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**COMMITTEE OF EXPERTS ON THE TRANSPORT
OF DANGEROUS GOODS AND ON THE GLOBALLY
HARMONIZED SYSTEM OF CLASSIFICATION
AND LABELLING OF CHEMICALS**

Sub-Committee of Experts on the
Transport of Dangerous Goods

REPORT OF THE SUB-COMMITTEE OF EXPERTS
ON ITS TWENTY-EIGHTH SESSION
(Geneva, 28 November-6 December 2005)

Addendum 1

Draft amendments to the UN Recommendations on the Transport of Dangerous Goods

PART 1

Chapter 1.2

1.2.1 Add the following new note after the definition of "*Recycled plastics material*":

"NOTE: ISO 16103:2005 - *Packaging – transport packages for dangerous goods - Recycled plastics material, provides additional guidance on procedures to be followed in approving the use of recycled plastics material.*".

Chapter 1.4

Table 1.4.1 Add a new fourth line for Class 1, Division 1.4 to read as follows:

"Class 1, Division 1.4 UN Nos. 0104, 0237, 0255, 0267, 0289, 0361, 0365, 0366, 0440, 0441, 0455, 0456 and 0500".

PART 2

Chapter 2.1

2.1.3.5.2 **NOTE 2**, replace "*firework types and/or sub-divisions by the specification*" with "*fireworks specified*".

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2.1.3.5.5 The amendment to the table does not apply to the English version.

Chapter 2.3

2.3.2.5 Insert "or environmentally hazardous" at the end of the second indent.

Consequential amendment: The same amendment applies to paragraph 32.3.1.6 of Part 3, section 32 of the Manual of Tests and Criteria.

Chapter 2.6

2.6.3.2.3.1 Replace "do not contain infectious substances or substances which are" with "contain pathogens but are nevertheless".

2.6.3.2.3.2 Delete. Rerumber the subsequent paragraphs accordingly.

2.6.3.2.3.6 **NOTE** Delete "; and antibody detection in humans or animals".

PART 3

Chapter 3.2

Dangerous goods list

Delete "TP9" each time it appears in column (11) with the exception of UN 3375.

Delete "TP12" each time it appears in column (11).

Amend columns (10) and (11) for the following entries:

(1)	(2)	(5)	(10)	(11)
3129	Water-reactive liquid, corrosive, n.o.s.	I	T14	TP2 TP7
		II	T11	TP2
		III	T7	TP1
3148	Water-reactive liquid, n.o.s.	I	T9	TP2 TP7
		II	T7	TP2
		III	T7	TP1
3131	Water-reactive solid, corrosive, n.o.s.	I	T9	TP7 TP33
2813	Water-reactive solid, n.o.s.	I	T9	TP7 TP33

UN 3468 In column (2), add at the end:

"or HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM CONTAINED IN EQUIPMENT or HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM PACKED WITH EQUIPMENT".

- UN 2059 In column (8), for packing group II, add "IBC02" and for packing group III, add "IBC03".
- UN 3468 In column (6), add "SP332".
- UN 2031 For packing group II, in column (2), add "at least 65%, but" after "with", and in column (4), add "5.1".

Add a new entry as follows:

UN No.	Name and description	Class or division	Subsidiary risk	UN packing group	Special provisions	Limited quantities	Packagings and IBCs		Portable tanks and bulk containers	
							Packing instruction	Special packing provisions	Instruc-tions	Special provisions
2031	NITRIC ACID, other than red fuming, with less than 65% nitric acid	8		II		1 L	P001 IBC02	PP81	T8	TP2

- UN 0411 Amendment does not apply to the English version.
- UN 1344 Column (2), add "(PICRIC ACID)" after "TRINITROPHENOL".
- UN 1356 Column (2), add "(TNT)" after "TRINITROTOLUENE".
- UN 3344 Column (2), add "(PENTAERYTHRITOL TETRANITRATE; PETN)" after "TETRANITRATE".

Chapter 3.3

- 3.3.1 SP199 Replace "are considered insoluble. See ISO 3711:1990." with "(see ISO 3711:1990) are considered insoluble and are not subject to these Regulations unless they meet the criteria for inclusion in another hazard class or division.".

Add a new special provision to read as follows:

"SP332 Magnesium nitrate hexahydrate is not subject to these Regulations.".

PART 4

Chapter 4.1

- 4.1.1.10 In the last sentence before the table, delete "Metal".

- 4.1.4.1 **P200** (4) In the third paragraph of special packing provision "k", replace "assemblies (groups)" with "groups".

Amend special packing provision "n" to read as follows:

"n: Cylinders and individual cylinders in a bundle shall contain not more than 5 kg of the gas. When bundles containing UN 1045 Fluorine, compressed are divided into groups of cylinders in accordance with special packing provision 'k' each group shall contain not more than 5 kg of the gas.".

Modify column "Filling ratio" of Table 2 as follows:

UN No.	Name	Test pressure, bar	Filling ratio
1020	Chloropentafluoroethane (R115)	25	1.05
	Hydrogen bromide	60	1.51
1973	R502	31	1.01
1976	Octafluorocyclobutane (RC318)	11	1.32
1982	Tetrafluoromethane (R14)	300	0.90
2035	1,1,1-trifluoroethane (R143a)	35	0.73
[2192]	Germane	250	1.00]
2198	Phosphorus pentafluoride	300	1.25
2424	Octafluoropropane (R218)	25	1.04
2599	R503	42	0.17
2599	R503	100	0.64

- P620** In (a) (i) and (ii), replace "watertight" with "leakproof".

Delete (b).

In additional requirement 2 (b), replace "6.3.1.1" with "6.3.3".

- P650** In (6), replace "6.3.2.5" with "6.3.5.3" and "6.3.2.2 to 6.3.2.4" with "6.3.5.2".

- 4.1.4.2 **IBC01, IBC02 and IBC03** Delete the additional requirement.

IBC03 In the special packing provision B11, insert at the beginning "Notwithstanding the provisions of 4.1.1.10".

- 4.1.8 Replace "**(Division 6.2)**" with "**of Category A (Division 6.2, UN 2814 and UN 2900)**".

- 4.1.8.2 Replace "liquids shall be filled into packagings, including IBCs, which" with "liquids shall only be filled into packagings which".

- 4.1.8.3 Delete "For UN 2814 and UN 2900," and "and assignment to UN 2814 or UN 2900".

- 4.1.8.4 Delete "thoroughly" and add "to nullify any hazard" after "sterilized".

- 4.1.8.5 Replace with the text of existing 6.3.2.8.

Chapter 4.2

4.2.5.3 Delete TP12.

PART 5

Chapter 5.2

5.2.1.7.1 In the third indent, delete "open".

5.2.1.7.2 (a) Add "except for cryogenic receptacles" after "pressure receptacles".

5.2.2.2.1.3 Amend to read as follows:

"5.2.2.2.1.3 With the exception of Divisions 1.4, 1.5 and 1.6, the upper half of the label shall contain the pictorial symbol and the lower half shall contain the class or division number and the compatibility group letter as appropriate. The label may include text such as the UN number or words describing the hazard class or division (e.g. "flammable") in accordance with 5.2.2.2.1.5 provided the text does not obscure or detract from the other required label elements.".

Chapter 5.3

5.3.2.1.2 (a) Amend to read as follows:

"(a) Against a white background in the area below the pictorial symbol and above the class or division number and the compatibility group letter in a manner that does not obscure or detract from the other required label elements (see Figures 5.3.1 and 5.3.2); or".

PART 6

Chapter 6.1

[6.1.3.1 (a) Replace the first sentence after the symbol with: "This symbol shall not be used for any purpose other than certifying that a packaging complies with the relevant regulations in Chapter 6.1, 6.2, 6.3, 6.5 or 6.6.".]

Chapter 6.2

6.2.1.1.6 Replace "Manifolds shall be designed such that they are protected from impact." with "Manifold assemblies (e.g. manifold, valves, and pressure gauges) shall be designed and constructed such that they are protected from impact damage and forces normally encountered in transport. Manifolds shall have at least the same test pressure as the cylinders.".

Replace "means shall be provided" with "each pressure receptacle shall have an isolation valve".

6.2.1.3.1 Amend to read as follows :

"6.2.1.3.1 Valves, piping and other fittings subjected to pressure, excluding pressure relief devices, shall be designed and constructed so that the burst pressure is at least 1.5 times the test pressure of the pressure receptacle.".

[6.2.2.7.1 (a) Replace the first sentence after the symbol with: "This symbol shall not be used for any purpose other than certifying that a packaging complies with the relevant regulations in Chapter 6.1, 6.2, 6.3, 6.5 or 6.6.".]

Chapter 6.3

In the title, replace "SUBSTANCES" with "INFECTIOUS SUBSTANCES OF CATEGORY A".

Sections 6.3.1 to 6.3.3 Amend as follows:

"6.3.1 General

6.3.1.1 The requirements of this Chapter apply to packagings intended for the transport of infectious substances of Category A.

6.3.2 Requirements for packagings

6.3.2.1 The requirements for packagings in this section are based on packagings, as specified in 6.1.4, currently used. In order to take into account progress in science and technology, there is no objection to the use of packagings having specifications different from those in this Chapter provided that they are equally effective, acceptable to the competent authority and able successfully to withstand the tests described in 6.3.5. Methods of testing other than those described in these Regulations are acceptable, provided they are equivalent.

6.3.2.2 Packagings shall be manufactured and tested under a quality assurance programme which satisfies the competent authority in order to ensure that each packaging meets the requirements of this Chapter.

6.3.2.3 *Text of existing 6.3.1.3.*

6.3.3 Code for designating types of packagings

6.3.3.1 The codes for designating types of packagings are set out in 6.1.2.7.

6.3.3.2 The letters "U" or "W" may follow the packaging code. The letter "U" signifies a special packaging conforming to the requirements of 6.3.5.1.6. The letter "W" signifies that the packaging, although, of the same type indicated by the code is manufactured to a specification different from that in 6.1.4 and is considered equivalent under the requirements of 6.3.2.1.".

Add new Sections 6.3.4 and 6.3.5 as follows:

"6.3.4 **Marking**

NOTE 1: *The marking indicates that the packaging which bears it corresponds to a successfully tested design type and that it complies with the requirements of this Chapter which are related to the manufacture, but not to the use, of the packaging.*

NOTE 2: *The marking is intended to be of assistance to packaging manufacturers, reconditioners, packaging users, carriers and regulatory authorities.*

NOTE 3: *The marking does not always provide full details of the test levels, etc., and these may need to be taken further into account, e.g. by reference to a test certificate, to test reports or to a register of successfully tested packagings.*

6.3.4.1 Each packaging intended for use according to these Regulations shall bear markings which are durable, legible and placed in a location and of such a size relative to the packaging as to be readily visible. For packages with a gross mass of more than 30 kg, the markings or a duplicate thereof shall appear on the top or on a side of the packaging. Letters, numerals and symbols shall be at least 12 mm high, except for packagings of 30 litres or 30 kg capacity or less, when they shall be at least 6 mm in height and for packagings of 5 litres or 5 kg or less when they shall be of an appropriate size."

6.3.4.2 Text of existing 6.3.1.1, with the following modifications:

At the beginning, replace "6.3.2" with "6.3.5".

In (a), add at the end: "This symbol shall not be used for any purpose other than certifying that a packaging complies with the relevant regulations in Chapter 6.1, 6.2, 6.3, 6.5 or 6.6;".

In (g), replace "6.3.2.9" with "6.3.5.1.6".

At the end, delete the text after sub-paragraphs (a) to (g).

6.3.4.3 Marking shall be applied in the sequence shown in 6.3.4.2 (a) to (g); each element of the marking required in these sub-paragraphs shall be clearly separated, e.g. by a slash or space, so as to be easily identifiable. For examples, see 6.3.4.4.

Any additional markings authorized by a competent authority shall still enable the parts of the mark to be correctly identified with reference to 6.3.4.1.

6.3.4.4 Text of existing 6.3.1.2, with the following modifications:

In the marking, replace "01" with "06".

Replace "6.3.1.1" with "6.3.4.2" (twice).

Replace "(e)," with "(e) and".

6.3.5 Heading of existing 6.3.2.

6.3.5.1 ***Performance and frequency of tests***

6.3.5.1.1 The design type of each packaging shall be tested as provided in this section in accordance with procedures established by the competent authority.

6.3.5.1.2 Each packaging design type shall successfully pass the tests prescribed in this Chapter before being used. A packaging design type is defined by the design, size, material and thickness, manner of construction and packing, but may include various surface treatments. It also includes packagings which differ from the design type only in their lesser design height.

Consequential amendments:

6.1.5.1.2 Replace the first sentence with "Each packaging design type shall successfully pass the tests prescribed in this Chapter before being used.".

6.5.6.1.1 Replace the first sentence with "Each IBC design type shall successfully pass the tests prescribed in this Chapter before being used.".

6.6.5.1.2 Replace the first sentence with "Each large packaging design type shall successfully pass the tests prescribed in this Chapter before being used.".

6.3.5.1.3 Tests shall be repeated on production samples at intervals established by the competent authority.

6.3.5.1.4 Tests shall also be repeated after each modification which alters the design, material or manner of construction of a packaging.

6.3.5.1.5 Text of existing 6.3.2.7, with the following modifications:

Replace "of inner packagings or inner packagings of lower net mass" with "or lower net mass of primary receptacles".

Delete ", bags".

6.3.5.1.6 Text of existing 6.3.2.9, with the following modifications:

At the beginning, replace "Inner" with "Primary", "intermediate (secondary)" with "secondary" and "outer" with "rigid outer".

In (a), replace "intermediate/outer packaging combination" with "rigid outer packaging", "6.3.2.3" with "6.3.5.2.2" and "inner" with "primary".

In (b), replace "inner" with "primary" (twice).

In (c), replace "inner" with "primary" (seven times) and "intermediate" with "secondary" (twice). Add "spaces" at the end.

In (d), replace "outer" with "rigid outer" and "inner receptacles" with "packagings".

In (e), replace "inner" with "primary" (twice).

In (f), replace "outer" with "rigid outer" and "inner" with "primary" (twice).

In (g), replace "6.3.1.1" with "6.3.4.2" (twice).

6.3.5.1.7 The competent authority may at any time require proof, by tests in accordance with this section, that serially-produced packagings meet the requirements of the design type tests.

6.3.5.1.8 Provided the validity of the test results is not affected and with the approval of the competent authority, several tests may be made on one sample.

6.3.5.2 Preparation of packagings for testing

6.3.5.2.1 Text of existing 6.3.2.2, with the following modifications:

Replace "98% capacity" with "not less than 98 % of its capacity".

Add a new note at the end to read as follows:

"NOTE: The term water includes water/antifreeze solution with a minimum specific gravity of 0.95 for testing at – 18 °C."

6.3.5.2.2 Tests and number of samples required

Tests required for packaging types

Type of packaging ^a		Tests required						
Rigid outer packaging	Primary receptacle		Water spray 6.3.5.3.5.1	Cold conditioning 6.3.5.3.5.2	Drop 6.3.5.3	Additional drop 6.3.5.3.5.3	Puncture 6.3.5.4	Stack 6.1.5.6
	Plastics	Other	No. of samples	No. of samples	No. of samples	No. of samples	No. of samples	
Fibreboard box	x		5	5	10	Required on one sample when the packaging is intended to contain dry ice.	2	Required on three samples when testing a "U"-marked packaging as defined in 6.3.5.1.6 for specific provisions.
		x	5	0	5		2	
Fibreboard drum	x		3	3	6		2	
		x	3	0	3		2	
Plastics box	x		0	5	5		2	
		x	0	5	5		2	
Plastics drum/jerrican	x		0	3	3		2	
		x	0	3	3		2	
Boxes of other material	x		0	5	5		2	
		x	0	0	5		2	
Drums/jerricans of other material	x		0	3	3		2	
		x	0	0	3		2	

^a "Type of packaging" categorizes packagings for test purposes according to the kind of packaging and its material characteristics.

NOTE 1: In instances where a primary receptacle is made of two or more materials, the material most liable to damage determines the appropriate test.

NOTE 2: The material of the secondary packagings are not taken into consideration when selecting the test or conditioning for the test.

Explanation for use of the table:

If the package to be tested consists of a fibreboard outer box with a plastics primary receptacle, five samples must undergo the water spray test (see 6.3.5.3.5.1) prior to dropping and another five must be conditioned to – 18 °C (see 6.3.5.3.5.2) prior to dropping. If the package is to contain dry ice then one further single sample shall be dropped five times after conditioning in accordance with 6.3.5.3.5.3.

Packagings prepared as for transport shall be subjected to the tests in 6.3.5.3 and 6.3.5.4. For outer packagings, the headings in the table relate to fibreboard or similar materials whose performance may be rapidly affected by moisture; plastics which may embrittle at low temperature; and other materials such as metal whose performance is not affected by moisture or temperature.

6.3.5.3 *Drop test*

6.3.5.3.1 Samples shall be subjected to free-fall drops on to a rigid, non-resilient, flat, horizontal surface from a height of 9 m. Where the samples are in the shape of a box; five shall be dropped one in each of the following attitudes:

- (a) flat on the base;
- (b) flat on the top;
- (c) flat on the longest side;
- (d) flat on the shortest side;
- (e) on a corner.

6.3.5.3.2 Where the samples are in the shape of a drum, three shall be dropped one in each of the following attitudes:

- (a) diagonally on the top chime, with the centre of gravity directly above the point of impact;
- (b) diagonally on the base chime;
- (c) flat on the side.

6.3.5.3.3 While the sample shall be released in the required orientation, it is accepted that for aerodynamic reasons the impact may not take place in that orientation.

6.3.5.3.4 Following the appropriate drop sequence, there shall be no leakage from the primary receptacle(s) which shall remain protected by cushioning/absorbent material in the secondary packaging.

6.3.5.3.5 *Special preparation of test sample for the drop test*

6.3.5.3.5.1 *Fibreboard - The water spray test*

Fibreboard outer packagings: The sample shall be subjected to a water spray that simulates exposure to rainfall of approximately 5 cm per hour for at least one hour. It shall then be subjected to the test described in 6.3.5.3.1.

6.3.5.3.5.2 *Plastics material – Cold Conditioning*

Plastics primary receptacles or outer packagings: The temperature of the test sample and its contents shall be reduced to -18 °C or lower for a period of at least 24 hours and within 15 minutes of removal from that atmosphere the test sample shall be subjected to the test described in 6.3.5.3.1. Where the sample contains dry ice, the conditioning period shall be reduced to 4 hours.

6.3.5.3.5.3 *All packages containing dry ice – Additional drop test*

Where the packaging is intended to contain dry ice, a test additional to that specified in 6.3.5.3.1 and, when appropriate, in 6.3.5.3.5.1 or 6.3.5.3.5.2 shall be carried out. One sample shall

be stored so that all the dry ice dissipates and then that sample shall be dropped in one of the attitudes described in 6.3.5.3.1 which shall be that most likely to result in failure of the packaging.

6.3.5.4 *Puncture test*

6.3.5.4.1 *Packagings with a gross mass of 7 kg or less*

Text of existing 6.3.2.6 (a), with the following modifications:

Replace "not exceeding 38 mm" with "of 38 mm".

6.3.5.4.2 *Packagings with a gross mass exceeding 7 kg*

Text of existing 6.3.2.6 (b), with the following modifications:

In the fourth sentence, replace "the primary receptacle(s) and the outer surface" with "the centre of the primary receptacle(s) and the outer surface".

In the fifth sentence, insert "with its top face lowermost" before "in a vertical free fall".

In the last but one sentence, replace "the steel rod would penetrate" with "the steel rod would be capable of penetrating".

In the last sentence, replace "there shall be no leakage" with "penetration of the secondary packaging is acceptable provided that there is no leakage".

6.3.5.5 Heading of existing 6.3.3

6.3.5.5.1 Text of existing 6.3.3.1, with the following modifications:

At the beginning, insert "written" before "report".

In the 4th indent, replace "the test report" with "the test and of the report".

Amend the 8th indent to read as follows: "8. Test contents;".

6.3.5.5.2 Text of existing 6.3.3.2.".

Chapter 6.5

[6.5.2.1.1 (a) Insert a new sentence after the symbol to read as follows: "This symbol shall not be used for any purpose other than certifying that a packaging complies with the relevant regulations in Chapter 6.1, 6.2, 6.3, 6.5 or 6.6.".]

6.5.4.4.2 In the first sentence, add "at least equally effective as the test prescribed in 6.5.6.7.3" after "a suitable leakproofness test". After the sub-paragraphs (a) and (b), replace "For this test the IBC need not have its closures fitted." with "For this test the IBC shall be fitted with the primary bottom closure.".

6.5.6.4.4 Amend the text under the title to read as follows:

"The IBC remains safe for normal conditions of transport, there is no observable permanent deformation of the IBC, including the base pallet, if any, and no loss of contents.".

6.5.6.5.5 (a) Amend to read as follows:

- "(a) Metal, rigid plastics and composite IBCs: the IBC remains safe for normal conditions of transport, there is no observable permanent deformation of the IBC, including the base pallet, if any, and no loss of contents;".

6.5.6.7.3 Delete the last sentence.

6.5.6.9.5 Add a new sub-paragraph (d) to read as follows:

- "(d) All IBCs, no damage which renders the IBC unsafe to be transported for salvage or for disposal, and no loss of contents. In addition, the IBC shall be capable of being lifted by an appropriate means until clear of the floor for five minutes.".

Chapter 6.6

- [6.6.3.1 (a) Insert a new sentence after the symbol to read as follows: "This symbol shall not be used for any purpose other than certifying that a packaging complies with the relevant regulations in Chapter 6.1, 6.2, 6.3, 6.5 or 6.6.".]

Chapter 6.7

6.7.5.3.2 In the last sentence, replace "isolated by a valve assemblies of not more than 3000 litres" with "divided into groups of not more than 3000 litres each isolated by a valve".

6.7.5.4.1 Replace "shall be isolated by a valve into assemblies of not more than 3000 litres. Each assembly shall be fitted" with "divided into groups of not more than 3000 litres each isolated by a valve. Each group shall be fitted".
