), the operator or the airport operator should ensure that information on the types of dangerous goods which a passenger is forbidden to transport aboard an aircraft is provided to passengers. Information should be in pictorial form and must be such that the check-in process cannot be completed until the passenger has indicated that they have understood the restrictions on dangerous goods in baggage.

Note:
The provisions in 9.5.3.1, 9.5.3.4 and 9.5.3.5 with respect to ticket purchase and check-in on operator websites will become mandatory with effect 1 January 2013.

…

9.6 Reporting

…

9.6.2 Undeclared or Mis-Declared Dangerous Goods

An operator must report any occasion when undeclared or mis-declared dangerous goods are discovered in cargo or mail. Such a report must be made to the appropriate authorities of the State of the operator and the State in which this occurred. An operator must also report any occasion when dangerous goods not permitted under Subsection 2.3 are discovered in passengers' baggage—either in the baggage or on the person of passengers or crew members. Such a report must be made to the appropriate authority of the State in which this occurred.

…
9.6.4 Reporting of Dangerous Goods Occurrences

An operator must report to the appropriate authorities of the State of the operator and the State of origin any occasion when:

(a) dangerous goods are discovered to have been carried when not loaded, segregated, separated and secured in accordance with 9.2 or 9.3; or

(b) dangerous goods are discovered to have been carried without information having been provided to the Pilot-in-Command in accordance with 9.5.1.1.

Note:
Entities other than operators who are in possession of dangerous goods at the time a dangerous goods accident or incident occurs or at the time a dangerous goods incident is discovered to have occurred should follow the reporting requirements of 9.6.1. Entities other than operators who discover undeclared or misdeclared dangerous goods should follow the reporting requirements of 9.6.2. These entities may include, but are not limited to, freight forwarders, customs authorities and security screening providers.

9.8 Retention of Documents

9.8.1 The operator must ensure that at least one copy of the documents or information, appropriate to the transport by air of a dangerous goods consignment, is retained for a minimum period of three months after the flight on which the dangerous goods were transported. As a minimum, the documents or information which must be retained are the Shipper’s Declaration for Dangerous Goods and other applicable transport documents, the acceptance checklist (when this is in a form which requires physical completion), and the written information to the pilot-in-command and, for shipments offered under Section IB of Packing Instructions 965 and 968, the alternative documentation, if applicable, or information provided on it. These documents or the information must be made available to the appropriate national authority upon request.

Note:
Where the documents are kept electronically or in a computer system, they should be capable of being reproduced in a printed manner.

9.8.2 For each package or overpack containing dangerous goods or freight container containing radioactive material or unit load device or other type of pallet containing dangerous goods as described in 9.1.4 that was not accepted by an operator, due to an error or omission by the shipper in packaging, labelling, marking or documentation, a copy of the documentation as well as the checklist (when this is in a form which requires physical completion) should be retained for a minimum period of three months after the completion of the acceptance checklist.

Note:
Where the documents are kept electronically or in a computer system, they should be capable of being reproduced in a printed manner.

9.9 Helicopter Operations

9.9.1 Due to the differences in the type of operations carried out by helicopters compared with aeroplanes, there may be circumstances when the full provisions of these Regulations are not appropriate or necessary, due to the operations involving unmanned sites, remote locations, mountainous areas or construction sites etc. In such circumstances and when appropriate, the State of the operator may grant an approval in order to permit the carriage of dangerous goods without all of the normal requirements of these Regulations being fulfilled. When States other than the State of the operator have lodged a variation that they require prior approval of such operations, approval must also be obtained from the States of origin and destination, as appropriate.

9.9.2 When loading dangerous goods for open external carriage by a helicopter, consideration should also be given to the type of packaging used and to the protection of those packagings, where necessary, from the effects of airflow and weather (e.g. by damage from rain or snow), in addition to the general loading provisions of 9.3.

9.9.3 When dangerous goods are carried suspended from a helicopter, the operator must ensure that consideration is given to the dangers of static discharge upon landing or release of the load.
9.9.4 When helicopters are carrying passengers, in accordance with the Supplement to the ICAO Technical Instructions (Doc 9284 AN/905 Supplement), Part S-7.2.2.4, the State of the operator may grant an approval to permit the carriage of dangerous goods either:

a) in the cabin, when those dangerous goods are associated with and accompanied by the passengers; or

b) in cargo compartments that do not meet the requirements of 9.3.1.1.

Note:
The requirements in this subsection are in addition to the other provisions of these Regulations that apply to all operators (e.g. 1.4 and 1.5).
10.4 Identification

10.4.1 Proper Shipping Name

10.4.1.1 Radioactive material must be assigned to one of the proper shipping names/UN numbers specified in Table 10.4.A depending on the activity level of the radionuclides contained in a package, the fissile or non-fissile properties of these radionuclides, the type of package to be presented for transport, and the nature or form of the contents of the package, or special arrangements governing the transport operation, in accordance with the provisions laid down in 10.3.2 to 10.3.11.

10.4.1.2 Guidance on the correct assignment of proper shipping names is provided in Table 10.4.B. To assist users with the table the paragraph references associated with each decision point have been included.

[Editorial Note: the DGR paragraph references will be included once the new image for the table is developed.]
Activities $\leq A$ (428, Table 2)

By Air

Fissile (222, 417)

Activity $\leq A_2$ (428, Table 2)

No

Special Form (239, 415)

Yes

Activity $\leq A_1$ (428, Table 2)

No

Fissile (222, 417)

Yes

(Continued from previous page)

Activities $\leq A$ (para. 433)
(a) For LDRM $^{(5)}$ — as authorized for the package design as specified in the certificate of approval;
(b) For special form radioactive material — $3000A_1$ or $100~000A_2$, whichever is the lower; or
(c) For all other radioactive material — $3000A_2$.

Yes

No

Transport prohibited but see Special Arrangement

Special Arrangement (310):
Radioactive material for which classification into one of the above UN numbers is impractical may be transported subject to competent authority approval.

Fissile (222, 417)

Yes

No

(1) $\leq$: Less than or equal to.
(2) $A_c$: Activity limit for an exempt consignment in Table 1 of the Regulations.
(3) $A_c$: Activity concentration for exempt material in Table 1 of the Regulations.
(4) The number in (): The paragraph number or table of the Regulations.
(5) Manuf. U/Th: Articles manufactured from natural uranium or depleted uranium or natural thorium.
(6) LDRM: Lower Dispersible Radioactive Material.
10.7 Marking and Labelling

10.7.1 Marking

...

10.7.1.3 Required Markings

...

10.7.1.3.3 Industrial Package Specification Markings Identification

...

10.7.1.3.4 Type A Package Specification Markings Identification

...

Etc.

10.7.1.4 Markings for Overpacks

...

10.7.1.4.2 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 radioactive material, as required by 10.7.3.4.

...

10.8.8.3 Excepted Packages

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10.8.8.3.3 For excepted packages of radioactive material, the UN Number(s) preceded by “UN”, the proper shipping name(s) and the number of packages (unless these are the only packages within the consignment) must be shown in the “Nature and Quantity of Goods” box of the Air Waybill. The preferred format is with the UN number shown first, followed by the proper shipping name. Where an agreement exists with the operator, the shipper may provide the information by EDP or EDI techniques.
APPENDIX A – GLOSSARY

APPROVAL An authorization granted by the appropriate national authority for:

(a) the transport of those entries listed in Subsection 4.2, List of Dangerous Goods as dangerous goods forbidden on passenger and/or cargo aircraft to which Special Provisions A1 or A2 have been assigned in Column M where these Regulations state that goods may be carried with an approval; or

(b) other purposes as specified provided for in these Regulations.

Note: In the absence of a specific reference in these Regulations allowing the granting of an approval, an exemption may be sought.

ARTICLES, EXPLOSIVE, EXTREMELY INSENSITIVE (ARTICLES, EEI) Articles that contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation under normal conditions of transport.

Note: An extremely insensitive detonating substance is one which, although capable of sustaining a detonation, has demonstrated through tests that it is so insensitive that there is very little probability of accidental initiation.

AUXILIARY EXPLOSIVE COMPONENT, isolated. An "isolated auxiliary explosive component" is a small device that explosively performs an operation related to the article’s functioning, other than its main explosive loads’ performance. Functioning of the component does not cause any reaction of the main explosive loads contained within the article.

BATTERY A battery is one or more cells which are electrically connected together by a permanent means. A cell is a single encased electrochemical unit, which exhibits a voltage differential across its two terminals.

DESIGNATED POSTAL OPERATOR Any governmental or non-governmental entity officially designated by a Universal Postal Union (UPU) member country to operate postal services and to fulfill the related obligations arising from the acts of the Convention on its territory.

EXEMPTION Authorization, other than an approval, issued granted by an appropriate national authority of all States concerned providing relief from the provisions of these Regulations. The requirements for exemptions are given in 1.2.5 1.2.6.

EXPLOSIVE, EXTREMELY INSENSITIVE DETONATING SUBSTANCE (EIDS EIS). A substance which, although capable of sustaining a detonation, has demonstrated through tests that it is so insensitive that there is very little probability of accidental initiation.

EXTERNAL CARRIAGE. Any load suspended from a helicopter or in equipment attached to a helicopter.

FLIGHTOPERATIONSOFFICER A person designated by the operator to engage in the control and supervision of flight operations, whether licensed or not, suitably qualified, who supports, briefs and/or assists the pilot-in-command in the safe conduct of the flight.
LITHIUM BATTERY “Battery” means two or more cells which are electrically connected together and fitted with devices necessary for use, for example, case, terminals, marking and protective devices. A single cell lithium battery is considered a “cell” and must be tested according to the testing requirements for “cells” for the purposes of these Regulations and the provisions of subsection 38.3 of the UN Manual of Tests and Criteria (see also the definition for "cell").

Note: Units that are commonly referred to as “battery packs”, “modules” or “battery assemblies” having the primary function of providing a source of power to another piece of equipment are for the purposes of these Regulations and the provisions of Subsection 38.3 of the UN Manual of Tests and Criteria treated as batteries.

The term “lithium battery” refers to a family of different chemistries, comprising many types of cathodes and electrolytes. For the purposes of the Regulations they are separated into:

- Lithium metal batteries. Are normally primary (non-rechargeable) batteries that have lithium metal or lithium compounds as an anode. The most common type of lithium cell used in consumer applications uses metallic lithium as anode and manganese dioxide as cathode, with a salt of lithium dissolved in an organic solvent; and

- Lithium-ion batteries (sometimes abbreviated Li-ion batteries). Are a type of secondary (rechargeable) battery commonly used in consumer electronics. Also included within lithium-ion batteries are lithium polymer batteries.

LITHIUM CELLS — see LITHIUM BATTERY A single encased electrochemical unit (one positive and one negative electrode) which exhibits a voltage differential across its two terminals. Under these Regulations and the UN Manual of Tests and Criteria, to the extent the encased electrochemical unit meets the definition of “cell” herein, it is a “cell”, not a “battery”, regardless of whether the unit is termed a “battery” or a “single cell battery” outside of these Regulations and the UN Manual of Tests and Criteria

NET QUANTITY The weight or volume of the dangerous goods contained in a package excluding the weight or volume of any packaging material, except in the case of explosive articles and matches where the net weight is the weight of the finished article excluding packagings. 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” the net quantity is the weight of the fire extinguisher. 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.

NOT RESTRICTED Means not subject to or restricted by these Regulations, except otherwise stated.

PREMIXING BURNER LIGHTER Gas lighter in which fuel and air are mixed before being supplied for combustion, such as lighters producing a blue flame

SALVAGE PRESSURE RECEPTACLE means a pressure receptacle with a water capacity not exceeding 1,000 L into which are placed damaged, defective, leaking or non-conforming pressure receptacle(s) for the purpose of transport e.g. for recovery or disposal.

Not permitted for air transport.

STATE OF DESTINATION The country (State) in the territory of which the consignment is finally to be unloaded from an aircraft.

STATE OF ORIGIN The country (State) in the territory of which the cargo consignment was first to be loaded on an aircraft.