



WORKING PAPER

**DANGEROUS GOODS PANEL (DGP)
MEETING OF THE WORKING GROUP OF THE WHOLE**

Montréal, 15 to 19 April 2013

- 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 2015-2016 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 sixth session (Geneva, 14 December 2012). It also reflects amendments agreed by DGP-WG12 (Montreal, 15 to 19 October 2012).

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 2

**ARRANGEMENT OF THE
DANGEROUS GOODS LIST (TABLE 3-1)**

Table 3-1. Dangerous Goods List

UN Model Regulations, Chapter 3.2, Dangerous Goods List, ST/SG/AC.10/40/Add.1

Name	UN No.	Class or division	Subsidiary risk	State variations	Special provisions	UN packing group	Excepted quantity	Passenger aircraft		Cargo aircraft	
								Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
1	2	3	4	6	7	8	9	10	11	12	13
Ammonium nitrate with more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance	0222	1.1D			A226			FORBI	DDEN	FORBI	DDEN
Seat-belt pretensioners† Safety devices, pyrotechnic†	0503	1.4G			A32 A56		E0	FORBI	DDEN	135	75 kg
Air bag modules†	0503	1.4G			A32 A56		E0	FORBI	DDEN	135	75 kg
Air bag inflators†	0503	1.4G			A32 A56		E0	FORBI	DDEN	135	75 kg
Trifluorochloroethylene, stabilized (refrigerant gas R 1113)	1082	2.3	2.1	AU 1 CA 7 IR 3 NL 1 US 3	A2			FORBI	DDEN	FORBI	DDEN
Printing ink, flammable	1210	3			A3 A72 A192	I II III	E3 E2 E1	351 353 Y341 355 Y344	1 L 5 L 1 L 60 L 10 L	361 364 366	30 L 60 L 220 L

Name	UN No.	Class or division	Subsidiary risk	State variations	Special provisions	UN packing group	Excepted quantity	Passenger aircraft		Cargo aircraft	
								Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
1	2	3	4	6	7	8	9	10	11	12	13
Printing ink related material (including printing ink thinning or reducing compound), flammable	1210	3			A3 A72 A192	I II III	E3 E2 E1	351 353 Y341 355 Y344	1 L 5 L 1 L 60 L 10 L	361 364 366	30 L 60 L 220 L
Paint (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)	1263	3			A3 A72 A192	I II III	E3 E2 E1	351 353 Y341 355 Y344	1 L 5 L 1 L 60 L 10 L	361 364 366	30 L 60 L 220 L
Paint related material (including paint thinning or reducing compound)	1263	3			A3 A72 A192	I II III	E3 E2 E1	351 353 Y341 355 Y344	1 L 5 L 1 L 60 L 10 L	361 364 366	30 L 60 L 220 L
Tear gas candles	1700	6.1	4.1	AU 1 CA 7 IR 3 NL 1 US 3	A1	⚡	E0	FORBI	DDEN	679	50 kg
Ammunition, toxic, non-explosive without burster or expelling charge, non-fuzed	2016	6.1		AU 1 CA 7 IR 3 NL 1 US 3	A1	⚡	E0	FORBI	DDEN	679	75 kg
Ammunition, tear-producing, non-explosive without burster or expelling charge, non-fuzed	2017	6.1		AU 1 CA 7 IR 3 NL 1 US 3	A1	⚡	E0	FORBI	DDEN	679	50 kg
Blue asbestos (crocidolite), amphibole* (amosite, tremolite, actinolite, anthophyllite, crocidolite) †	2212	9			A61			FORBI	DDEN	FORBI	DDEN
Brown asbestos (amosite, mysorite) †	2212	9			A61			FORBI	DDEN	FORBI	DDEN
White asbestos , (chrysotile, actinolite, anthophyllite, tremolite) †	2590	9		US 4	A61	III	E1	958	200 kg	958	200 kg
Radioactive material, excepted package — limited quantity of material	2910	7			A23 A130 A193			See	Part	1;6	

Name	UN No.	Class or division	Subsidiary risk	State variations	Special provisions	UN packing group	Excepted quantity	Passenger aircraft		Cargo aircraft	
								Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
1	2	3	4	6	7	8	9	10	11	12	13
Paint (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)	3066	8			A3 A72 A192	II III	E2 E1	851 Y840 852 Y841	1 L 0.5 L 5 L 1 L	855 856	30 L 60 L
Paint related material (including paint thinning or reducing compound)	3066	8			A3 A72 A192	II III	E2 E1	851 Y840 852 Y841	1 L 0.5 L 5 L 1 L	855 856	30 L 60 L
Environmentally hazardous substance, solid, n.o.s.*	3077	9		CA 13 DE 5 US 4	A97 A158 A179 A197	III	E1	956 Y956	400 kg 30 kg G	956	400 kg
Environmentally hazardous substance, liquid, n.o.s.*	3082	9		CA 13 DE 5 US 4	A97 A158 A197	III	E1	964 Y964	450 L 30 kg G	964	450 L
Lithium metal batteries (including lithium alloy batteries) †	3090	9		US 2 US 3	A88 A99 A154 A164 A183	II	E0	See	968	See	968
Lithium metal batteries contained in equipment (including lithium alloy batteries) †	3091	9		US 2 US 3	A48 A99 A154 A164 A181 A185	II	E0	970	5 kg	970	35 kg
Lithium metal batteries packed with equipment (including lithium alloy batteries) †	3091	9		US 2 US 3	A99 A154 A164 A181 A185	II	E0	969	5 kg	969	35 kg
Articles, pressurized, hydraulic containing non-flammable gas	3164	2.2			A48 A114 A195		E0	208	No limit	208	No limit
Articles, pressurized, pneumatic containing non-flammable gas	3164	2.2			A48 A114 A195		E0	208	No limit	208	No limit
Seat-belt pretensioners Safety devices, electrically initiated †	3268	9		BE 3 US 16	A32 A115 A119	III	E0	961	25 kg	961	100 kg
Air bag inflators	3268	9		BE 3 US 16	A32 A115 A119	III	E0	961	25 kg	961	100 kg

Name	UN No.	Class or division	Subsidiary risk	State variations	Special provisions	UN packing group	Excepted quantity	Passenger aircraft		Cargo aircraft	
								Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
1	2	3	4	6	7	8	9	10	11	12	13
Air bag modules	3268	9		BE-3 US 46	A32 A115 A119	III	E0	964	25 kg	964	400 kg
Batteries, containing sodium †	3292	4.3			A94 A183	II	E0	FORBI	DDEN	492	No limit
Cells, containing sodium †	3292	4.3			A94	II	E0	492	25 kg	492	No limit
Chemical kit	3316	9			A44 A163	II III	E0	960 Y960 <u>960</u> <u>Y960</u>	10 kg 1 kg <u>10 kg</u> <u>1 kg</u>	960 <u>960</u>	10 kg <u>10 kg</u>
First aid kit	3316	9			A44 A163	II III	E0	960 Y960 <u>960</u> <u>Y960</u>	10 kg 1 kg <u>10 kg</u> <u>1 kg</u>	960 <u>960</u>	10 kg <u>10 kg</u>
Oxygen generator, chemical † (including when contained in associated equipment, e.g. passenger service units (PSUs), protective breathing equipment (PBE), etc.)	3356	5.1		AU 1 CA 7 FR 7 IR 3 NL 1 US 3 US 18	A1 A111 A116 A144	II	E0	FORBI	DDEN	565	25 kg
Paint, flammable, corrosive (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)	3469	3	8		A3 A72 <u>A192</u>	I II III	E0 E2 E1	350 352 Y340 354 Y342	0.5 L 1 L 0.5 L 5 L 1 L	360 363 365	2.5 L 5 L 60 L
Paint related material, flammable, corrosive (including paint thinning or reducing compound)	3469	3	8		A3 A72 <u>A192</u>	I II III	E0 E2 E1	350 352 Y340 354 Y342	0.5 L 1 L 0.5 L 5 L 1 L	360 363 365	2.5 L 5 L 60 L
Paint related material corrosive, flammable (including paint thinning or reducing compound)	3470	8	3		A72 <u>A192</u>	II	E2	851 Y840	1 L 0.5 L	855	30 L
Paint, corrosive, flammable (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)	3470	8	3		A72 <u>A192</u>	II	E2	851 Y840	1 L 0.5 L	855	30 L

Name	UN No.	Class or division	Subsidiary risk	State variations	Special provisions	UN packing group	Excepted quantity	Passenger aircraft		Cargo aircraft	
								Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
1	2	3	4	6	7	8	9	10	11	12	13
Lithium ion batteries (including lithium ion polymer batteries)	3480	9		US 3	A51 A88 A99 A154 A164 A183	Ⓔ	E0	See	965	See	965
Lithium ion batteries contained in equipment (including lithium ion polymer batteries)	3481	9		US 3	A48 A99 A154 A164 A181 A185	Ⓔ	E0	967	5 kg	967	35 kg
Lithium ion batteries packed with equipment (including lithium ion polymer batteries)	3481	9		US 3	A88 A99 A154 A164 A181 A185	Ⓔ	E0	966	5 kg	966	35 kg

"Electric double layer" is now part of the proper shipping name for UN 3499:.

Capacitor, electric double layer (with an energy storage capacity greater than 0.3 Wh)	3499	9			A186		E0	971	No limit	971	No limit
Mercury contained in manufactured articles	3506	8	6.1		A48 A69 A191	Ⓔ	E0	869	No limit	869	No limit
Uranium hexafluoride, radioactive material, excepted package, less than 0.1 kg per package, non-fissile or fissile-excepted	3507	8	7		A139 A194	!	E0	877	?	877	?
Capacitor, asymmetric (with an energy storage capacity greater than 0.3Wh)	3508	9			A196		E0	971	No limit	971	No limit
Packaging discarded, empty, uncleaned	3509	9			A227		E0	FORBI	DDEN	FORBI	DDEN
Adsorbed gas, flammable, n.o.s.	3510	2.1					E0	218		218	
Adsorbed gas, n.o.s.*	3511	2.2					E0	218		218	
Adsorbed gas, toxic, n.o.s.*	3512	2.3					E0	218		218	

Name	UN No.	Class or division	Subsidiary risk	State variations	Special provisions	UN packing group	Excepted quantity	Passenger aircraft		Cargo aircraft	
								Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package
1	2	3	4	6	7	8	9	10	11	12	13
<u>Adsorbed gas, oxidizing, n.o.s.*</u>	3513	2.2	5.1				E0	218		218	
<u>Adsorbed gas, toxic, flammable, n.o.s.*</u>	3514	2.3	2.1				E0	218		218	
<u>Adsorbed gas, toxic, oxidizing, n.o.s.*</u>	3515	2.3	5.1				E0	218		218	
<u>Adsorbed gas, toxic, corrosive, n.o.s.*</u>	3516	2.3	8				E0	218		218	
<u>Adsorbed gas, toxic, flammable, corrosive, n.o.s.*</u>	3517	2.3	2.1 8				E0	218		218	
<u>Adsorbed gas, toxic, oxidizing, corrosive, n.o.s.*</u>	3518	2.3	5.1 8				E0	218		218	
<u>Boron trifluoride, adsorbed</u>	3519	2.3	8				E0	219		219	
<u>Chlorine, adsorbed</u>	3520	2.3	5.1 8				E0	219		219	
<u>Silicon tetrafluoride, adsorbed</u>	3521	2.3	8				E0	219		219	
<u>Arsine, adsorbed</u>	3522	2.3	2.1				E0	219		219	
<u>Germane, adsorbed</u>	3523	2.3	2.1				E0	219		219	
<u>Phosphorus pentafluoride, adsorbed</u>	3524	2.3	8				E0	219		219	
<u>Phosphine, adsorbed</u>	3525	2.3	2.1				E0	219		219	
<u>Hydrogen selenide, adsorbed</u>	3526	2.3	2.1				E0	219		219	

Chapter 3

SPECIAL PROVISIONS

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Table 3-2. Special provisions

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UN Model Regulations, Chapter 3.3, SP 66 and 225, ST/SG/AC.10/40/Add.1

A18 (66) ~~Mercurous chloride and cinnabar~~ are is not subject to these Instructions.

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 of the country of manufacture. Fire extinguishers under this entry comprise:

- a) portable fire extinguishers for manual handling and operation;
- b) fire extinguishers for installation in aircraft;

UN Model Regulations, Chapter 3.3, SP 225, ST/SG/AC.10/40/Add.1

For supplement?

~~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 e.g. by fork lift or crane when loaded or unloaded.~~

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UN Model Regulations, Chapter 3.3, SP 135 and 138, ST/SG/AC.10/40/Add.1

A28 (135) The dihydrated sodium salt of dichloroisocyanuric acid does not meet the criteria for inclusion in Division 5.1 and is not subject to these Instructions unless meeting the criteria for inclusion in another class or division.

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UN Model Regulations, Chapter 3.3, SP 289, ST/SG/AC.10/40/Add.1

≠ A32 ~~Air bag inflators, air bag modules or seat belt pretensioners~~ Safety devices, electrically initiated and safety devices, pyrotechnic installed in 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 Instructions when carried as cargo. The words "not restricted" and the special provision number A32 must be provided on the air waybill when an air waybill is issued.

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UN Model Regulations, Chapter 3.3, SP 251, ST/SG/AC.10/40/Add.1 (changes do not apply to Instructions)

≠ A44 The entry chemical kit or first-aid kit is intended to apply to boxes, cases, etc., containing small quantities of various dangerous goods which are used, for example, for medical, analytical or testing or repair purposes. Components must not react dangerously (see 4;1.1.8). 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 dangerous goods transport document. Where the kit contains only dangerous goods to which no packing group is assigned, a packing group must not be indicated on the dangerous goods transport document.

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

- a) excepted quantities as specified in column 9 of Table 3-1, provided the inner packagings and quantities are as prescribed in 5.1.2 and 5.2.1 a); or
- b) limited quantities under 3;4.1.2.

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UN Model Regulations, Chapter 3.3, SP 235, ST/SG/AC.10/40/Add.1

A56 This entry applies to articles which contain Class 1 explosive substances and which may also contain dangerous goods of other classes. These articles are used to enhance safety in vehicles, vessels or aircraft as lifesaving vehicle (e.g. air bag inflators or air bag modules or seat belt pretensioners and pyromechanical devices).

The quantities given in columns 11 and 13 of Table 3-1 refer to the net mass of the finished article.

Note.— For the carriage of a vehicle, see Packing Instruction 950, 951 and 952.

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UN Model Regulations, Chapter 3.3, SP 306, ST/SG/AC.10/40/Add.1

A64 (306) This entry may only be used for substances that ~~do not exhibit explosive properties of Class 1 and 2 of Class 4~~ are too insensitive for acceptance into Class 1 when tested in accordance with test series 1 and 2 of Class 4 (see UN Manual of Tests and Criteria, Part I).

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 UN Model Regulations, Chapter 3.3, SP 172, ST/SG/AC.10/40/Add.1

A78 ~~(172) Where a~~ radioactive material ~~has~~ with (a) subsidiary risk(s) ~~must~~:

Subparagraphs a) and b) below are reversed

- a) ~~Packages must~~ be labelled with subsidiary risk labels corresponding to each subsidiary risk exhibited by the material in accordance with the relevant provisions of 5;3.2; corresponding placards must be affixed to cargo transport units in accordance with the relevant provisions of 5;3.6;
- ba) ~~The substance must~~ be allocated to Packing Group I, II or III, ~~as and~~ if appropriate, by application of the ~~packing~~ grouping criteria provided in Part 2 corresponding to the nature of the predominant subsidiary risk. ~~For packing, see also 4;9.1.5.~~
- c) For the purposes of documentation and package marking, the proper shipping name must be supplemented with the name of the constituents which most predominantly contribute to this (these) subsidiary risk(s) and which must be enclosed in parenthesis;
- d) The dangerous goods transport document must indicate the subsidiary class or division and, where assigned, the packing group as required by 5;4.1.4.1 d) and e).

For packing, see also 4;9.1.5.

~~The description required in 5;4.1.5.7.1 b) must include a description of these subsidiary risks (e.g. "Subsidiary risk: 3,6.1"), the name of the constituents which most predominantly contribute to this (these) subsidiary risk(s) and, where applicable, the packing group.~~

Radioactive material with a subsidiary risk of Division 4.2 (Packing Group I) must be transported in Type B packages. Radioactive material with a subsidiary risk of Division 2.1 is forbidden from transport on passenger aircraft, and radioactive material with a subsidiary risk of Division 2.3 is forbidden from transport on passenger or cargo aircraft except with the prior approval of the appropriate authority of the State of Origin and the State of the Operator under the conditions established by those authorities. A copy of the document of approval, showing the quantity limitations and the packaging requirements, must accompany the consignment.

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 UN Model Regulations, Chapter 3.3, SP 280, ST/SG/AC.10/40/Add.1

≠ A115 (280) This entry applies to ~~articles which are used as lifesaving~~ safety devices for vehicles, vessels or aircraft, e.g. air bag inflators, or air bag modules or, seat belt pretensioners, and pyromechanical devices and which contain dangerous goods of Class 1 or dangerous goods of other classes and when transported as component parts and ~~when~~ if these articles as 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 receptacle, and no projection hazard ~~and~~ nor thermal effect which would significantly hinder firefighting or other emergency response efforts in the immediate vicinity.

This entry does not apply to life saving appliances described in Packing Instruction 955 (UN Nos. 2990 and 3072).

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UN Model Regulations, Chapter 3.3, SP 375, ST/SG/AC.10/40/Add.1

A190 (~~373~~) Neutron radiation detectors containing non-pressurized boron trifluoride gas in excess of 1 gram and radiation detection systems containing neutron radiation detectors as components may be transported on cargo aircraft in accordance with these Instructions irrespective of the indication of "forbidden" in columns 12 and 13 of the Dangerous Goods List, provided the following conditions are met:

a) each radiation detector must meet the following conditions:

- 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~~ 13 grams per detector and the amount per outer packaging or per radiation detection system must not exceed 51.2 grams;
- 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.
- e) each neutron radiation detector must be of welded metal construction with brazed metal to ceramic feed through assemblies. ~~They~~ 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 1×10^{-10} cm³·sec⁻¹ [or cm³/s] leaktightness standard before filling.

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

- ei) each neutron radiation detector ~~they~~ must be packed in a sealed intermediate plastic liner with sufficient absorbent material to absorb the entire gas contents.
- ii) Neutron radiation detectors ~~they~~ must be packed in strong outer packagings and the completed package must be that are capable of withstanding a 1.8 metre drop test without leakage of gas contents from detectors.
- iii) the total amount of gas from all detectors per outer packaging must not exceed 52 grams.

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

- i) the detectors must be housed in a strong sealed outer casing;
- ii) the housing must contain also include sufficient 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.
- iii) the completed system ~~They~~ must be packed in strong outer packagings capable of withstanding a 1.8 m drop test without leakage unless neutron radiation detectors a system's outer casing are afforded equivalent protection by the radiation detection system; and

ed) the package must be labelled with "Toxic gas" and "Corrosive" subsidiary risk labels.

~~Transport in accordance with this special provision must be noted on the dangerous goods transport document must include the following statement: "Transport in accordance with Special Provision A190". and A packing instruction must not be shown on the transport document.~~

When transported as cargo, neutron radiation detectors containing not more than 1 gram of boron trifluoride, including those with solder glass joints, and radiation detection systems containing such detectors where the neutron radiation detectors meet and are not subject to these Instructions provided they meet the requirements in paragraph a) and are packed in accordance with the above conditions paragraph b), are not subject to these Instructions irrespective of the indication of "forbidden" in columns 10 to 13. Radiation detection systems containing such detectors are not subject to these Instructions provided they are packed in accordance with paragraph c). The words "not restricted" and the special provision number A190 must be provided on the air waybill when an air waybill is used.

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+	A191	Notwithstanding the Division 6.1 subsidiary risk shown in column 4 of Table 3-1, the toxic subsidiary risk label and an indication of this subsidiary risk on the dangerous goods transport document 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 dangerous goods transport document.

UN Model Regulations, Chapter 3.3, SP 367, 368, 369, 371, 372, 375, ST/SG/AC.10/40/Add.1

A192 (367) For the purposes of documentation and package marking:

- the proper shipping name **Paint related material** may be used for consignments of packages containing paint and paint related material in the same package;
- the proper shipping name **Paint related material, corrosive, flammable** may be used for consignments of packages containing paint, corrosive, flammable and paint related material, corrosive, flammable in the same package;
- the proper shipping name **Paint related material, flammable, corrosive** may be used for consignments of packages containing paint, flammable, corrosive and paint related material, flammable, corrosive in the same package; and
- the proper shipping name **Printing ink related material** may be used for consignments of packages containing printing ink and printing ink related material in the same package.

A193 (368) In the case of non-fissile or fissile-excepted uranium hexafluoride, the material must be classified under UN 3507 or UN 2978.

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

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 substances, the provisions of 5;1.6.3, 5;1.2.2.2, 5;1.2.4.1 b), 7;3.2.1 to 7;3.2.4 and **7.1.8.6.1 UN MODEL REGS NOT IN TIS** must apply.

No Class 7 label is required to be displayed.

TIs UN

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- A195 (371) 1. This entry also applies to articles, containing a small pressure receptacle with a release device. Such articles must comply with the following requirements:
- a) the water capacity of the pressure receptacle must not exceed 0.5 litres and the working pressure must not exceed 25 bar at 15°C;
 - b) the minimum burst pressure of the pressure receptacle must be at least four times the pressure of the gas at 15 °C;
 - c) each article must be manufactured in such a way that unintentional firing or release is avoided under normal conditions of handling, packing, transport and use. This may be fulfilled by an additional locking device linked to the activator;
 - d) each article must be manufactured in such a way as to prevent hazardous projections of the pressure receptacle or parts of the pressure receptacle;
 - e) each pressure receptacle must be manufactured from material which will not fragment upon rupture;
 - f) the design type of the article must be subjected to a fire test. For this test, the provisions of paragraphs 16.6.1.2 except letter g, 16.6.1.3.1 to 16.6.1.3.6, 16.6.1.3.7 (b) and 16.6.1.3.8 of the UN *Manual of Tests and Criteria* must be applied. It must be demonstrated that the article relieves its pressure by means of a fire degradable seal or other pressure relief device, in such a way that the pressure receptacle will not fragment and that the article or fragments of the article do not rocket more than 10 metres;
 - g) the design type of the article must be subjected to a single package test. A stimulating mechanism must be used to initiate one article in the middle of the packaging. There must be no hazardous effects outside the package such as disruption of the package, metal fragments or a receptacle which passes through the packaging.
2. The manufacturer must produce technical documentation of the design type, manufacture as well as the tests and their results. The manufacturer must apply procedures to ensure that articles produced in series are made of good quality, conform to the design type and are able to meet the requirements in 1). The manufacturer must provide such information to the competent authority on request.

TIs UN

A196 (372) This entry applies to asymmetric 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 Instructions.

Energy storage capacity means the energy stored in a capacitor, as calculated according to the following equation:

$$\text{Wh} = 1/2C_N(U_R^2 - U_L^2) \times (1/3600),$$

using the nominal capacitance (C_N), rated voltage (U_R) and rated lower limit voltage (U_L).

All asymmetric capacitors to which this entry applies must meet the following conditions:

- a) capacitors or modules must be protected against short circuit;
- b) 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;
- c) capacitors must be marked with the energy storage capacity in Wh; and
- d) capacitors containing an electrolyte meeting the classification criteria of any class or division of dangerous goods must be designed to withstand a 95 kPa pressure differential;

Capacitors containing an electrolyte not meeting the classification criteria of any class or division of dangerous goods, including when configured in a module or when installed in equipment are not subject to other provisions of these Instructions.

Capacitors containing an electrolyte meeting the classification criteria of any class or division of dangerous goods, with an energy storage capacity of 20 Wh or less, including when configured in a module, are not subject to other provisions of these Instructions when the capacitors 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 20 Wh are subject to these Instructions.

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 Instructions provided that 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.— Notwithstanding the provisions of this special provision, nickel-carbon asymmetric capacitors containing Class 8 alkaline electrolytes must be transported as UN 2795, **Batteries, wet, filled with alkali, electric storage.**

A197 (375) These substances when transported in single or combination packagings containing a net quantity per single or inner packaging of 5 l or less for liquids or having a net mass of 5 kg or less for solids, are not subject to any other provisions of these Instructions provided the packagings meet the general provisions of 4:1.1.1, 4:1.1.3.1 and 4:1.1.5.

Chapter 4

DANGEROUS GOODS IN LIMITED QUANTITIES

...

4.1 APPLICABILITY

4.1.1 Limited quantities of dangerous goods may only be carried in accordance with the limitations and provisions of this chapter and must meet all the applicable requirements of the Technical Instructions unless otherwise provided for below.

4.1.2 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 these provisions for dangerous goods in limited quantities:

DGP-WG/12-WP/10:

Class 2	Only UN 1950 in Divisions 2.1 and 2.2, UN 2037 in Divisions 2.1 and 2.2 without a subsidiary risk, UN 3478 (Fuel cell cartridges , containing liquefied flammable gas) and UN 3479 (Fuel cell cartridges , containing hydrogen in metal hydride)
Class 3	Packing Groups II and III <u>and UN 3473 (Fuel cell cartridges, containing flammable liquids)</u>
Division 4.1	Packing Groups II and III but excluding all self-reactive substances irrespective of packing group
Division 4.3	Packing Groups II and III, solids only <u>and UN 3476 (Fuel cell cartridges, containing water-reactive substances)</u>
Division 5.1	Packing Groups II and III
Division 5.2	Only when contained in a chemical kit or a first-aid kit
Division 6.1	Packing Groups II and III
Class 8	Packing Groups II and III <u>and UN 3477 (Fuel cell cartridges, containing corrosive substances)</u> but excluding UN 2794, UN 2795, UN 2803, UN 2809, UN 3028 and UN 3506.
Class 9	Only UN 1941, UN 1990, UN 2071, UN 3077, UN 3082, UN 3316, UN 3334, and UN 3335 <u>and ID 8000</u>

Note.— Many articles or substances, including the following, are NOT permitted under these limited quantity provisions:

- a) those permitted only on cargo aircraft;
- b) those in Packing Group I;
- c) those in Class 1 or 7 or Divisions 2.1 (~~other than aerosols~~ except as permitted above), 2.3 or 6.2;
- d) those in Division 4.2 or with a subsidiary risk 4.2.

4.1.3 The limitations and provisions of this chapter for the transport of dangerous goods in limited quantities apply equally to both passenger and cargo aircraft.

...

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.

UN Model Regulations, paragraph 3.4.8, ST/SG/AC.10/40/Add.1

Text from Figure 3-1 has been moved to 4.5.2. New/amended text (other than editorial changes) is highlighted.

4.5.2 Packages containing limited quantities of dangerous goods and prepared in accordance with this chapter must bear the marking shown in Figure 3-1 below. The marking must be readily visible, legible and able to withstand open weather exposure without a substantial reduction in effectiveness. **The marking must be in the form of a square set at an angle of 45 degrees (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 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 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.

4.5.3 When packages containing dangerous goods in limited quantities are placed in an overpack, the overpack must be marked with the word "OVERPACK" and the marking required by this chapter, unless the markings representative of all dangerous goods in the overpack are visible.

Note.— The provisions of 4.5 from the 2013-2014 Edition of these Instructions may continue to be applied until 31 December 2016.

Replace Figure 3-1 with the following (text which was below the limited quantity mark is moved to 4.5.2):

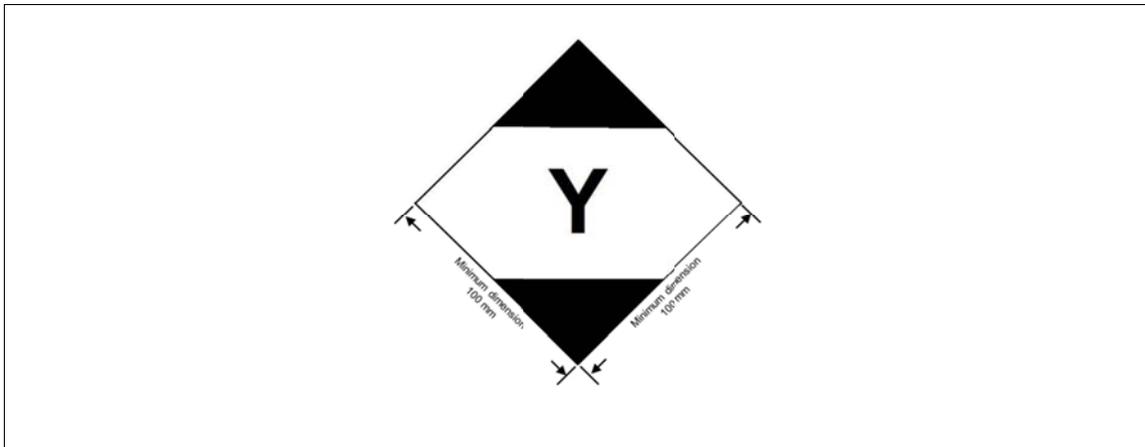


Figure 3-1. Limited quantities mark

Chapter 5

DANGEROUS GOODS PACKED IN EXCEPTED QUANTITIES

Parts of this Chapter are affected by State Variation JP 23; see Table A-1

5.1 EXCEPTED QUANTITIES

5.1.1 Excepted quantities of dangerous goods of certain classes, other than articles, meeting the provisions of this chapter are not subject to any other provisions of these Instructions except for:

- a) the prohibition in post in 1;2.3;
- b) the definitions in 1;3;
- c) the training requirements in 1;4;
- d) the classification procedures and packing group criteria in Part 2;

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- e) the packaging requirements of 4;1.1.1, 4;1.1.3.1, 4;1.1.3.3, 4;1.1.5, 4;1.1.6, 4;1.1.7 and 4;1.1.8 (4;1.1.6 does not apply to UN 3082);
- f) the loading restriction in 7;2.1;
- g) the reporting requirements of dangerous goods accidents, incidents and other occurrences in 7;4.4 and 7;4.5; and
- h) the prohibition of dangerous goods in baggage in 8;1.1.

Note.— In the case of radioactive material, the requirements for radioactive material in excepted packages in 1;6.1.5 apply.

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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.

UN Model Regulations, paragraph 3.5.4.2, ST/SG/AC.10/40/Add.1

Text from Figure 3-2 has been moved to 5.4.2. New/amended text (other than editorial changes) is highlighted.

5.4.2 The marking 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 An overpack containing dangerous goods in excepted quantities must display the markings required by 5.4.1, unless such markings on packages within the overpack are clearly visible.

Note.— The provisions of 5.4 from the 2013-2014 Edition of these Instructions may continue to be applied until 31 December 2016.

Replace Figure 3- with the following (text which was below the limited quantity mark (on left hand side) is moved to 5.4.2):

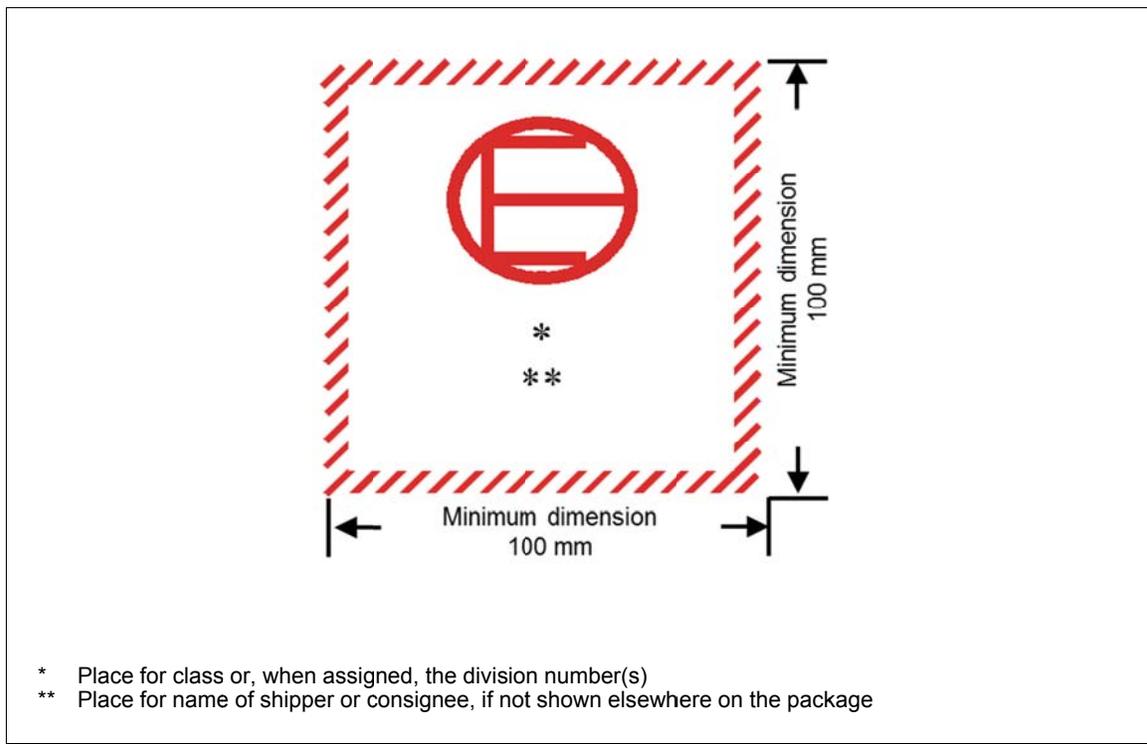


Figure 3-2. Excepted quantities mark

— END —