International Civil Aviation Organization

DGP-WG/15-WP/13
19/3/15

WORKING PAPER

DANGEROUS GOODS PANEL (DGP) WORKING GROUP MEETING (DGP-WG/15)

Montreal, 27 April to 1 May 2015

Agenda Item 2: Development of recommendations for amendments to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) for incorporation in the 2017-2018 Edition

2.3: Part 3 — Dangerous Goods List, Special Provisions and Limited and Excepted Quantities

DRAFT AMENDMENTS TO THE TECHNICAL INSTRUCTIONS TO ALIGN WITH THE UN RECOMMENDATIONS — PART 3

(Presented by the Secretary)

SUMMARY

This working paper contains draft amendments to Part 3 of the Technical Instructions to reflect the decisions taken by the UN Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals at its seventh session (Geneva, 12 December 2014). It also reflects amendments agreed by DGP-WG14 (Rio de Janeiro, 20 to 24 October 2015).

The DGP-WG is invited to agree to the draft amendments in this working paper.

Part 3

DANGEROUS GOODS LIST, SPECIAL PROVISIONS AND LIMITED AND EXCEPTED QUANTITIES

Chapter 1

GENERAL

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1.2 PROPER SHIPPING NAME

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1.2.2 Proper shipping names may be used in the singular or plural as appropriate. In addition, when qualifying words are used as part of the proper shipping name, their sequence on documentation or package ~~markings~~ marks is optional. For instance, **"Dimethylamine solution"** may alternatively be shown as **"Solution of Dimethylamine"**. However, the entry in column 1 reflects the preferred sequence. Alternative spelling reflecting common usage around the world is acceptable for words such as **"caesium"** for **"cesium"**, **"sulfur"** for **"sulphur"**, **"aluminum"** for **"aluminium"**, etc. However, the spelling appearing in Table 3-1 is preferred.

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Table 3-1. Dangerous Goods List

See Appendix A for proposed changes to Table 3-1

DGP-WG/15 is invited to pay particular attention to revisions to the entries for:

a) Polyester resin kits: A new entry for UN 3527 **Polyester resin kits**, solid base material classified as Division 4.1 and the addition of "liquid base material" to the name for UN 3269 **Polyester resin kits.** A specific packing instruction is currently assigned to UN 3269. The working group is invited to consider what revisions to Table 3-1 quantities and this packing instruction are necessary and if a specific packing instruction for the new entry, UN 3527, is necessary.

b) Revisions to entries for flammable liquid and flammable gas powered vehicles, engines, machinery etc. including new classification, new special provisions (A207, A208) and new UN Nos. The working group is invited to consider whether all special provisions currently assigned to UN 3166 remain appropriate and to review the Special Provision A208).

c) New entries for polymerizing substances and a new special provision. The working group is invited to consider whether UN 3531 and UN 3532 should be permitted on cargo aircraft.

Chapter 3

SPECIAL PROVISIONS

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UN Model Regulations, paragraph 3.3.1, ST/SG/AC.10/42/Add.1

Table 3-2 lists the special provisions referred to in column 7 of Table 3-1 and the information contained in them is additional to that shown for the relevant entry. Where the wording of the special provision is equivalent to that in the UN Model Regulations, the UN special provision number is shown in parentheses. Where a special provision includes a requirement for package marking, the provisions of Part 5;2.2 must be met. If the required mark is in the form of specific wording indicated in quotation marks, the size of the mark must be at least 12 mm, unless otherwise indicated in the special provision or elsewhere in these Instructions.

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Table 3-2. Special provisions

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UN Model Regulations, SP 225, ST/SG/AC.10/42/Add.1

A19 (225) Fire extinguishers under this entry may include installed actuating cartridges (cartridges, power device of Division 1.4C or 1.4S), without changing the classification of Division 2.2 provided the total quantity of deflagrating (propellant) explosives does not exceed 3.2 grams per extinguishing unit.

Fire extinguishers must be manufactured, tested, approved and labelled according to the provisions applied in the State of Manufacture.

Note.— Provisions applied in the State of Manufacture means the provisions applicable in the State of Manufacture or those applicable in the State of use.

Fire extinguishers under this entry include:

a) portable fire extinguishers for manual handling and operation;

b) fire extinguishers for installation in aircraft;

c) fire extinguishers mounted on wheels for manual handling;

d) fire extinguishing equipment or machinery mounted on wheels or wheeled platforms or units transported similar to (small) trailers; and

e) fire extinguishers composed of a non-rollable pressure drum and equipment, and handled, for example, by fork lift or crane when loaded or unloaded.

Cylinders which contain gases for use in the above-mentioned extinguishers or for use in stationary fire-fighting installations must meet the requirements in Part 6;5 and all requirements applicable to the relevant dangerous good when these cylinders are transported separately.

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UN Model Regulations, SP 240, ST/SG/AC.10/42/Add.1

A21 This entry only applies to vehicles powered by wet batteries, sodium batteries, lithium metal batteries or lithium ion batteries and equipment powered by wet batteries or sodium batteries which are transported with these batteries installed. Lithium batteries must meet the requirements of 2;9.3, except when otherwise provided for in these Instructions.

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 are electrically-powered cars, motorcycles, scooters, three- and four-wheeled vehicles or motorcycles, trucks, locomotives, ~~battery-assisted~~ bicycles (pedal cycles with an electric motor) and other vehicles of this type (e.g. self-balancing vehicles or vehicles not equipped with at least one seating position), wheelchairs, lawn tractors, self-propelled farming and construction equipment, boats and aircraft. This includes vehicles transported in a packaging. In this case some parts of the vehicle may be detached from its frame to fit into the packaging.

Examples of equipment are lawnmowers, cleaning machines or 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.

DGP-WG/15 is invited to consider whether the following text should be deleted. It does not appear in the 18th Revised Edition of the UN Model Regulations.

~~Vehicles or equipment that 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 **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.~~

Vehicles may contain other dangerous goods than batteries (e.g. fire extinguishers, compressed gas accumulators or safety devices) required for their functioning or safe operation without being subject to any additional requirements for these other dangerous goods, unless otherwise specified in these Instructions.

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UN Model Regulations, SP 207, ST/SG/AC.10/42/Add.1

A38 (207) ~~Polymeric beads and m~~Moulding compounds may be made from polystyrene, poly(methyl methacrylate) or other polymeric material.

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UN Model Regulations, SP 236, ST/SG/AC.10/42/Add.1

DGP-WG/15 is invited to consider the quantity limitations in Table 3-1 for UN 3269 (liquid) and 3527 (solid). The last line of Special Provision A66 is added for consistency with the Model Regulations, 18th Revised Edition.

A66 (236) Polyester resin kits consist of two components: a base material (either Class 3 or Division 4.1, Packing Group II or III) and an activator (~~Division 5.2~~organic peroxide). The organic peroxide must be type D, E or F, not requiring temperature control. The packing group must be Packing Group II or III~~ is assigned~~, according to the criteria for either Class 3 or Division 4.1, as appropriate, applies~~d~~ to the base material. [The quantity limits shown in columns 11 and 13 of Table 3-1 apply to the base material].

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DGP-WG/14 Report (see paragraph 3.2.7.2 of DGP-WG/14-WP/32):

A70 Internal combustion or fuel cell engines being shipped either separately or incorporated into a vehicle, machine or other apparatus, without batteries or other dangerous goods, are not subject to these Instructions when carried as cargo provided that:

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Multiple engines 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 shipment.

When this special provision is used, the words “not restricted” and the special provision number A70 must be provided on the air waybill when an air waybill is issued.

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UN Model Regulations, SP 310, ST/SG/AC.10/42/Add.1

DGP-WG/15 is invited to consider whether provisions for prototype and low-production batteries excepted from the UN testing requirements, in accordance with Special Provision A88 should be moved to a new packing instruction. New P910 has been added to the UN Model Regulations.

[A88 Pre-production ~~P~~prototypes of lithium batteries or cells when these prototypes are transported for testing or low production runs (i.e., annual production runs consisting of not more than 100 lithium batteries ~~or~~ and cells) lithium batteries or cells that have not been tested to the requirements in Part III, subsection 38.3 of the UN *Manual of Tests and Criteria* may be transported aboard cargo aircraft if approved by the appropriate authority of the State of Origin and the ~~following~~ requirements in Packing Instruction 973 are met.~~:~~

~~a) except as provided in paragraph c), cells or batteries must be transported in an outer packaging that is a metal, plastic or plywood drum or a metal, plastic or wooden box and that meets the criteria for Packing Group I packagings;~~

~~b) except as provided in paragraph c), each cell or battery must be individually packed in an inner packaging inside an outer packaging and surrounded by cushioning material that is non-combustible, and non-conductive. Cells or batteries must be protected against short circuiting;~~

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~~c) 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 packed in strong outer packagings or protective enclosures not subject to the requirements of Part 6 of these Instructions. The batteries or battery assemblies must be protected against short circuiting; and~~

~~d) a~~ A copy of the document of approval showing the quantity limitations and the statement "Transport in accordance with Special Provision A88" must accompany the consignment.

Irrespective of the limit specified in column 13 of Table 3-1, the battery or battery assembly as prepared for transport may have a mass exceeding 35 kg G.]

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UN Model Regulations, SP 244, ST/SG/AC.10/42/Add.1

A102 (244) This listing includes aluminium dross, aluminium skimmings, spent cathodes, spent potliner and aluminium salt slags.

Before loading, these by-products must be cooled to ambient temperature, unless they have been calcined to remove moisture.

UN Model Regulations, SP 204, ST/SG/AC.10/42/Add.1

A132 (204) Articles containing smoke-producing substance(s) corrosive according to the criteria for Class 8 must be labelled with a "Corrosive" subsidiary risk label. Articles containing smoke-producing substance(s) toxic by inhalation according to the criteria for Division 6.1 must be labelled with a "TOXIC" subsidiary risk label (Figure 5-17), except that those manufactured before 31 December 2016 may be carried until 1 January 2019 without a "TOXIC" subsidiary label.

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UN Model Regulations, SP 312, ST/SG/AC.10/42/Add.1

A134 (312) 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, lithium metal batteries or lithium ion batteries, transported with the battery(ies) installed.

Lithium batteries must meet the requirements of 2;9.3, except when otherwise provided for in these Instructions.

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DGP-WG/14 Report (see paragraph 3.2.7.2 of DGP-WG/14-WP/32):

A151 When dry ice is used as a refrigerant for other than dangerous goods loaded in a unit load device ~~or other type of pallet~~, the quantity limits per package shown in columns 11 and 13 of Table 3-1 for dry ice do not apply. In such case, the unit load device ~~or other type of pallet~~ must be identified to the operator and must allow the venting of the carbon dioxide gas to prevent a dangerous build-up of pressure.

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UN Model Regulations, SP 373, ST/SG/AC.10/42/Add.1

A190 (373) Neutron radiation detectors containing non-pressurized boron trifluoride gas in excess of 1 g and radiation detection systems containing neutron radiation detectors as components may be transported on cargo aircraft in accordance with all applicable requirements of these Instructions irrespective of the indication of "forbidden" in columns 12 and 13 of Table 3-1 and with "Toxic gas" and "Corrosive" labels displayed on each package irrespective of no labels being indicated in column 5, provided the following conditions are met:

a) each radiation detector must meet the following conditions:

i) the pressure in each neutron radiation detector must not exceed 105 kPa absolute at 20°C;

ii) the amount of gas must not exceed 13 grams per detector;

iii) each detector must be manufactured under a registered quality assurance programme;

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

iv) each neutron radiation detector must be of welded metal construction with brazed metal to ceramic feed through assemblies. These detectors must have a minimum burst pressure of 1 800 kPa as demonstrated by design type qualification testing; and

v) each detector must be tested to a 1 x 10^{-10} cm^3/s leaktightness standard before filling.

b) radiation detectors transported as individual components must be transported as follows:

i) they must be packed in a sealed intermediate plastic liner with sufficient absorbent or adsorbent material to absorb or adsorb the entire gas contents;

ii) they must be packed in strong outer packagings and the completed package must be capable of withstanding a 1.8 m drop test without leakage of gas contents from detectors; and

iii) the total amount of gas from all detectors per outer packaging must not exceed 52 grams.

c) completed neutron radiation detector systems containing detectors meeting the conditions of sub-paragraph a) must be transported as follows:

i) the detectors must be contained in a strong sealed outer casing;

ii) the casing must contain sufficient absorbent or adsorbent material to absorb or adsorb the entire gas contents; and

iii) the completed system must be packed in strong outer packagings capable of withstanding a 1.8 m drop test without leakage unless a system's outer casing affords equivalent protection.

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UN Model Regulations, SP 369, ST/SG/AC.10/42/Add.1

A194 (369) In accordance with Part 2, Introductory Chapter, paragraph 4, this radioactive material in an excepted package possessing toxic and corrosive properties is classified in ~~Class 8~~ Division 6.1 with ~~a~~ radioactive material and corrosive subsidiary risks.

Uranium hexafluoride may be classified under this entry only if the conditions of 2;7.2.4.1.1.2, 2;7.2.4.1.1.5, 2;7.2.4.5.2 and, for fissile-excepted material, of 2;7.2.3.6 are met.

In addition to the provisions applicable to the transport of ~~Class 8~~ Division 6.1 substances with a corrosive subsidiary risk, the provisions of 5;1.2.2.2, 5;1.6.3, 7;1.6 and 7;3.2.1 to 7;3.2.4 apply.

No Class 7 label is required to be displayed.

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UN Model Regulations, SP 378, ST/SG/AC.10/42/Add.1

A202 (378) Radiation detectors containing this gas in non-refillable cylinders not meeting the requirements of Part 6;5 and Packing Instruction 200 may be transported under this entry provided:

a) the working pressure in each cylinder does not exceed 50 bar;

b) the cylinder capacity does not exceed 12 L;

c) each cylinder has a minimum burst pressure of at least three times the working pressure when a relief device is fitted and at least four times the working pressure when no relief device is fitted;

d) each cylinder is manufactured from material which will not fragment upon rupture;

e) each detector is manufactured under a registered quality assurance programme;

Note.— ISO 9001:2008 may be used for this purpose.

f) detectors are transported in strong outer packagings. The complete package must be capable of withstanding a 1.2 m drop test without breakage of the detector or rupture of the outer packaging. Equipment that includes a detector must be packed in a strong outer packaging unless the detector is afforded equivalent protection by the equipment in which it is contained; and

g) the transport document includes the following statement "Transport in accordance with Special Provision A202".

Radiation detectors, including detectors in radiation detection systems, are not subject to any other requirements of these Instructions if the detectors meet the requirements in a) to f) above and the capacity of detector cylinders does not exceed 50 mL.

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UN Model Regulations, SP 380, ST/SG/AC.10/42/Add.1

A203 (380) If a vehicle is powered by a flammable liquid and a flammable gas internal combustion engine, it must be assigned to UN No. 3166 — **Vehicle, flammable gas powered**.

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UN Model Regulations, SP 382, ST/SG/AC.10/42/Add.1

A204 (382) Polymeric beads may be made from polystyrene, poly (methyl methacrylate) or other polymeric material. When it can be demonstrated that no flammable vapour, resulting in a flammable atmosphere, is evolved according to test U1 (Test method for substances liable to evolve flammable vapours) of Part III, sub-section 38.4.4 of the *Manual of Tests and Criteria*, polymeric beads, expandable need not be classified under this UN number. This test should only be performed when de-classification of a substance is considered.

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UN Model Regulations, SP 383, ST/SG/AC.10/42/Add.1

A205 (383) Table tennis balls manufactured from celluloid are not subject to these Instructions where the net mass of each table tennis ball does not exceed 3.0 g and the total net mass of table tennis balls does not exceed 500 g per package.

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UN Model Regulations, SP 384, ST/SG/AC.10/42/Add.1

A206 (384) The text from the Model Regulations (i.e. “SP 384: The label used is Model No 9A, see 5.2.2.2.2”) has been modified as follows:

The hazard label must conform to the model shown in Figure 5-25.

Note.— Figure 5-24 may continue to be used until 31 December 2018.

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UN Model Regulations, SP 385, ST/SG/AC.10/42/Add.1

A207 (385) This entry applies to vehicles powered by flammable liquid or gas internal combustion engines or fuel cells.

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 batteries installed must be consigned under this entry. Vehicles powered by wet batteries, sodium batteries, lithium metal batteries or lithium ion batteries, transported with the batteries installed, must be consigned under the entry UN No. 3171 — **Battery-powered vehicle** (see Special Provision A21).

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 are cars, motorcycles, trucks, locomotives, scooters, three- and four-wheeled vehicles or motorcycles, lawn tractors, self-propelled farming and construction equipment, boats and aircraft.

Dangerous goods such as batteries, air bags, fire extinguishers, compressed gas accumulators, safety devices and other integral components of the vehicle that are necessary for the operation of the vehicle or for the safety of its operator or passengers, must be securely installed in the vehicle and are not otherwise subject to these Instructions. However, lithium batteries must meet the requirements of 2;9.3, except when otherwise specified by these Instructions.

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UN Model Regulations, SP 363, ST/SG/AC.10/42/Add.1

DGP-WG/15 is invited to consider whether:

a) Notes 1 and 2 of sub-paragraph b) are appropriate, recognizing the current provisions in Packing Instructions 950 and 951 for draining/emptying.
b) The provisions in sub-paragraphs g) iv) and v) should be deleted, recognizing the draining/emptying provisions in Packing Instructions 950 and 951.
b) The exception from the transport document provided in sub-paragraph g) vi) is appropriate.

[A208 (363) a) This entry applies to engines or machinery, powered by fuels classified as dangerous goods via internal combustion systems or fuel cells (e.g. combustion engines, generators, compressors, turbines, heating units), except those which are assigned under UN No. 3166 or UN No. 3363.

b) Engines or machinery which are empty of liquid or gaseous fuels and which do not contain other dangerous goods, are not subject to these Instructions.

[Note 1.— An engine or machinery is considered to be empty of liquid fuel when the liquid fuel tank has been drained and the engine or machinery cannot be operated due to a lack of fuel. Engine or machinery components such as fuel lines, fuel filters and injectors do not need to be cleaned, drained or purged to be considered empty of liquid fuels. In addition, the liquid fuel tank does not need to be cleaned or purged.]

[Note 2.— An engine or machinery is considered to be empty of gaseous fuels when the gaseous fuel tanks are empty of liquid (for liquefied gases), the positive pressure in the tanks does not exceed 2 bar and the fuel shut-off or isolation valve is closed and secured.]

c) Engines and machinery containing fuels meeting the classification criteria of Class 3, must be consigned under the entries UN No. 3528 — **Engine, internal combustion, flammable liquid powered** or UN No. 3528 — **Engine, fuel cell, flammable liquid powered** or UN No. 3528 — **Machinery, internal combustion, flammable liquid powered** or UN No. 3528 — **Machinery, fuel cell, flammable liquid powered**, as appropriate.

d) Engines and machinery containing fuels meeting the classification criteria of Division 2.1, must be consigned under the entries UN No. 3529 — **Engine, internal combustion, flammable gas powered** or UN No. 3529 — **Engine, fuel cell, flammable gas powered** or UN No. 3529 — **Machinery, internal combustion, flammable gas powered** or UN No. 3529 — **Machinery, fuel cell, flammable gas powered**, as appropriate.

Engines and machinery powered by both a flammable gas and a flammable liquid must be consigned under the appropriate UN No. 3529 entry.

e) Engines and machinery containing liquid fuels meeting the classification criteria for environmentally hazardous substances and not meeting the classification criteria of any other class or division, must be consigned under the entries UN No. 3530 — **Engine, internal combustion** or UN No. 3530 — **Machinery, internal combustion**, as appropriate.

f) Engines or machinery may contain other dangerous goods than fuels (e.g. batteries, fire extinguishers, compressed gas accumulators or safety devices) required for their functioning or safe operation without being subject to any additional requirements for these other dangerous goods, unless otherwise specified in these Instructions. However, lithium batteries must meet the requirements of 2;9.3, except when otherwise specified by these Instructions.

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g) The engines or machinery are not subject to any other requirements of these Instructions if the following requirements are met:

i) The engine or machinery, including the means of containment containing dangerous goods, must be in compliance with the construction requirements specified by the appropriate national authority;

ii) Any valves or openings (e.g. venting devices) must be closed during transport;

iii) The engines or machinery must be oriented to prevent inadvertent leakage of dangerous goods and secured by means capable of restraining the engines or machinery to prevent any movement during transport which would change the orientation or cause them to be damaged;

~~iv) for UN No. 3528 and UN No. 3530:~~

~~[Where the engine or machinery contains more than 60 L of liquid fuel and has a capacity of not more than 450 L, the labelling requirements of 5;3 must apply.~~

~~Where the engine or machinery contains more than 60 L of liquid fuel and has a capacity of more than 450 L but not more than 3 000 L, it must be labelled on two opposing sides in accordance with 5;3.~~

~~Where the engine or machinery contains more than 60 L of liquid fuel and has a capacity of more than 3 000 L, it must be placarded on two opposing sides in accordance with 5.3.1.1.2;]~~

~~v) for UN No. 3529:~~

~~Where the fuel tank of the engine or machinery has a water capacity of not more than 450 L, the labelling requirements of 5;3 must apply.~~

~~Where the fuel tank of the engine or machinery has a water capacity of more than 450 L but not more than 1 000 L, it must be labelled on two opposing sides in accordance with 5.2.2.~~

~~Where the fuel tank of the engine or machinery has a water capacity of more than 1 000 L, it must be placarded on two opposing sides in accordance with 5.3.1.1.2;~~

vi) A transport document in accordance with 5;4 is required, [except for UN No. 3528 and UN No. 3530, where a transport document is only required when the engine or machinery contains more than 60 L of liquid fuels]. This transport document must contain the following additional statement "Transport in accordance with Special Provision 208.]

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UN Model Regulations, SP 386, ST/SG/AC.10/42/Add.1

A209 (386) Substances which are stabilized by temperature control are forbidden for transport by air unless under an exemption. When chemical stabilization is employed, the person offering the packaging for transport must ensure that the level of stabilization is sufficient to prevent the substance in the packaging from dangerous polymerization at a bulk mean temperature of 50°C. Where chemical stabilization becomes ineffective at lower temperatures within the anticipated duration of transport, temperature control is required and the substances are forbidden for transport by air unless under an exemption. In making this determination, factors to be taken into consideration include, but are not limited to, the capacity and geometry of the packaging and the effect of any insulation present, the temperature of the substance when offered for transport, the duration of the journey and the ambient temperature conditions typically encountered in the journey (considering also the season of year), the effectiveness s and other properties of the stabilizer employed, applicable operational controls imposed by regulation (e.g. requirements to protect from sources of heat, including other cargo carried at a temperature above ambient) and any other relevant factors.

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Chapter 4

DANGEROUS GOODS IN LIMITED QUANTITIES

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UN Model Regulations, Chapter 3.4, ST/SG/AC.10/42/Add.1

4.5 PACKAGE MARKING

4.5.1 Packages containing limited quantities of dangerous goods must be marked as required by the applicable paragraphs of 5;2, except that 5;2.4.4.1 does not apply.

4.5.2 Packages containing limited quantities of dangerous goods and prepared in accordance with this chapter must bear the ~~marking~~ mark shown in Figure 3-1 below. The ~~marking~~mark must be readily visible, legible and able to withstand open weather exposure without a substantial reduction in effectiveness. The ~~marking~~ mark must be in the form of a square set at an angle of 45°(diamond shaped). The top and bottom portions and the surrounding line must be black. The centre area must be white or a suitable contrasting background. The minimum dimension must be 100 mm × 100 mm and the minimum width of the line forming the diamond must be 2 mm. The symbol "Y" must be placed in the centre of the mark and must be clearly visible. Where dimensions are not specified, all features must be in approximate proportion to those shown.

4.5.2.1 If the size of the package so requires, the minimum outer dimensions shown in Figure 3-1 may be reduced to be not less than 50 mm × 50 mm provided the ~~marking~~ mark remains clearly visible. The minimum width of the line forming the diamond may be reduced to a minimum of 1 mm. The symbol "Y" must remain in approximate proportion to that shown in Figure 3-1.

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4.5.3 Use of overpacks

4.5.3.1 ~~When packages~~For an overpack containing dangerous goods packed in limited quantities, the following applies: ~~are placed in an overpack, the overpack must be marked with the word "OVERPACK" and the marking required by this chapter, u~~Unless the ~~markings~~ marks representative of all dangerous goods in the overpack are visible, the overpack must be~~.~~:

a) marked with the word "OVERPACK". The lettering of the "OVERPACK" mark must be at least 12 mm high; and

b) marked with the marks required by this chapter.

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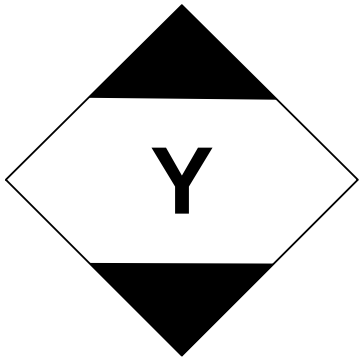

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Top and bottom portions and line must be black, centre area white or suitable contrasting background
The symbol "Y" must be placed in the centre of the mark and must be clearly visible

Minimum dimension: 100 mm × 100 mm
Minimum width of line forming diamond: 2 mm
If the packages are of such dimensions that they can only bear a smaller mark, the dimension may be reduced to be not less than 50 mm × 50 mm provided the ~~marking~~ mark remains clearly visible

Figure 3-1. Limited quantities mark

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UN Model Regulations, Chapter 3.5, ST/SG/AC.10/42/Add.1

Chapter 5

DANGEROUS GOODS PACKED IN EXCEPTED QUANTITIES

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5.2 PACKAGINGS

5.2.1 Packagings used for the transport of dangerous goods in excepted quantities must be in compliance with the following:

a) there must be an inner packaging and each inner packaging must be constructed of plastic (when used for liquid dangerous goods it must have a thickness of not less than 0.2 mm), or of glass, porcelain, stoneware, earthenware or metal (see also 4;1.1.3.1) and the closure of each inner packaging must be held securely in place with wire, tape or other positive means; any receptacle having a neck with moulded screw threads must have a leak proof threaded type cap. The closure must be resistant to the contents;

b) each inner packaging must be securely packed in an intermediate packaging with cushioning material in such a way that, under normal conditions of transport, they cannot break, be punctured or leak their contents. ~~The intermediate packaging must completely contain the contents in case of breakage or leakage, regardless of package orientation.~~ For liquid dangerous goods, the intermediate or outer packaging must contain sufficient absorbent material to absorb the entire contents of the inner packagings. ~~In such cases~~ When placed in the intermediate packaging, the absorbent material may be the cushioning material. Dangerous goods must not react dangerously with cushioning, absorbent material and packaging material or reduce the integrity or function of the materials. Regardless of its orientation, the packages must completely contain the contents in case of breakage or leakage;

c) the intermediate packaging must be securely packed in a strong, rigid outer packaging (wooden, fibreboard or other equally strong material);

d) each package type must be in compliance with the provisions in 5.3;

e) each package must be of such a size that there is adequate space to apply all necessary ~~markings~~ marks; and

f) overpacks may be used and may also contain packages of dangerous goods or goods not subject to these Instructions provided that the packages are secured within the overpack.

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5.4 MARKING OF PACKAGES

5.4.1 Packages containing excepted quantities of dangerous goods prepared in accordance with this chapter must be durably and legibly marked with the mark shown in Figure 3-2. The primary hazard class or, when assigned, the division of each of the dangerous goods contained in the package must be shown in the mark. Where the name of the shipper or consignee is not shown elsewhere on the package, this information must be included within the mark.

5.4.2 The ~~marking~~ mark must be in the form of a square. The hatching and symbol must be of the same colour, black or red, on white or suitable contrasting background. The dimensions of the mark must be a minimum of 100 mm × 100 mm. Where dimensions are not specified, all features must be in approximate proportion to those shown.

5.4.3 Use of overpacks

5.4.3.1 ~~An~~For an overpack containing dangerous goods in excepted quantities, the following applies: ~~must display the markings required by 5.4.1, u~~Unless ~~such~~ the ~~markings~~ marks representative of all dangerous goods ~~on packages within~~ in ~~the~~ an overpack are ~~clearly~~ visible, the overpack must be ~~.~~:

a) marked with the word “OVERPACK”. The lettering of the “OVERPACK” mark must be at least 12 mm high; and

b) marked with the marks required by this chapter.

The other provisions of 5;2.4.10 apply only if other dangerous goods which are not packed in excepted quantities are contained in the overpack and only in relation to these other dangerous goods.

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APPENDIX

PROPOSED AMENDMENTS TO TABLE 3-1

Table 3-1. Dangerous Goods List

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
										Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
+	**Rocket motors** †	0510	1.4C		Explosive 1.4				E0	FORBIDDEN		130	75 kg
*	**Argon, compressed**	1006	2.2		Gas non-flammable		☑ A69		E1	200	75 kg	200	150 kg
≠	**Argon, compressed**	1006	2.2		Gas non-flammable		A69 A202		E1	200	75 kg	200	150 kg
*	**Butadienes, stabilized**	1010	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	☑ A1		E0	FORBIDDEN		200	150 kg
≠	**Butadienes, stabilized**	1010	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	A1 A209		E0	FORBIDDEN		200	150 kg
*	**Butadienes and hydrocarbon mixture, stabilized**, containing more than 40% butadienes	1010	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	☑ A1		E0	FORBIDDEN		200	150 kg
≠	**Butadienes and hydrocarbon mixture, stabilized**, containing more than 40% butadienes	1010	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	A1 A209		E0	FORBIDDEN		200	150 kg
*	**Carbon dioxide**	1013	2.2		Gas non-flammable		☑		E1	200	75 kg	200	150 kg
≠	**Carbon dioxide**	1013	2.2		Gas non-flammable		A202		E1	200	75 kg	200	150 kg
*	**Helium, compressed**	1046	2.2		Gas non-flammable		☑ A69		E1	200	75 kg	200	150 kg
≠	**Helium, compressed**	1046	2.2		Gas non-flammable		A69 A202		E1	200	75 kg	200	150 kg
*	**Hydrogen cyanide, stabilized** containing less than 3% water	1051	6.1	3			☑			FORBIDDEN		FORBIDDEN	
≠	**Hydrogen cyanide, stabilized** containing less than 3% water	1051	6.1	3			A209			FORBIDDEN		FORBIDDEN	

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
										Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
*	**Krypton, compressed**	1056	2.2		Gas non-flammable		☑ A69		E1	200	75 kg	200	150 kg
≠	**Krypton, compressed**	1056	2.2		Gas non-flammable		A69 A202		E1	200	75 kg	200	150 kg
*	**Methylacetylene and propadiene mixture, stabilized †**	1060	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	☑ A1		E0	FORBIDDEN		200	150 kg
≠	**Methylacetylene and propadiene mixture, stabilized †**	1060	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	A1 A209		E0	FORBIDDEN		200	150 kg
*	**Neon, compressed**	1065	2.2		Gas non-flammable		☑ A69		E1	200	75 kg	200	150 kg
≠	**Neon, compressed**	1065	2.2		Gas non-flammable		A69 A202		E1	200	75 kg	200	150 kg
*	**Nitrogen, compressed**	1066	2.2		Gas non-flammable		☑ A69		E1	200	75 kg	200	150 kg
≠	**Nitrogen, compressed**	1066	2.2		Gas non-flammable		A69 A202		E1	200	75 kg	200	150 kg
*	**Tetrafluoroethylene, stabilized**	1081	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	☑ A1		E0	FORBIDDEN		200	150 kg
≠	**Tetrafluoroethylene, stabilized**	1081	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	A1 A209		E0	FORBIDDEN		200	150 kg

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
										Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
*	**Trifluorochloroethylene, stabilized**	1082	2.3	2.1		AU 1 CA 7 IR 3 NL 1 US 3	☑ A2			FORBIDDEN		FORBIDDEN	
≠	**Trifluorochloroethylene, stabilized**	1082	2.3	2.1		AU 1 CA 7 IR 3 NL 1 US 3	A2 A209			FORBIDDEN		FORBIDDEN	
*	**Refrigerant gas R 1113**	1082	2.3	2.1		AU 1 CA 7 IR 3 NL 1 US 3	☑ A2			FORBIDDEN		FORBIDDEN	
≠	**Refrigerant gas R 1113**	1082	2.3	2.1		AU 1 CA 7 IR 3 NL 1 US 3	A2 A209			FORBIDDEN		FORBIDDEN	
*	**Vinyl bromide, stabilized**	1085	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	☑ A1		E0	FORBIDDEN		200	150 kg
≠	**Vinyl bromide, stabilized**	1085	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	A1 A209		E0	FORBIDDEN		200	150 kg
*	**Vinyl chloride, stabilized**	1086	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3 US 4	☑ A1		E0	FORBIDDEN		200	150 kg
≠	**Vinyl chloride, stabilized**	1086	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3 US 4	A1 A209		E0	FORBIDDEN		200	150 kg

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
										Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
*	**Vinyl methyl ether, stabilized**	1087	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	☑ A1		E0	FORBIDDEN		200	150 kg
≠	**Vinyl methyl ether, stabilized**	1087	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	A1 A209		E0	FORBIDDEN		200	150 kg
*	**Acrolein, stabilized**	1092	6.1	3			☑			FORBIDDEN		FORBIDDEN	
≠	**Acrolein, stabilized**	1092	6.1	3			A209			FORBIDDEN		FORBIDDEN	
*	**Acrylonitrile, stabilized**	1093	3	6.1	Liquid flammable & Toxic		☑	I	E0	FORBIDDEN		361	30 L
≠	**Acrylonitrile, stabilized**	1093	3	6.1	Liquid flammable & Toxic		A209	I	E0	FORBIDDEN		361	30 L
*	**Crotonaldehyde, stabilized**	1143	6.1	3		AU 1 CA 7 IR 3 NL 1 US 3 US 4	☑ A2			FORBIDDEN		FORBIDDEN	
≠	**Crotonaldehyde, stabilized**	1143	6.1	3		AU 1 CA 7 IR 3 NL 1 US 3 US 4	A2 A209			FORBIDDEN		FORBIDDEN	
*	**Crotonaldehyde**	1143	6.1	3		AU 1 CA 7 IR 3 NL 1 US 3 US 4	☑ A2			FORBIDDEN		FORBIDDEN	
≠	**Crotonaldehyde**	1143	6.1	3		AU 1 CA 7 IR 3 NL 1 US 3 US 4	A2 A209			FORBIDDEN		FORBIDDEN	

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
										Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
*	**Divinyl ether, stabilized**	1167	3		Liquid flammable		☑	I	E3	351	1 L	361	30 L
≠	**Divinyl ether, stabilized**	1167	3		Liquid flammable		A209	I	E3	351	1 L	361	30 L
*	**Ethyleneimine, stabilized**	1185	6.1	3			☑			FORBIDDEN		FORBIDDEN	
≠	**Ethyleneimine, stabilized**	1185	6.1	3			A209			FORBIDDEN		FORBIDDEN	
*	**Isoprene, stabilized**	1218	3		Liquid flammable		☑	I	E3	351	1 L	361	30 L
≠	**Isoprene, stabilized**	1218	3		Liquid flammable		A209	I	E3	351	1 L	361	30 L
*	**Methyl isopropenyl ketone, stabilized**	1246	3		Liquid flammable		☑	II	E2	353 Y341	5 L 1 L	364	60 L
≠	**Methyl isopropenyl ketone, stabilized**	1246	3		Liquid flammable		A209	II	E2	353 Y341	5 L 1 L	364	60 L
*	**Methyl methacrylate monomer, stabilized**	1247	3		Liquid flammable		☑	II	E2	353 Y341	5 L 1 L	364	60 L
≠	**Methyl methacrylate monomer, stabilized**	1247	3		Liquid flammable		A209	II	E2	353 Y341	5 L 1 L	364	60 L
*	**Methyl vinyl ketone, stabilized**	1251	6.1	3 8			☑			FORBIDDEN		FORBIDDEN	
≠	**Methyl vinyl ketone, stabilized**	1251	6.1	3 8			A209			FORBIDDEN		FORBIDDEN	
*	**Vinyl acetate, stabilized**	1301	3		Liquid flammable		☑	II	E2	353 Y341	5 L 1 L	364	60 L
≠	**Vinyl acetate, stabilized**	1301	3		Liquid flammable		A209	II	E2	353 Y341	5 L 1 L	364	60 L
*	**Vinyl ethyl ether, stabilized**	1302	3		Liquid flammable		☑	I	E3	351	1 L	361	30 L
≠	**Vinyl ethyl ether, stabilized**	1302	3		Liquid flammable		A209	I	E3	351	1 L	361	30 L
*	**Vinylidene chloride, stabilized**	1303	3		Liquid flammable		☑	I	E3	351	1 L	361	30 L
≠	**Vinylidene chloride, stabilized**	1303	3		Liquid flammable		A209	I	E3	351	1 L	361	30 L

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft: Packing instruction	Passenger and cargo aircraft: Max. net quantity per package	Cargo aircraft only: Packing instruction	Cargo aircraft only: Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
*	**Vinyl isobutyl ether, stabilized**	1304	3		Liquid flammable		☑	II	E2	353 Y341	5 L 1 L	364	60 L
≠	**Vinyl isobutyl ether, stabilized**	1304	3		Liquid flammable		A209	II	E2	353 Y341	5 L 1 L	364	60 L
*	**Allyl isothiocyanate, stabilized**	1545	6.1	3	Toxic & Liquid flammable	AU 1 CA 7 IR 3 NL 1 US 3	☑ A1	II	E0	FORBIDDEN		661	60 L
≠	**Allyl isothiocyanate, stabilized**	1545	6.1	3	Toxic & Liquid flammable	AU 1 CA 7 IR 3 NL 1 US 3	A1 A209	II	E0	FORBIDDEN		661	60 L
*	**Cyanogen chloride, stabilized**	1589	2.3	8		AU 1 CA 7 IR 3 NL 1 US 3	☑ A2			FORBIDDEN		FORBIDDEN	
≠	**Cyanogen chloride, stabilized**	1589	2.3	8		AU 1 CA 7 IR 3 NL 1 US 3	A2 A209			FORBIDDEN		FORBIDDEN	
*	**Hydrogen cyanide, stabilized** containing less than 3% water and absorbed in a porous inert material	1614	6.1				☑			FORBIDDEN		FORBIDDEN	
≠	**Hydrogen cyanide, stabilized** containing less than 3% water and absorbed in a porous inert material	1614	6.1				A209			FORBIDDEN		FORBIDDEN	
*	**Allyltrichlorosilane, stabilized**	1724	8	3	Corrosive & Liquid flammable	AU 1 CA 7 IR 3 NL 1 US 3	☑ A1	II	E0	FORBIDDEN		876	30 L
≠	**Allyltrichlorosilane, stabilized**	1724	8	3	Corrosive & Liquid flammable	AU 1 CA 7 IR 3 NL 1 US 3	A1 A209	II	E0	FORBIDDEN		876	30 L

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
										Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
*	**Sulphur trioxide, stabilized**	1829	8			AU 1 CA 7 IR 3 NL 1 US 3	☑ A2			FORBIDDEN		FORBIDDEN	
≠	**Sulphur trioxide, stabilized**	1829	8			AU 1 CA 7 IR 3 NL 1 US 3	A2 A209			FORBIDDEN		FORBIDDEN	
*	**Vinyl fluoride, stabilized**	1860	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	☑ A1		E0	FORBIDDEN		200	150 kg
≠	**Vinyl fluoride, stabilized**	1860	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	A1 A209		E0	FORBIDDEN		200	150 kg
*	**Ethyl acrylate, stabilized**	1917	3		Liquid flammable		☑	II	E2	353 Y341	5 L 1 L	364	60 L
≠	**Ethyl acrylate, stabilized**	1917	3		Liquid flammable		A209	II	E2	353 Y341	5 L 1 L	364	60 L
*	**Methyl acrylate, stabilized**	1919	3		Liquid flammable		☑	II	E2	353 Y341	5 L 1 L	364	60 L
≠	**Methyl acrylate, stabilized**	1919	3		Liquid flammable		A209	II	E2	353 Y341	5 L 1 L	364	60 L
*	**Propyleneimine, stabilized**	1921	3	6.1	Liquid flammable & Toxic	US 4	☑	I	E0	FORBIDDEN		361	30 L
≠	**Propyleneimine, stabilized**	1921	3	6.1	Liquid flammable & Toxic	US 4	A209	I	E0	FORBIDDEN		361	30 L
*	**Aerosols**, non-flammable	1950	2.2		Gas non-flammable		A98 A145 A167		E0	☑ 203 or 204 Y203 or Y204	75 kg 30 kg G	☑ 203 or 204	150 kg
≠	**Aerosols**, non-flammable	1950	2.2		Gas non-flammable		A98 A145 A167		E0	203 Y203	75 kg 30 kg G	203	150 kg

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft: Packing instruction	Passenger and cargo aircraft: Max. net quantity per package	Cargo aircraft only: Packing instruction	Cargo aircraft only: Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
*	**Aerosols**, non-flammable (tear gas devices)	1950	2.2	6.1	Gas non-flammable & Toxic	AU 1 CA 7 IR 3 NL 1 US 3	A1 A145 A167		E0	FORBIDDEN		212	50 kg
≠	**Aerosols**, non-flammable (tear gas devices)	1950	2.2	6.1	Gas non-flammable & Toxic	AU 1 CA 7 IR 3 NL 1 US 3	A1 A145 A167		E0	FORBIDDEN		203	50 kg
*	**Compressed gas, n.o.s.***	1956	2.2		Gas non-flammable		☑		E1	200	75 kg	200	150 kg
≠	**Compressed gas, n.o.s.***	1956	2.2		Gas non-flammable		A202		E1	200	75 kg	200	150 kg
*	**Chloroprene, stabilized**	1991	3	6.1	Liquid flammable & Toxic		☑	I	E0	FORBIDDEN		361	30 L
≠	**Chloroprene, stabilized**	1991	3	6.1	Liquid flammable & Toxic		A209	I	E0	FORBIDDEN		361	30 L
*	**Celluloid**, in blocks, rods, rolls, sheets, tubes, etc. (except scrap)	2000	4.1		Solid flammable		☑ A3 A48	III	E1	456	25 kg	456	100 kg
≠	**Celluloid**, in blocks, rods, rolls, sheets, tubes, etc. (except scrap)	2000	4.1		Solid flammable		A3 A48 A205	III	E1	456	25 kg	456	100 kg
*	**Xenon**	2036	2.2		Gas non-flammable		☑ A69		E1	200	75 kg	200	150 kg
≠	**Xenon**	2036	2.2		Gas non-flammable		A69 A202		E1	200	75 kg	200	150 kg
*	**Styrene monomer, stabilized**	2055	3		Liquid flammable		☑	III	E1	355 Y344	60 L 10 L	366	220 L
≠	**Styrene monomer, stabilized**	2055	3		Liquid flammable		A209	III	E1	355 Y344	60 L 10 L	366	220 L

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft: Packing instruction	Passenger and cargo aircraft: Max. net quantity per package	Cargo aircraft only: Packing instruction	Cargo aircraft only: Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
*	**Propadiene, stabilized**	2200	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	☑ A1		E0	FORBIDDEN		200	150 kg
≠	**Propadiene, stabilized**	2200	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	A1 A209		E0	FORBIDDEN		200	150 kg
*	**Polymeric beads, expandable**, evolving flammable vapour †	2211	9		Miscellaneous		☑ A38	III	E1	957	100 kg	957	200 kg
≠	**Polymeric beads, expandable**, evolving flammable vapour †	2211	9		Miscellaneous		A204	III	E1	957	100 kg	957	200 kg
*	**Paraformaldehyde**	2213	4.1		Solid flammable		☑	III	E1	446 Y443	25 kg 10 kg	449	100 kg
≠	**Paraformaldehyde**	2213	4.1		Solid flammable		A3	III	E1	446 Y443	25 kg 10 kg	449	100 kg
*	**Acrylic acid, stabilized**	2218	8	3	Corrosive & Liquid flammable		☑	II	E2	851 Y840	1 L 0.5 L	855	30 L
≠	**Acrylic acid, stabilized**	2218	8	3	Corrosive & Liquid flammable		A209	II	E2	851 Y840	1 L 0.5 L	855	30 L
*	**n-Butyl methacrylate, stabilized**	2227	3		Liquid flammable		☑	III	E1	355 Y344	60 L 10 L	366	220 L
≠	**n-Butyl methacrylate, stabilized**	2227	3		Liquid flammable		A209	III	E1	355 Y344	60 L 10 L	366	220 L
*	**Bicyclo [2.2.1] hepta-2-5-diene, stabilized**	2251	3		Liquid flammable		☑	II	E2	353 Y341	5 L 1 L	364	60 L
≠	**Bicyclo [2.2.1] hepta-2-5-diene, stabilized**	2251	3		Liquid flammable		A209	II	E2	353 Y341	5 L 1 L	364	60 L
*	**2,5-Norbornadiene, stabilized**	2251	3		Liquid flammable		☑	II	E2	353 Y341	5 L 1 L	364	60 L
≠	**2,5-Norbornadiene, stabilized**	2251	3		Liquid flammable		A209	II	E2	353 Y341	5 L 1 L	364	60 L

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
										Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
*	**Ethyl methacrylate, stabilized**	2277	3		Liquid flammable		☑	II	E2	353 Y341	5 L 1 L	364	60 L
≠	**Ethyl methacrylate, stabilized**	2277	3		Liquid flammable		A209	II	E2	353 Y341	5 L 1 L	364	60 L
*	**Isobutyl methacrylate, stabilized**	2283	3		Liquid flammable		☑	III	E1	355 Y344	60 L 10 L	366	220 L
≠	**Isobutyl methacrylate, stabilized**	2283	3		Liquid flammable		A209	III	E1	355 Y344	60 L 10 L	366	220 L
*	**Butyl acrylates, stabilized**	2348	3		Liquid flammable		☑	III	E1	355 Y344	60 L 10 L	366	220 L
≠	**Butyl acrylates, stabilized**	2348	3		Liquid flammable		A209	III	E1	355 Y344	60 L 10 L	366	220 L
*	**Butyl vinyl ether, stabilized**	2352	3		Liquid flammable		☑	II	E2	353 Y341	5 L 1 L	364	60 L
≠	**Butyl vinyl ether, stabilized**	2352	3		Liquid flammable		A209	II	E2	353 Y341	5 L 1 L	364	60 L
*	**Dipropylamine**	2383	3	8	Liquid flammable & Corrosive		☑	II	E2	352 Y340	1 L 0.5 L	363	5 L
≠	**Dipropylamine**	2383	3	8	Liquid flammable & Corrosive		A209	II	E2	352 Y340	1 L 0.5 L	363	5 L
*	**Methacrylaldehyde, stabilized**	2396	3	6.1	Liquid flammable & Toxic		☑	II	E2	352 Y341	1 L 1 L	364	60 L
≠	**Methacrylaldehyde, stabilized**	2396	3	6.1	Liquid flammable & Toxic		A209	II	E2	352 Y341	1 L 1 L	364	60 L
*	**Ethylacetylene, stabilized**	2452	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	☑ A1		E0	FORBIDDEN		200	150 kg
≠	**Ethylacetylene, stabilized**	2452	2.1		Gas flammable	AU 1 CA 7 IR 3 NL 1 US 3	A1 A209		E0	FORBIDDEN		200	150 kg

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
										Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
*	**Diketene, stabilized**	2521	6.1	3			☑			FORBIDDEN		FORBIDDEN	
≠	**Diketene, stabilized**	2521	6.1	3			A209			FORBIDDEN		FORBIDDEN	
*	**Isobutyl acrylate, stabilized**	2527	3		Liquid flammable		☑	III	E1	355 Y344	60 L 10 L	366	220 L
≠	**Isobutyl acrylate, stabilized**	2527	3		Liquid flammable		A209	III	E1	355 Y344	60 L 10 L	366	220 L
*	**Methacrylic acid, stabilized**	2531	8		Corrosive		☑	II	E2	851 Y840	1 L 0.5 L	855	30 L
≠	**Methacrylic acid, stabilized**	2531	8		Corrosive		A209	II	E2	851 Y840	1 L 0.5 L	855	30 L
*	**Acrolein dimer, stabilized**	2607	3		Liquid flammable		☑	III	E1	355 Y344	60 L 10 L	366	220 L
≠	**Acrolein dimer, stabilized**	2607	3		Liquid flammable		A209	III	E1	355 Y344	60 L 10 L	366	220 L
*	**Vinyltoluenes, stabilized**	2618	3		Liquid flammable		☑	III	E1	355 Y344	60 L 10 L	366	220 L
≠	**Vinyltoluenes, stabilized**	2618	3		Liquid flammable		A209	III	E1	355 Y344	60 L 10 L	366	220 L
*	**N-Aminoethylpiperazine**	2815	8	☑	☑ Corrosive			III	E1	852 Y841	5 L 1 L	856	60 L
≠	**N-Aminoethylpiperazine**	2815	8	6.1	Corrosive & Toxic			III	E1	852 Y841	5 L 1 L	856	60 L
*	**Vinyl butyrate, stabilized**	2838	3		Liquid flammable		☑	II	E2	353 Y341	5 L 1 L	364	60 L
≠	**Vinyl butyrate, stabilized**	2838	3		Liquid flammable		A209	II	E2	353 Y341	5 L 1 L	364	60 L
*	**Radioactive material, uranium hexafluoride, fissile**	2977	7	☑ 8	☑ Radioactive & Corrosive					See Part 2;7 and Part 4;9			
≠	**Radioactive material, uranium hexafluoride, fissile**	2977	7	6.1 8	Radioactive & Toxic & Corrosive					See Part 2;7 and Part 4;9			

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
										Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
				☑	☑								
*	**Radioactive material, uranium hexafluoride**, non-fissile or fissile excepted	2978	7	8	Radioactive & Corrosive	CA 1	A139			See Part 2;7 and Part 4;9			
≠	**Radioactive material, uranium hexafluoride**, non-fissile or fissile excepted	2978	7	6.1 8	Radioactive & Toxic & Corrosive	CA 1	A139			See Part 2;7 and Part 4;9			
							☑						
*	**1,2-Butylene oxide, stabilized**	3022	3		Liquid flammable			II	E2	353 Y341	5 L 1 L	364	60 L
≠	**1,2-Butylene oxide, stabilized**	3022	3		Liquid flammable		A209	II	E2	353 Y341	5 L 1 L	364	60 L
							☑						
*	**Vinylpyridines, stabilized**	3073	6.1	3 8	Toxic & Liquid flammable & Corrosive			II	E4	653 Y640	1 L 0.5 L	660	30 L
≠	**Vinylpyridines, stabilized**	3073	6.1	3 8	Toxic & Liquid flammable & Corrosive		A209	II	E4	653 Y640	1 L 0.5 L	660	30 L
							☑						
*	**Methacrylonitrile, stabilized**	3079	6.1	3						FORBIDDEN		FORBIDDEN	
≠	**Methacrylonitrile, stabilized**	3079	6.1	3			A209			FORBIDDEN		FORBIDDEN	
							☑						
*	**Lithium metal batteries** (including lithium alloy batteries) †	3090	9		Miscellaneous	US 2 US 3	A88 A99 A154 A164 A183 A201		E0	FORBIDDEN		See 968	
≠	**Lithium metal batteries** (including lithium alloy batteries) †	3090	9		Miscellaneous	US 2 US 3	A88 A99 A154 A164 A183 A201 A206		E0	FORBIDDEN		See 968	

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft: Packing instruction	Passenger and cargo aircraft: Max. net quantity per package	Cargo aircraft only: Packing instruction	Cargo aircraft only: Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
*	**Lithium metal batteries contained in equipment** (including lithium alloy batteries) †	3091	9		Miscellaneous	US 2 US 3	☑ A48 A99 A154 A164 A181 A185		E0	970	5 kg	970	35 kg
≠	**Lithium metal batteries contained in equipment** (including lithium alloy batteries) †	3091	9		Miscellaneous	US 2 US 3	A48 A88 A99 A154 A164 A181 A185 A206		E0	970	5 kg	970	35 kg
*	**Lithium metal batteries packed with equipment** (including lithium alloy batteries) †	3091	9		Miscellaneous	US 2 US 3	☑ A99 A154 A164 A181 A185		E0	969	5 kg	969	35 kg
≠	**Lithium metal batteries packed with equipment** (including lithium alloy batteries) †	3091	9		Miscellaneous	US 2 US 3	A88 A99 A154 A164 A181 A185 A206		E0	969	5 kg	969	35 kg
*	☑ **Polyhalogenated biphenyls, liquid**	3151	9		Miscellaneous		A11 A95	II	E2	964	100 L	964	220 L
≠	**Polyhalogenated biphenyls, liquids**	3151	9		Miscellaneous		A11 A95	II	E2	964	100 L	964	220 L
*	☑ **Polyhalogenated terphenyls, liquid**	3151	9		Miscellaneous		A11 A95	II	E2	964	100 L	964	220 L
≠	**Polyhalogenated terphenyls, liquids**	3151	9		Miscellaneous		A11 A95	II	E2	964	100 L	964	220 L
+	**Halogenated monomethyldiphenylmethanes, liquids**	3151	9		Miscellaneous		A11 A95	II	E2	964	100 L	964	220 L

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
										Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
*	☑ **Polyhalogenated biphenyls, solid**	3152	9		Miscellaneous		A11 A95	II	E2	956	100 kg	956	200 kg
≠	**Polyhalogenated biphenyls, solids**	3152	9		Miscellaneous		A11 A95	II	E2	956	100 kg	956	200 kg
*	☑ **Polyhalogenated terphenyls, solid**	3152	9		Miscellaneous		A11 A95	II	E2	956	100 kg	956	200 kg
≠	**Polyhalogenated terphenyls, solids**	3152	9		Miscellaneous		A11 A95	II	E2	956	100 kg	956	200 kg
+	**Halogenated monomethyldiphenylmethanes, solids**	3152	9		Miscellaneous		A11 A95	II	E2	956	100 kg	956	200 kg
*	**Vehicle, flammable gas powered**	3166	9		Miscellaneous		☑ A67 A70 A87 A118 A120 A134		E0	FORBIDDEN		951	No limit
≠	**Vehicle, flammable gas powered**	3166	9		Miscellaneous		A67 A70 A87 A118 A120 A134 A203 A207		E0	FORBIDDEN		951	No limit
*	**Vehicle, flammable liquid powered**	3166	9		Miscellaneous		☑ A67 A70 A87 A118 A120 A134		E0	950	No limit	950	No limit
≠	**Vehicle, flammable liquid powered**	3166	9		Miscellaneous		A67 A70 A87 A118 A120 A134 A203 A207		E0	950	No limit	950	No limit

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft: Packing instruction	Passenger and cargo aircraft: Max. net quantity per package	Cargo aircraft only: Packing instruction	Cargo aircraft only: Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
*	**Vehicle, fuel cell, flammable gas powered** †	3166	9		Miscellaneous		☑ A67 A70 A87 A118 A120 A134 A176		E0	FORBIDDEN		951	No limit
≠	**Vehicle, fuel cell, flammable gas powered** †	3166	9		Miscellaneous		A67 A70 A87 A118 A120 A134 A176 A203 A207		E0	FORBIDDEN		951	No limit
*	**Vehicle, fuel cell, flammable liquid powered** †	3166	9		Miscellaneous		☑ A67 A70 A87 A118 A120 A134 A176		E0	950	No limit	950	No limit
≠	**Vehicle, fuel cell, flammable liquid powered** †	3166	9		Miscellaneous		A67 A70 A87 A118 A120 A134 A176 A203 A207		E0	950	No limit	950	No limit
*	☑ **Polyester resin kit** †	3269	3		Liquid flammable		A66 A163	II III	E0 E0	370 Y370 370 Y370	5 kg 1 kg 10 kg 5 kg	370 370	5 kg 10 kg
≠	**Polyester resin kit** , liquid base material †	3269	3		Liquid flammable		A66 A163	II III	E0 E0	370 Y370 370 Y370	5 kg 1 kg 10 kg 5 kg	370 370	5 kg 10 kg

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
										Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
*	**Lithium ion batteries** (including lithium ion polymer batteries)	3480	9		Miscellaneous	US 3	☑ A88 A99 A154 A164 A183		E0	See	965	See	965
≠	**Lithium ion batteries** (including lithium ion polymer batteries)	3480	9		Miscellaneous	US 3	A88 A99 A154 A164 A183 A206		E0	See	965	See	965
*	**Lithium ion batteries contained in equipment** (including lithium ion polymer batteries)	3481	9		Miscellaneous	US 3	☑ A48 A99 A154 A164 A181 A185		E0	967	5 kg	967	35 kg
≠	**Lithium ion batteries contained in equipment** (including lithium ion polymer batteries)	3481	9		Miscellaneous	US 3	A48 A88 A99 A154 A164 A181 A185 A206		E0	967	5 kg	967	35 kg
*	**Lithium ion batteries packed with equipment** (including lithium ion polymer batteries)	3481	9		Miscellaneous	US 3	☑ A88 A99 A154 A164 A181 A185		E0	966	5 kg	966	35 kg
≠	**Lithium ion batteries packed with equipment** (including lithium ion polymer batteries)	3481	9		Miscellaneous	US 3	A88 A99 A154 A164 A181 A185 A206		E0	966	5 kg	966	35 kg

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
										Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
			☑	☑						☑		☑	
*	**Uranium hexafluoride, radioactive material, excepted package**, less than 0.1 kg per package, non-fissile or fissile-excepted	3507	8	7	Corrosive		A139 A194	I	E0	See	877	See	877
≠	**Uranium hexafluoride, radioactive material, excepted package**, less than 0.1 kg per package, non-fissile or fissile-excepted	3507	6.1	7 8	Corrosive		A139 A194	I	E0	See	603	See	603
+	**Polyester resin kit**, solid base material	3527	4.1		Solid flammable		A66 A163	II	E0	445 Y441	15 kg 5 kg	448	50 kg
								III	E0	446 Y443	25 kg 10 kg	449	100 kg
		☑	☑		☑		☑			☑		☑	
*	**Engine, internal combustion, flammable liquid powered**	3166	9		Miscellaneous		A67 A70 A87 A134		E0	950	No limit	950	No limit
≠	**Engine, internal combustion, flammable liquid powered**	3528	3		Liquid flammable		[A208]		E0	378	No limit	378	No limit
		☑	☑		☑		☑			☑		☑	
*	**Engine, fuel cell, flammable liquid powered** †	3166	9		Miscellaneous		A67 A70 A87 A134 A176		E0	950	No limit	950	No limit
≠	**Engine, fuel cell, flammable liquid powered** †	3528	3		Liquid flammable		[A176] [A134] [A87] [A70] [A67] [A208]		E0	378	No limit	378	No limit
+	**Machinery, internal combustion, flammable liquid powered**	3528	3		Liquid flammable		[A208] [A134] [A87] [A70] [A67]		E0	[378]	[No limit]	[378]	[No limit]
+	**Machinery, fuel cell, flammable liquid powered**	3528	3		Liquid flammable		[A208] [A176] [A134] [A87] [A70] [A67]		E0	[378]	[No limit]	[378]	[No limit]

	Name	UN No.	Class or division	Subsidiary risk	Labels	State variations	Special provisions	UN packing group	Excepted quantity	Passenger and cargo aircraft		Cargo aircraft only	
										Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
	1	2	3	4	5	6	7	8	9	10	11	12	13
		☑	☑		☑		☑					☑	
*	**Engine, internal combustion, flammable gas powered**	3166	9		Miscellaneous		A67 A70 A87 A134		E0	FORBIDDEN		951	No limit
≠	**Engine, internal combustion, flammable gas powered**	3529	2.1		Gas flammable		[A176] [A208]		E0	FORBIDDEN		220	No limit
		☑	☑		☑		☑					☑	
*	**Engine, fuel cell, flammable gas powered** †	3166	9		Miscellaneous		A67 A70 A87 A134 A176		E0	FORBIDDEN		951	No limit
≠	**Engine, fuel cell, flammable gas powered** †	3529	2.1		Gas flammable		[A176] [A208]		E0	FORBIDDEN		220	No limit
+	**Machinery, internal combustion, flammable gas powered**	3529	2.1		Gas flammable		[A208]		E0	FORBIDDEN		220	No limit
+	**Machinery, fuel cell, flammable gas powered**	3529	2.1		Gas flammable		[A208]		E0	FORBIDDEN		220	No limit
+	**Engine, internal combustion**	3530	9		Miscellaneous		[A208]		E0	972	[No limit]	972	[No limit]
+	**Machinery, internal combustion**	3530	9		Miscellaneous		[A208]		E0	972	[No limit]	972	[No limit]
+	**Polymerizing substance, solid, stabilized, n.o.s.***	3531	4.1						E0	FORBIDDEN		FORBIDDEN	
+	**Polymerizing substance, liquid, stabilized, n.o.s.***	3532	4.1						E0	FORBIDDEN		FORBIDDEN	
+	**Polymerizing substance, solid, temperature controlled, n.o.s.***	3533	4.1						E0	FORBIDDEN		FORBIDDEN	
+	**Polymerizing substance, liquid, temperature controlled, n.o.s.***	3534	4.1						E0	FORBIDDEN		FORBIDDEN	