



International Civil Aviation Organization

DGP-WG/11-WP/11
28/3/11

WORKING PAPER

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

Atlantic City, United States, 4 to 8 April 2011

Agenda Item 3: Development of recommendations for amendments to the *Supplement to the Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284SU) for incorporation in the 2013-2014 Edition

**DRAFT AMENDMENTS TO THE SUPPLEMENT TO THE TECHNICAL INSTRUCTIONS TO
ALIGN WITH THE UN RECOMMENDATIONS**

(Presented by the Secretary)

SUMMARY

This working paper contains draft amendments to the Supplement to 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 fifth session (Geneva, 10 December 2010).

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

Part S-3. DANGEROUS GOODS LIST AND LIMITED QUANTITIES EXCEPTIONS
(additional information for Part 3 of the Technical Instructions)

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Chapter 3

SPECIAL PROVISIONS

Table S-3-4. Special Provisions

Supplementary special provisions

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TIs UN

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A218 This substance must not be transported under the provisions of Division 4.1 unless specifically authorized by the appropriate national authority (see UN 0143 or UN 0150 as appropriate).

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A225 (358) Nitroglycerin solution in alcohol with more than 1 per cent but not more than 5 per cent nitroglycerin may be classified in Class 3 and assigned to UN 3064 provided all the requirements of Packing Instruction 371 are complied with.

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Part S-4

PACKING INSTRUCTIONS

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Chapter 3

CLASS 1 — EXPLOSIVES

110	PACKING INSTRUCTION 110 (UN packing method EP 10)	110
<p>a) <i>Inner packagings</i></p> <p>Bags plastics textile, plastic-coated or lined rubber textile, rubberized textile <u>Receptacles</u> <u>wood</u></p>	<p><i>Intermediate packagings</i></p> <p>Bags plastics textile, plastic-coated or lined rubber textile, rubberized Receptacles metal plastics <u>wood</u></p>	<p><i>Outer packagings</i></p> <p>Drums <u>other metal (1N1, 1N2)</u> plastics, removable head (1H1, 1H2) steel, removable head (<u>1A1, 1A2</u>)</p>

PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:

- The intermediate packagings must be filled with water-saturated material such as an anti-freeze solution or wetted cushioning.
- Outer packagings must be filled with water-saturated material such as an anti-freeze solution or wetted cushioning. Outer packagings must be constructed and sealed to prevent evaporation of the wetting solution, except when UN 0224 is being carried dry.

<i>b) Inner packagings</i>	<i>Intermediate packagings</i>	<i>Outer packagings</i>
Bags plastics, conductive rubber, conductive Receptacles metal plastics, conductive rubber, conductive wood	Dividing partitions fibreboard metal plastics wood	Boxes natural wood, with sift-proof walls (4C2) plywood (4D) reconstituted wood (4F)

PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:

For UN 0074, 0113, 0114, 0129, 0130, 0135 and 0224, the following conditions must be satisfied:

1. a) inner packagings must not contain more than 50 g of explosive substance (quantity corresponding to dry substance);
2. b) compartments between dividing partitions must not contain more than one inner packaging, firmly fitted; and
3. c) the outer packaging must be partitioned into up to 25 compartments.

111

PACKING INSTRUCTION 111
(UN packing method EP 11)

111

<i>Inner packagings</i>	<i>Intermediate packagings</i>	<i>Outer packagings</i>
Bags paper, waterproofed plastics textile, rubberized <u>Receptacles</u> <u>wood</u> Sheets plastics textile, rubberized	Not necessary	Boxes aluminium (4B) expanded plastics (4H1) fibreboard (4G) natural wood, ordinary (4C1) natural wood, with sift-proof walls (4C2) <u>other metal (4N)</u> plywood (4D) reconstituted wood (4F) solid plastics (4H2) steel (4A) Drums aluminium, removable head (<u>1B1</u> , 1B2) fibreboard (1G) <u>other metal (1N1, 1N2)</u> plastics, removable head (<u>1H1</u> , 1H2) plywood (1D) steel, removable head (<u>1A1</u> , 1A2)

PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:

- For UN 0159, inner packagings are not required when metal (1A2 or 1B2) or plastics (1H2) drums are used as outer packagings.

112	PACKING INSTRUCTION 112 (UN packing method EP 12)	112
a) solid wetted 1.1D		
<p><i>Inner packagings</i></p> <p>Bags paper, multiwall, water-resistant plastics textile textile, rubberized woven plastics</p> <p>Receptacles metal plastics <u>wood</u></p>	<p><i>Intermediate packagings</i></p> <p>Bags plastics textile, plastic-coated or lined</p> <p>Receptacles metal plastics <u>wood</u></p>	<p><i>Outer packagings</i></p> <p>Boxes aluminium (4B) expanded plastics (4H1) fibreboard (4G) natural wood, ordinary (4C1) natural wood, with sift-proof walls (4C2) <u>other metal (4N)</u> plywood (4D) reconstituted wood (4F) solid plastics (4H2) steel (4A)</p> <p>Drums aluminium, removable head (<u>1B1</u>, 1B2) fibre (1G) <u>other metal (1N1, 1N2)</u> plastics, removable head (<u>1H1</u>, 1H2) steel, removable head (<u>1A1</u>, 1A2)</p>
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:		
<ul style="list-style-type: none"> — For UN 0004, 0076, 0078, 0154, 0219 and 0394, packagings must be lead-free. — Intermediate packagings are not required if leakproof drums are used as the outer packaging. — For UN 0072 and UN 0226, intermediate packagings are not required. 		
b) solid dry, other than powder 1.1D		
<p><i>Inner packagings</i></p> <p>Bags paper, kraft paper, multiwall, water-resistant plastics textile textile, rubberized woven plastics</p>	<p><i>Intermediate packagings</i></p> <p>Bags (for 0150 only) plastics textile, plastic-coated or lined</p>	<p><i>Outer packagings</i></p> <p>Bags paper, multiwall, water-resistant (5M2) plastics, film (5H4) textile, sift-proof (5L2) textile, water-resistant (5L3) woven plastics, sift-proof (5H2/3)</p> <p>Boxes aluminium (4B) expanded plastics (4H1) fibreboard (4G) natural wood, ordinary (4C1) natural wood, with sift-proof walls (4C2) <u>other metal (4N)</u> plywood (4D) reconstituted wood (4F) solid plastics (4H2) steel (4A)</p> <p>Drums aluminium, removable head (<u>1B1</u>, 1B2) fibre (1G) <u>other metal (1N1, 1N2)</u> plastics, removable head (<u>1H1</u>, 1H2) steel, removable head (<u>1A1</u>, 1A2)</p>
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:		
<ul style="list-style-type: none"> — For UN 0004, 0076, 0078, 0154, 0216, 0219 and 0386, packagings must be lead-free. — For UN 0209, bags, sift-proof (5H2) are recommended for flake or prilled TNT in the dry state and a maximum net mass of 30 kg. — For UN 0222 and UN 0223, inner packagings are not required when the outer packaging is a bag. 		

c) for solid dry powder 1.1D		
<i>Inner packagings</i>	<i>Intermediate packagings</i>	<i>Outer packagings</i>
Bags paper, multiwall, water-resistant plastics woven plastics	Bags (for 1050 only) paper, multiwall, water-resistant with inner lining plastics	Boxes fibreboard (4G) natural wood, ordinary (4C1) natural wood, with sift-proof walls (4C2)
Receptacles fibreboard metal plastics wood	Receptacles metal plastics <u>wood</u>	<u>metal, other (4N)</u> plywood (4D) reconstituted wood (4F) solid plastics (4H2) steel (4A)
		Drums aluminium, removable head (1B1, 1B2) fibre (1G) <u>other metal (1N1, 1N2)</u> steel, removable head (1A1, 1A2)
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:		
<ul style="list-style-type: none"> — For UN 0004, 0076, 0078, 0154, 0216, 0219 and 0386, packagings must be lead-free. — For UN 0209, bags, sift-proof (5H2) are recommended for flake or prilled TNT in the dry state and a maximum net mass of 30 kg. — Inner packagings are not required if drums are used as the outer packaging. — These packages must be sift-proof. 		

113	PACKING INSTRUCTION 113 (UN packing method EP 13)	113
<i>Inner packagings</i>	<i>Intermediate packagings</i>	<i>Outer packagings</i>
Bags paper plastics textile, rubberized	Not necessary	Boxes fibreboard (4G) natural wood, ordinary (4C1) natural wood, with sift-proof walls (4C2)
Receptacles fibreboard metal plastics wood		<u>metal, other (4N)</u> plywood (4D) reconstituted wood (4F) solid plastics (4H2) steel (4A)
Sheets paper, kraft paper, waxed		Drums aluminium, removable head (1B1, 1B2) fibre (1G) <u>other metal (1N1, 1N2)</u> steel, removable head (1A1, 1A2)
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:		
<ul style="list-style-type: none"> — For UN 0094 and UN 0305, no more than 50 g of substance must be packed in an inner packaging. — For UN 0027, inner packagings are not necessary when drums are used as the outer packaging. — Packages must be sift-proof. — Sheets may only be used for UN 0028. 		

115	PACKING INSTRUCTION 115 (UN packing method EP 15)	115
<i>Inner packagings</i> Receptacles metal plastics <u>wood</u>	<i>Intermediate packagings</i> Bags plastics in metal receptacles Drums metal <u>Receptacles</u> <u>wood</u>	<i>Outer packagings</i> Boxes fibreboard (4G) natural wood, ordinary (4C1) natural wood, with sift-proof walls (4C2) <u>other metal (4N)</u> plywood (4D) reconstituted wood (4F) Drums aluminium, removable head (<u>1B1</u> , 1B2) fibre (1G) <u>other metal (1N1, 1N2)</u> plywood (1D) steel, removable head (<u>1A1</u> , 1A2)
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ul style="list-style-type: none"> — For UN 0075, 0143, 0495 and 0497 when boxes are used as the outer packaging, inner packagings must have taped screw cap closures and be not more than 5 litres capacity each. Inner packagings must be surrounded with non-combustible absorbent cushioning materials. The amount of absorbent cushioning material must be sufficient to absorb the liquid contents. Metal receptacles must be cushioned from each other. Net mass of propellant is limited to 30 kg for each package when outer packagings are boxes. — For UN 0075, 0143, 0495 and 0497 when drums are used as the outer packaging and when intermediate packagings are drums, they must be surrounded with non-combustible cushioning material in a quantity sufficient to absorb the liquid contents. A composite packaging consisting of a plastic receptacle in a metal drum may be used instead of the inner and intermediate packagings. The net volume of propellant in each package must not exceed 120 litres. — For UN 0144, absorbent cushioning material must be inserted. — Metal receptacles as inner packagings must only be used for UN 0144. — For UN 0075, 0143, 0495 and 0497, bags are to be used as intermediate packagings when boxes are used as outer packagings. — For UN 0075, 0143, 0495 and 0497, drums are to be used as intermediate packagings when drums are used as outer packagings. — For UN 0144, intermediate packagings are not necessary. — Fibreboard boxes (4G) should only be used for UN 0144. — For UN 0144, aluminium drums, removable head (1B2) <u>and metal, other than steel or aluminium, drums, removable head (1N2)</u>, are not allowed. 		

116	PACKING INSTRUCTION 116 (UN packing method EP 16)		116
<p><i>Inner packagings</i></p> <p>Bags paper, water and oil resistant plastics textile, plastic-coated or lined woven plastics, sift-proof</p> <p>Receptacles fibreboard, water-resistant metal plastics wood, sift-proof</p> <p>Sheets paper, water-resistant paper, waxed plastics</p>	<p><i>Intermediate packagings</i></p> <p>Not necessary</p>	<p><i>Outer packagings</i></p> <p>Bags paper, multiwall, water-resistant (5M2) plastics, film (5H4) textile, sift-proof (5L2) textile, water-resistant (5L3) woven plastics (5H1/2/3)</p> <p>Boxes aluminium (4B) fibreboard (4G) natural wood, ordinary (4C1) natural wood, with sift-proof walls (4C2) <u>other metal (4N1)</u> plywood (4D) reconstituted wood (4F) solid plastics (4H2) steel (4A)</p> <p>Drums aluminium, removable head (1B1, 1B2) fibre (1G) <u>other metal (1N1, 1N2)</u> plastics, removable head (1H1, 1H2) steel, removable head (1A1, 1A2)</p> <p>Jerricans plastics, removable head (3H1, 3H2) steel, removable head (3A1, 3A2)</p>	
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ul style="list-style-type: none"> — For UN 0082, 0241, 0331 and 0332, inner packagings are not necessary if leakproof, removable head drums are used as the outer packaging. — For UN 0082, 0241, 0331 and 0332, inner packagings are not required when the explosive is contained in a material impervious to liquid. — For UN 0081, inner packagings are not required when contained in rigid plastic which is impervious to nitric esters. — UN 0331, inner packagings are not required when bags (5H2), (5H3) or (5H4) are used as outer packagings. — Bags (5H2 or 5H3) should be used only for UN 0082, 0241, 0331 and 0332. — For UN 0081, bags must not be used as outer packagings. 			

132	PACKING INSTRUCTION 132 (UN packing method EP 32)		132
<p>a) Articles consisting of closed metal, plastic or fibreboard casings that contain a detonating explosive, or consisting of plastic-bonded detonating explosives</p>			
<p><i>Inner packagings</i></p> <p>Not necessary</p>	<p><i>Intermediate packagings</i></p> <p>Not necessary</p>	<p><i>Outer packagings</i></p> <p>Boxes aluminium (4B) fibreboard (4G) natural wood, ordinary (4C1) natural wood, with sift-proof walls (4C2) <u>other metal (4N)</u> plywood (4D) reconstituted wood (4F) solid plastics (4H2) steel (4A)</p>	

b) Articles without closed casings		
<i>Inner packagings</i>	<i>Intermediate packagings</i>	<i>Outer packagings</i>
Receptacles fibreboard metal plastics <u>wood</u> Sheets paper plastics	Not necessary	Boxes aluminium (4B) fibreboard (4G) natural wood, ordinary (4C1) natural wood, with sift-proof walls (4C2) <u>other metal (4N)</u> plywood (4D) reconstituted wood (4F) solid plastics (4H2) steel (4A)

144	PACKING INSTRUCTION 144	144
(UN packing method EP 44)		
<i>Inner packagings</i>	<i>Intermediate packagings</i>	<i>Outer packagings</i>
Receptacles fibreboard metal <u>wood</u> plastics Dividing partitions in the outer packagings	Not necessary	Boxes aluminium (4B) expanded plastics (4H1) natural wood, ordinary (4C1) with metal liner <u>other metal (4N)</u> plywood (4D) with metal liner reconstituted wood (4F) with metal liner steel (4A)
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:		
— For UN 0248 and UN 0249, packagings must be protected against the ingress of water. When CONTRIVANCES, WATER ACTIVATED are transported unpackaged, they must be provided with at least two independent protective features which prevent the ingress of water.		

APPENDIX

PROPOSED AMENDMENTS TO TABLE S-3-1

Table S-3-1. Supplementary Dangerous Goods List - DRAFT

Name	UN No.	Class or division	Subsidiary risk	Labels	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	5	6	7	8	9	10	11	12	13
# Nitroglycerin solution in alcohol with more than 1% but not more than 10% nitroglycerin	0144	1.1D				A225			FORBIDDEN (115)		FORBIDDEN (115)	
# <u>Dimethyldichlorosilane</u>	1162	3	8	Liquid flammable & Corrosive			II	E0	377	1 L	377	5 L
# <u>Ethyltrichlorosilane</u>	1196	3	8	Liquid flammable & Corrosive			II	E0	377	1 L	377	5 L
# <u>Kerosene</u>	1223	3		Liquid flammable		A188 A224	III	E1	355 Y344	60 L 10 L	366	220 L
# <u>Methyltrichlorosilane</u>	1250	3	8	Liquid flammable & Corrosive	AU 1 CA 7 IR 3 NL 1 US 3		II	E0	377	1 L	377	5 L
# <u>Trimethylchlorosilane</u>	1298	3	8	Liquid flammable & Corrosive			II	E0	377	1 L	377	5 L
# <u>Vinyltrichlorosilane</u>	1305	3	8	Liquid flammable & Corrosive	AU 1 CA 7 IR 3 NL 1 US 3		II	E0	377	1 L	377	5 L
# <u>Iodine monochloride, solid</u>	1792	8		Corrosive	AU 1 CA 7 IR 3 NL 1 US 3	A1	II	E0	815	(15 kg)	863	50 kg
# <u>Dimethyl disulphide</u>	2381	3	6.1	Liquid flammable & Toxic	A 223		II	E0	353	5 L	364	60 L
# <u>Chlorosilanes, flammable, corrosive, n.o.s.</u>	2985	3	8	Liquid flammable & Corrosive			II	E0	377	1 L	377	5 L
# Nitroglycerin solution in alcohol with more than 1% but not more than 5% nitroglycerin	3064	3		Liquid flammable	BE 3	A191	II	E0	FORBIDDEN		371	5 L
# <u>Chlorosilanes, toxic, corrosive, n.o.s. *</u>	3361	6.1	8	Toxic & Corrosive			II	E0	681	1 L	681	30 L
# <u>Chlorosilanes, toxic, corrosive, flammable, n.o.s.*</u>	3362	6.1	3 8	Toxic & Liquid flammable & Corrosive			II	E0	681	1 L	681	30 L

Chapter 2

S-3-2-2

Name	UN No.	Class or division	Subsidiary risk	Labels	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	5	6	7	8	9	10	11	12	13
≠ Toxic by inhalation liquid, n.o.s.* with an LC ₅₀ lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀	3381	6.1		Toxic			I		FORBIDDEN		FORBIDDEN	
≠ Toxic by inhalation liquid, n.o.s.* with an LC ₅₀ lower than or equal to 1 000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀	3382	6.1		Toxic			I		FORBIDDEN		FORBIDDEN	
≠ Toxic by inhalation liquid, flammable, n.o.s.* with an LC ₅₀ lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀	3383	6.1	3	Toxic & Liquid flammable			I		FORBIDDEN		FORBIDDEN	
≠ Toxic by inhalation liquid, flammable, n.o.s.* with an LC ₅₀ lower than or equal to 1 000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀	3384	6.1	3	Toxic & Liquid flammable			I		FORBIDDEN		FORBIDDEN	
≠ Toxic by inhalation liquid, water-reactive, n.o.s.* with an LC ₅₀ lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀	3385	6.1	4.3	Toxic & Danger if wet			I		FORBIDDEN		FORBIDDEN	
≠ Toxic by inhalation liquid, water-reactive, n.o.s.* with an LC ₅₀ lower than or equal to 1 000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀	3386	6.1	4.3	Toxic & Danger if wet			I		FORBIDDEN		FORBIDDEN	
≠ Toxic by inhalation liquid, oxidizing, n.o.s.* with an LC ₅₀ lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀	3387	6.1	5.1	Toxic & Oxidizer			I		FORBIDDEN		FORBIDDEN	
≠ Toxic by inhalation liquid, oxidizing, n.o.s.* with an LC ₅₀ lower than or equal to 1 000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀	3388	6.1	5.1	Toxic & Oxidizer			I		FORBIDDEN		FORBIDDEN	
≠ Toxic by inhalation liquid, corrosive, n.o.s.* with an LC ₅₀ lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀	3389	6.1	8	Toxic & Corrosive			I		FORBIDDEN		FORBIDDEN	
≠ Toxic by inhalation liquid, corrosive, n.o.s.* with an LC ₅₀ lower than or equal to 1 000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀	3390	6.1	8	Toxic & Corrosive			I		FORBIDDEN		FORBIDDEN	

Name	UN No.	Class or division	Subsidiary risk	Labels	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	5	6	7	8	9	10	11	12	13
# Toxic by inhalation liquid, flammable, corrosive, n.o.s.* with an LC₅₀ lower than or equal to 200 ml/m³ and saturated vapour concentration greater than or equal to 500 LC₅₀	3488	6.1	3 8	Toxic & Liquid flammable & Corrosive					FORBIDDEN		FORBIDDEN	
# Toxic by inhalation liquid, flammable, corrosive, n.o.s.* with an LC₅₀ lower than or equal to 1 000 ml/m³ and saturated vapour concentration greater than or equal to 10 LC₅₀	3489	6.1	3 8	Toxic & Liquid flammable & Corrosive					FORBIDDEN		FORBIDDEN	
# Toxic by inhalation liquid, water-reactive, flammable, n.o.s.* with an LC₅₀ lower than or equal to 200 ml/m³ and saturated vapour concentration greater than or equal to 500 LC₅₀	3490	6.1	3 4.3	Toxic & Liquid flammable & Danger if wet					FORBIDDEN		FORBIDDEN	
# Toxic by inhalation liquid, water-reactive, flammable, n.o.s.* with an LC₅₀ lower than or equal to 1 000 ml/m³ and saturated vapour concentration greater than or equal to 10 LC₅₀	3491	6.1	3 4.3	Toxic & Liquid flammable & Danger if wet					FORBIDDEN		FORBIDDEN	
> UN 3492 (delete)												
> UN 3493 (delete)												