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COMMITTEE OF EXPERTS ON THE TRANSPORT
OF DANGEROUS GOODS

REPORT OF THE COMMITTEE OF EXPERTS ON ITS SEVENTEENTH SESSION

(7-16 December 1992)

Addendum 1

Annex 1: Amendments to Chapters 1, 4, 5, 6 (Division 6.1 only), 8, 11, 14 and 15 of the Recommendations on the Transport of Dangerous Goods.

GE.93-20594

Wherever they may appear,
replace the words "harmful" and "poisonous" by " "toxic".

CHAPTER 1 - SCOPE OF THE RECOMMENDATIONS

Paragraph

1.9.3 (new) Add a new paragraph 1.9.3 to read as follows:

"**1.9.3** Many of the substances listed in Classes 1 to 9 are deemed, without additional labelling, as being environmentally hazardous".

1.10 In the first sentence insert "or initial melting point" before "of 20 °C".

Amend the beginning of the second sentence to read:

"A viscous substance for which a specific melting point cannot be determined should be subjected to ..." (remainder unchanged except for the reference to "ASTM D 4359-84" which should be replaced by "ASTM D 4359-90").

1.19 Add the following text to the end of paragraph 1.19:

"... normally referred to as the flashpoint. However such liquids with a flashpoint of more than 35°C which do not sustain combustion need not to be considered as flammable liquids for the purposes of these Recommendations. Liquids offered for transport at temperatures at or above their flashpoint are in any case considered as flammable liquids. Flammable liquids also include substances that are transported or offered for transport at elevated temperatures in a liquid state and which give off a flammable vapour at a temperature at or below the maximum transport temperature."

1.20 Amend the second sentence to read:

"Grouping criteria and some methods of determining the flashpoint of substances in this class, together with a method of testing for combustibility, are set out in Chapter 5."

1.23 Paragraph 1.23, add a new "NOTE 1", as follows:

"NOTE 1: Genetically modified micro-organisms and organisms which do not meet the definition of an infectious substance should be considered for classification in Class 9 and assignment to UN 3245".

Renumber existing "Note 1" as "NOTE 2" and amend it to read as follows:

"NOTE 2: Toxins from plant, animal or bacterial sources which do not contain any infectious substances or organisms or which are not contained in them should be considered for classification in Division 6.1 and assignment to UN 3172".

Delete the existing "Note 2".

1.25 Paragraph 1.25, amend the end of the second sentence to read as follows:

"Regulations for the Safe Transport of Radioactive Material, 1985 Edition (As amended 1990)".

1.27 Add the following to paragraph 1.27:

"This class includes substances that are transported or offered for transport at temperatures equal to or exceeding 100°C in a liquid state or at temperatures equal to or exceeding 240°C in a solid state".

1.43 Paragraph 1.43, amend to read as follows:

"**1.43** The figures shown in the 'subsidiary risk' column for some of the items listed in Chapter 2, indicate the class(es), division(s), etc. of important subsidiary risks identified for those items".

1.44 Paragraph 1.44 the sixth indent should read:

"substances of Division 6.1 with a Packing Group I inhalation toxicity*/".

Table 1.1

Amend the table of "Precedence of Hazards" as follows:

"4.2	II	+	8	I	liquid - 8
4.2	II	+	8	II	liquid - 4.2
4.2	II	+	8	III	liquid - 4.2
4.2	III	+	8	I	liquid - 8
4.2	III	+	8	II	liquid - 8
4.2	III	+	8	III	liquid - 4.2"

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*/ Except for substances or preparations meeting the criteria of Class 8 having an inhalation toxicity of dusts and mists (LC_{50}) in the range of Packing Group I, but toxicity through oral ingestion or dermal contact only in the range of Packing Group III or less, which should be allocated to Class 8.

1.46 Add a new paragraph to read as follows:

"Documentation and identification of fumigated transport units

1.46 Many consignments of goods are treated with fumigants that pose a risk during transport, in particular to workers who may be exposed unknowingly when they open transport units. These Recommendations address fumigated transport units as consignments that are subject to special documentation and warning sign recommendations in the consignment procedures of Chapter 13 (see 13.10)."

Figure 1.1

Amend 3.1 to read as follows:

"3.1 Flammable vapour
3.1.1 Flashpoint ....°C c.c/o.c (5.4*/)
3.1.2 Is combustion sustained? Yes/no (5.7*/)"

CHAPTER 4 - SPECIAL RECOMMENDATIONS RELATING TO CLASS 1

Paragraph

4.4.4 and (new) 4.4.5 (new) Under the heading "Assignment to hazard divisions", insert new paragraphs 4.4.4 and 4.4.5 as follows:

"**4.4.4** Where a substance provisionally accepted into Class 1 is exempted from Class 1 by performing Test Series 6 on a specific type and size of package, this substance, when meeting the classification criteria or definition for another class or division, should be listed in Chapter 2 in that class or division with a special provision restricting it to the type and size of package tested (see 14.2.2.1.2).

4.4.5 Where a substance is assigned to Class 1 but is diluted to be exempted from Class 1 by Test Series 6, this diluted substance, when meeting the classification criteria or definition for another class or division, should be listed in Chapter 2 in that class or division, at the highest concentration which exempts it from Class 1 (see 14.2.3.1). When sufficiently diluted, such substances may be deemed to be non-dangerous."

4.4.4 Under the heading "Determination of compatibility group", renumber the existing paragraph "4.4.4" as "4.4.6".

Paragraph

4.7.2 Paragraph to be deleted.

4.7.3 Paragraph to be renumbered 4.7.2.

4.8 In the description for "POWDER, SMOKELESS", delete the word "generally".

In the glossary of terms add the term

"PROPELLANTS, LIQUID: Substances consisting of a deflagrating liquid explosive, used for propulsion".

Add the term

"PROPELLANTS, SOLID

Substances consisting of a deflagrating solid explosive, used for propulsion".

Table 4.1

After the existing description of compatability Group B, add a new sentence as follows:

"Some articles, such as detonators for blasting, detonator assemblies for blasting and primers, cap-type, are included, even though they do not contain primary explosives."

Table 4.3

Amend the entry for "Explosive, deflagrating" and add two new entries for "Propellant, solid" and "Propellant, liquid" as follows:

Description or term	UN Number
Explosive, deflagrating	...., 0407, 0448, 0495, 0497, 0498, 0499
Propellant, solid	0498, 0499
Propellant, liquid	0495, 0497

CHAPTER 5 - SPECIAL RECOMMENDATIONS RELATING TO CLASS 3

Paragraph

5.1 Amend the second sentence to read:

"Substances are listed in this Class only when their flashpoint is not more than 60.5 °C closed-cup test, or not more than 65.6 °C open-cup test or in the case of substances transported or offered for transport at elevated temperatures, when they give off a flammable vapour at a temperature at or below the maximum transport temperature."

5.2 Renumber existing 5.2 as 5.1.2 and replace the word "must" by "should".

5.2 (new) Insert the following new paragraph:

"**5.2** Liquids are considered to be non-combustible for the purposes of these Recommendations (i.e. they do not sustain combustion under defined test conditions) if they have passed a suitable combustibility test (see section 5.7), if their fire point according to ISO 2592:1973 is greater than 100 °C, or if they are water miscible solutions with a water content of more than 90% by mass."

5.3.4 (new) Add a new paragraph 5.3.4 to read:

"**5.3.4** Substances classified as flammable liquids due to their being transported or offered for transport at elevated temperatures are included in Packing Group III."

5.4 Replace "ASTM D 3278-78" by "ASTM D 3278-89".
Replace "ASTM D 93-80" by "ASTM D 93-90".

5.6 (b) Add the following:

"(Note: The mixture is not necessarily required to bear a Division 6.1 or Class 8 subsidiary risk label)."

5.6(c) Replace the existing table with the following :

Flow time t in seconds	Jet diameter in mm	Flashpoint in °C c.c.
$20 < t \leq 60$	4	above 17
$60 < t \leq 100$	4	above 10
$20 < t \leq 32$	6	above 5
$32 < t \leq 44$	6	above -1
$44 < t \leq 100$	6	above -5
$100 < t$	6	-5 and below

Paragraph

5.6.1 (a) Amend as follows:

"**5.6.1 (a)** *Viscosity test*: The flow time in seconds is determined at 23 °C using the ISO standard cup with a 4 mm jet (ISO 2431:1984). Where the flow time exceeds 100 seconds, a further test is carried out using the ISO standard cup with a 6 mm jet."

5.6.1 (b) Replace "ISO/1523/73" by "ISO 1523:1983".

After 5.6.1 (c), add a new heading and a new section 5.7 as follows:

5.7 "METHOD OF TESTING FOR COMBUSTIBILITY

5.7 The method describes a procedure for determining if the substance when heated under the test conditions and exposed to an external source of flame applied in a standard manner sustains combustion.

5.7.1 Principle of the method: A metal block with a concave depression (test portion well) is heated to a specified temperature. A specified volume of the substance under test is transferred to the well and its ability to sustain combustion is noted after application and subsequent removal of a standard flame under specified conditions.

5.7.2 Apparatus: A combustibility tester consisting of a block of aluminium alloy or other corrosion-resistant metal of high thermal conductivity is used. The block has a concave well and a pocket drilled to take a thermometer. A small gas jet assembly on a swivel is attached to the block. The handle and gas inlet for the gas jet may be fitted at any convenient angle to the gas jet. A suitable apparatus is shown in Figure 5.1 and the essential dimensions are given in Figures 5.1 and 5.2. The following equipment is needed:

(a) *Gauge*, for checking that the height of the centre of the gas jet above the top of the test portion well is 2.2 mm (see Figure 5.1);

(b) *Thermometer*, mercury in glass, for horizontal operation, with a sensitivity not less than 1 mm/°C, or other measuring device of equivalent sensitivity permitting reading at 0.5 °C intervals. When in position in the block, the thermometer bulb should be surrounded with thermally conducting thermoplastic compound;

(c) *Hotplate*, fitted with a temperature-control device. (Other types of apparatus with suitable temperature-control facilities may be employed to heat the metal bock);

(d) *Stopwatch*, or other suitable timing device;

(e) *Syringe*, capable of delivering 2 ml to an accuracy of $\pm$ 0.1 ml; and

(f) *Fuel source*, butane test fuel.

5.7.3 Sampling: The sample should be representative of the substance to be tested and should be supplied and kept in a tightly closed container prior to test. Because of the possibility of loss of volatile constituents, the sample should receive only the minimum treatment to ensure its homogeneity. After removing each test portion, the sample container should be immediately closed tightly to ensure that no volatile components escape from the container; if this closure is incomplete, an entirely new sample should be taken.

5.7.4 Procedure: Carry out the determination in triplicate.

WARNING - Do not carry out the test in a small confined area (for example a glove box), because of the hazard of explosions.

(a) It is essential that the apparatus is set up in a completely draught-free area (see warning) and in the absence of strong light to facilitate observation of flash, flame, etc.

(b) Place the metal block on the hotplate or heat the metal block by other suitable means so that its temperature, as indicated by the thermometer placed in the metal block, is maintained at the specified temperature within a tolerance of $\pm$ 1 °C. The test temperature is 60.5 °C or 75 °C, see (h). Correct this temperature for the difference in barometric pressure from the standard atmospheric pressure (101.3kPa) by raising the test temperature for a higher pressure or lowering the test temperature for a lower pressure by 1.0 °C for each 4 kPa difference. Ensure that the top of the metal block is exactly horizontal. Use the gauge to check that the jet is 2.2 mm above the top of the well when in the test position.

(c) Light the butane test fuel with the jet away from the test position (i.e. in the "off" position, away from the well). Adjust the size of the flame so that it is 8 mm to 9 mm high and approximately 5 mm wide.

(d) using the syringe, take from the sample container at least 2 ml of the sample and rapidly transfer a test portion of 2 ml $\pm$ 0.1 ml to the well of the combustibility tester and immediately start the timing device.

(e) After a heating time of 60 s, by which time the test portion is deemed to have reached its equilibrium temperature, and if the test fluid has not ignited, swing the test flame into the test position over the edge of the pool of liquid. Maintain it in this position for 15 s and then return it to the "off" position while observing the behaviour of the test portion. The test flame should remain alight throughout the test.

(f) For each test observe and record:

(i) whether there is ignition and sustained combustion or flashing, or neither, of the test portion before the test flame is moved into the test position;

(ii) whether the test portion ignites while the test flame is in the test position, and, if so, how long combustion is sustained after the test flame is returned to the "off" position.

(g) If sustained combustion interpreted in accordance with 5.7.5 is not found, repeat the complete procedure with new test portions, but with a heating time of 30 s.

(h) If sustained combustion interpreted in accordance with 5.7.5 is not found at a test temperature of 60.5 °C, repeat the complete procedure with new test portions, but at a test temperature of 75 °C.

5.7.5 Interpretation of observations: The substance should be assessed either as not sustaining combustion or as sustaining combustion. Sustained combustion should be reported at either of the heating times if one of the following occurs with either of the test portions:

(a) when the test flame is in the "off" position, the test portion ignites and sustains combustion;

(b) the test portion ignites while the test flame is in the test position, maintained for 15 s, and sustains combustion for more than 15 s after the test flame has been returned to the "off" position.

Intermittent flashing should not be interpreted as sustained combustion. Normally, at the end of 15 s, the combustion has either clearly ceased or continues. In cases of doubt the substance should be deemed to sustain combustion."

Dimensions in millimetres

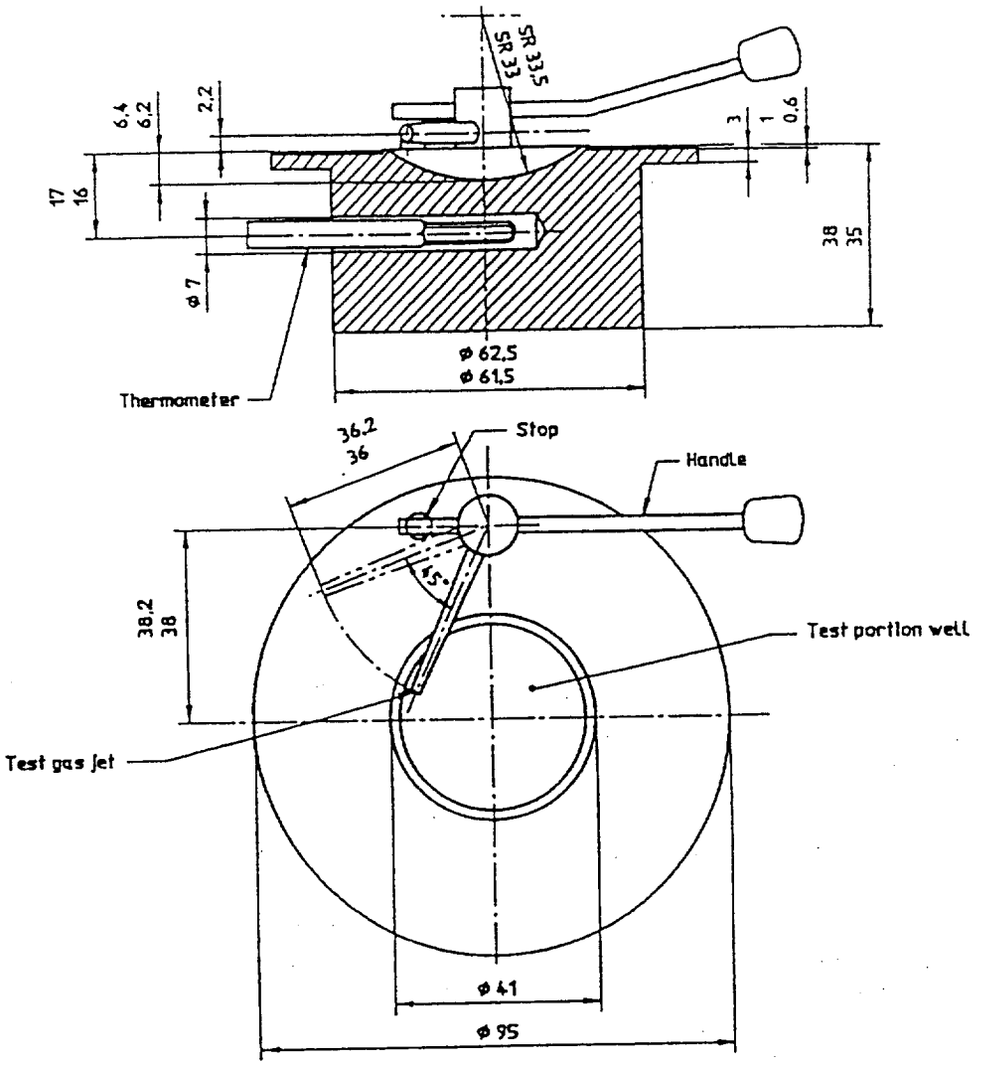

Figure 5.1 - Combustibility tester

Dimensions in millimetres

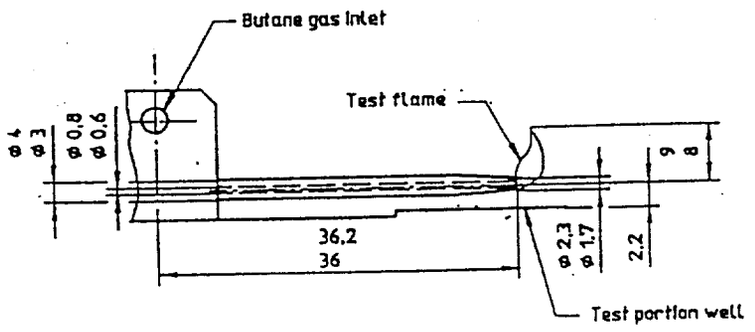

Figure 5.2 - Test gas jet and flame

CHAPTER 6 - SPECIAL RECOMMENDATIONS RELATING TO CLASS 6 DIVISION 6.1 TOXIC SUBSTANCES

Paragraph

6.4.1 Introduce the following footnote relating to paragraph 6.4.1:

"Substances meeting the criteria of Class 8 and with an inhalation toxicity of dusts and mists (LC_{50}) leading to Packing Group I should only be accepted for an allocation to Division 6.1 if the toxicity through oral ingestion or dermal contact is at least in the range of Packing Group I or II. Otherwise an allocation to Class 8 should be made when appropriate (see footnote*/ in Chapter 8, paragraph 8.2)".

Table 6.1 Metam-sodium: Replace the referenced UN numbers "2588, 2902, 2903 and 3021" by "2771, 2772, 3005 and 3006".

CHAPTER 8 - SPECIAL RECOMMENDATIONS RELATING TO CLASS 8

Chapter 8

Revise the whole Chapter 8 to read as follows:

"8.1 Substances and preparations of Class 8 are divided among the three packing groups according to their degree of hazard in transport as follows:

(a) Packing Group I: very dangerous substances and preparations;

(b) Packing Group II: substances and preparations presenting medium danger;

(c) Packing Group III: substances and preparations presenting minor danger.

8.2 Allocation of substances to the packing groups in Class 8 has been on the basis of experience taking into account such additional factors as inhalation risk1/ and reactivity with water (including the formation of dangerous decomposition products). New substances, including mixtures, can be judged by the length of time of contact necessary to produce full thickness destruction of human skin. Substances which are judged not to cause full thickness destruction of human skin should still be considered for their potential to cause corrosion to certain metal surfaces.

1/ A substance or preparation meeting the criteria of Class 8 having an inhalation toxicity of dusts and mists (LC_{50}) in the range of Packing Group I, but toxicity through oral ingestion or dermal contact only in the range of Packing Group III or less, should be allocated to Class 8 (see footnote under paragraph 6.4.1).

8.3 In making this grouping, account should be taken of human experience in instances of accidental exposure. In the absence of human experience the grouping should be based on data obtained from animal experiments in accordance with OECD Guideline 404[2/].

8.4 The test criteria for the three groups in this Class are:

Packing Group I (very dangerous substances)

Substances that cause full thickness destruction of intact skin tissue within an observation period up to 60 minutes starting after the exposure time of three minutes or less.

Packing Group II (substances presenting medium danger)

Substances that cause full thickness destruction of intact skin tissue within an observation period up to 14 days starting after the exposure time of more than three minutes but not more than 60 minutes.

Packing Group III (substances presenting minor danger)

(a) Substances that cause full thickness destruction of intact skin tissue within an observation period up to 14 days starting after the exposure time of more than 60 minutes but not more than 4 hours.

(b) Substances which are judged not to cause full thickness destruction of intact skin tissue but which exhibit a corrosion rate on steel or aluminium surfaces exceeding 6.25 mm a year at a test temperature of 55°C. For the purposes of testing steel, type P3 (ISO 2604 (IV):1975) or a similar type, and for testing aluminium, non-clad types 7075-T6 or AZ5GU-T6, should be used."

CHAPTER 11 - SPECIAL RECOMMENDATIONS RELATING TO CLASS 5

Table 11.2 (A)

In Table 11.2 (A), footnote 1, amend the words:

"... the maximum net mass per inner receptacle and ... "
to read:

"... the maximum net mass per inner packaging and ...".

and in footnote 3, second sentence, amend the words:

2/ OECD Guidelines for testing of chemicals No. 404 "Acute Dermal Irritation/Corrosion" 1992.

"Inner receptacles should be suitable for liquids"
to read:

"Inner packagings should be suitable for liquids".

Table 11.2 (B)

In Table 11.2 (B), footnote 1, amend the words:

"... the maximum net mass per inner receptacle and ..."
to read:

"... the maximum net mass per inner packaging and ..."

Paragraph

11.3.2.4 Append the following text to paragraph "11.3.2.4":

"Mixtures of these formulations may be classified as the same type of organic peroxide as that of the most dangerous component and be transported under the conditions of transport given for this type. However, as two stable components can form a thermally less stable mixture, the self-accelerating decomposition temperature of the mixture should be determined and, if necessary, the control and emergency temperatures derived from the SADT in accordance with 11.3.5"

11.3.2.5 Amend to read:

"Allocation of new organic peroxides or new formulations or mixtures of currently assigned organic peroxides to a generic entry should be made by the competent authority of the country of origin on the basis of a test report. Test methods and criteria and an example of a report are given in the current edition of the Recommendations on the Transport of Dangerous Goods, Tests and Criteria, Part III. The statement of approval should contain the classification and the relevant transport conditions (see 13.6.1.5)."

11.3.4.4 Amend to read:

"Water may only be used for the desensitization of organic peroxides which are shown in Table 11.3 or in the statement of approval according to 11.3.2.5 as being with water or as a stable dispersion in water."

11.3.12.2 Delete the last paragraph reading "For organic peroxides ... destination."

Table 11.3

1. Amend Table 11.3 with reference to the columns "Concentration (%)" and (in two cases only) "Diluent type A (%)" for the following organic peroxide formulations:

ORGANIC PEROXIDE	Number (Generic entry)	Concentration (%) Amend present figures	Concentration (%) Amend to read	Diluent type A(%) Amend present figure	Diluent type A(%) Amend to read
n-BUTYL-4-4-DI-(tert-BUTYLPEROXY) VALERATE	3103	53 - 100	> 52 - 100		
tert-BUTYL HYDROPEROXIDE	3103	73 - 90	> 79 - 90		
tert-BUTYL MONOPEROXYMALEATE	3102	53 - 100	> 52 - 100		
tert-BUTYL PEROXYACETATE	3101	53 - 77	> 52 - 77		
tert-BUTYL PEROXYACETATE	3103	≤ 52	> 32 - 52		
tert-BUTYL PEROXYBENZOATE	3105	53 - 77	> 52 - 77		
tert-BUTYL PEROXYBENZOATE	3103	78 - 100	> 77 - 100		
tert-BUTYL PEROXY-2-ETHYLHEXANOATE	3113	53 - 100	> 52 - 100		
tert-BUTYL PEROXY-2-ETHYLHEXANOATE	3117	≤ 52	> 32 - 52		
tert-BUTYL PEROXY-3,5,5-TRIMETHYLHEXANOATE	3105	≤ 100	> 32 - 100		
tert-BUTYL PEROXYISOBUTYRATE	3111	53 - 77	> 52 - 77		
tert- BUTYL PEROXYNEODECANOATE	3115	78 - 100	> 77 - 100		
tert-BUTYL PEROXYPIVALATE	3113	68 - 77	> 67 - 77		
tert-BUTYL PEROXYPIVALATE	3115	≤ 67	> 27 - 67		
3-CHLOROPEROXYBENZOIC ACID	3102	58 - 86	> 57 - 86		
DIBENZOYL PEROXIDE	3106	36 - 52	> 35 - 52		

ORGANIC PEROXIDE	Number (Generic entry)	Concentration (%) Amend present figures	to read	Diluent type A(%) Amend present figure	to read
DIBENZOYL PEROXIDE	3102	52 - 100	> 51 - 100		
DIBENZOYL PEROXIDE	3102	78 - 94	> 77 - 94		
DIBENZOYL PEROXIDE	3106	53 - 62 as a paste	> 52 - 62 as a paste		
DI-tert-BUTYL PEROXIDE	3107	≤ 100	> 32 - 100		
1,1-DI-(tert-BUTYLPEROXY) CYCLOHEXANE	3103	53 - 80	> 52 - 80		
1,1-DI(tert-BUTYLPEROXY) CYCLOHEXANE	3101	81 - 100	> 80 - 100		
DI-n-BUTYL PEROXYDICARBONATE	3115	28 - 52	> 27 - 52		
DI-sec-BUTYL PEROXYDICARBONATE	3113	53 - 100	> 52 - 100		
DI-(2-tert-BUTYLPEROXYISOPROPYL) BENZENE(S)	3106	43 - 100	> 42 - 100		
DI-(tert-BUTYLPEROXY) PHTHALATE	3105	43 - 52	> 42 - 52		
1,1-DI-(tert-BUTYLPEROXY)-3,3,5-TRIMETHYLCYCLOHEXANE	3101	58 - 100	> 90 - 100		
DICUMYL PEROXIDE	3110	43 - 100	> 42 - 100		
DICYCLOHEXYL PEROXYDICARBONATE	3112	92 - 100	> 91 - 100		
DI-(2-ETHYLHEXYL) PEROXYDICARBONATE	3113	78 - 100	> 77 - 100		
DIISOBUTYRYL PEROXIDE	3111	33 - 52	> 32 - 52		
DIISOPROPYL PEROXYDICARBONATE	3112	53 - 100	> 52 - 100		

ORGANIC PEROXIDE	Number (Generic entry)	Concentration (%) Amend present figures	to read	Diluent type A(%) Amend present figure	to read
2,5-DIMETHYL-2,5-DI(BENZOYLPEROXY) HEXANE	3102	83 - 100	> 82 - 100		
2,5-DIMETHYL-2,5-DI(tert-BUTYLPEROXY)HEXANE	3105	53 - 100	> 52 - 100		
2,5-DIMETHYL-2,5-DI(tert-BUTYLPEROXY) HEXYNE-3	3103	53 - 100	> 52 - 100		
DIPEROXY DODECANE DIACID	3116	14 - 42	> 13 - 42		
DI-(2-PHENOXYETHYL) PEROXYDICARBONATE	3102	86 - 100	> 85 - 100		
DISUCCINIC ACID PEROXIDE	3102	73 - 100	> 72 - 100		
DI-(3,5,5-TRIMETHYLHEXANOYL) PEROXIDE	3115	≤ 82	> 38 - 82		
ETHYL 3,3-DI(tert-BUTYLPEROXY) BUTYRATE	3103	78 - 100	> 77 - 100		
3,3,6,6,9,9-HEXAMETHYL-1,2,4,5-TETRAOXACYCLONONANE	3102	53 - 100	> 52 - 100		
p-MENTHYL HYDROPEROXIDE	3109	≤ 55	< 56	≥ 45	> 44
PINANYL HYDROPEROXIDE	3109	≤ 55	< 56	≥ 45	> 44

Table 11.3 (cont'd)

2. Amend the following entries:

tert-BUTYL PEROXY-2-ETHYLHEXANOATE, ≤52%, 3117: replace "+20" and "+25" by "+30" and "+35" respectively;

DIACETONE ALCOHOL PEROXIDES, ≤57%, 3115: replace "+30" and "+35" by "+40" and "+45";

DICETYL PEROXYDICARBONATE, ≤100%, 3116: replace "+20" and "+25" by "+30" and "+35";

DIDECANOYL PEROXIDE, ≤100%, 3114: replace "+15" and "+20" by "+30 and "+35" respectively.

METHYL ETHYL KETONE PEROXIDE(S), ≤40%, 3107: add remark "11)" in column "Subsidiary risk and remarks";

DISUCCINIC ACID PEROXIDE, 73-100%, 3102: add remark "18)" in column "Subsidiary risk and remarks";

DISUCCINIC ACID PEROXIDE, ≤72%, 3116: delete remark "18)" in column "Subsidiary risk and remarks".

3. Delete note 6) from "Notes to Table 11.3" and notes 7) to 23) should be renumbered as notes 6) to 22) in both Table 11.3 and the notes to the Table 11.3.

4. Amend the name "2,2-DI-(4,4-tert-BUTYLPEROXYCYCLOHEXYL)-PROPANE" to read "2,2-DI-(4,4-DI(tert-BUTYLPEROXY) CYCLOHEXYL)-PROPANE";

5. Add the following new entries:

	Conc.	DIL.A	DIL.B	INERT SOLID	WATER	PACK	UN
tert-BUTYL CUMYL PEROXIDE	≤ 42			≥ 58		OP7B	3106
"1-(2-tert-BUTYLPEROXY ISOPROPYL)-3- ISOPROPENYLBENZENE	≤77%	≥23%				OP7A	3105
3-CHLOROPEROXYBENZOIC ACID	≤72%			≥10%	≥18%	OP7B	3106
DI-tert-BUTYL PEROXYAZELATE	≤52%	≥48%				OP7A	3105
2,4,4-TRIMETHYLPENTYL-2-PEROXYNEODECANOATE	≤72%	≥28%				OP7A	3115*

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* CONTROL TEMPERATURE -5°C; EMERGENCY TEMPERATURE +5°C.

Additions to Table 11.3: LIST OF CURRENTLY ASSIGNED ORGANIC PEROXIDES continued

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%)	Inert solid (%)	Water (%)	Packing Method	Control Temperature (°C)	Emergency Temperature (°C)	Number (Generic entry)	Subsidiary risks and remarks
DIBENZOYL PEROXIDE	>36 - 42	≥ 18			≤ 40	OP8A			3107	
DI-tert-BUTYL PEROXIDE	≤ 32	≥ 68				OP8A, N, M			3109	
1,1-DI-(tert-BUTYLPEROXY)-3,5,5-TRIMETHYLCYCLOHEXANE	>57 - 90	≥ 10				OP5A			3103	
DI-ISOPROPYLBENZENE DIHYDROPEROXIDE	≤ 82	≥ 5			≥ 5	OP7B			3106	24)
DI-(4-METHYLBENZOYL) PEROXIDE	≤ 52 as paste with silicon oil					OP7B			3106	
2,5-DIMETHYL-2,5-DI(tert-BUTYLPEROXY)-HEXANE	≤ 47 as a paste					OP8B			3108	
2,5-DIMETHYL-2,5-DI(tert-BUTYLPEROXY)-HEXANE	≤ 52	≥ 48				OP8A			3109	
DI-(2-NEODECANOYLPEROXYISOPROPYL)BENZENE	≤ 52	≥ 48				OP7A	- 10	0	3115	
DI-(3,5,5-TRIMETHYLHEXANOYL) PEROXIDE	≤ 52 as a stable dispersion in water					OP8A	+ 10	+ 15	3117	
DI-(3,5,5-TRIMETHYLHEXANOYL) PEROXIDE	≤ 38	≥ 62				OP8A N, M	+ 20	+ 25	3119	
2,4,4-TRIMETHYLPENTYL-2-PEROXY-NEODECANOATE	≤ 72	—	≥28			OP7A	- 5	+ 5	3115	

Additional notes on Table 11.3

23) With < 6% di-tert-butyl peroxide

24) With ≤ 8% 1-isopropylhydroperoxy-4-isopropylhydroxybenzene

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%)	Inert solid (%)	Water (%)	Packing Method	Control Temperature (°C)	Emergency Temperature (°C)	Number (Generic entry)	Subsidiary risks and remarks
tert-BUTYL HYDROPEROXIDE	≤ 79				> 14	OP8A			3107	13) 23)
tert-BUTYL PEROXYACETATE	≤ 32	≥ 68				OP8A, N, H			3109	
tert-BUTYL PEROXYBUTYLFUMARATE	≤ 52	≥ 48				OP7A			3105	
tert-BUTYL PEROXY-2-ETHYLHEXANOATE	≤ 52			≥ 48		OP8B	+ 20	+ 25	3118	
tert-BUTYL PEROXY-2-ETHYLHEXANOATE	≤ 32		≥ 68			OP8A, N, H	+ 40	+ 45	3119	
tert-BUTYL PEROXY-2-ETHYLHEXYLCARBONATE	≤ 100					OP7A			3105	
1-(2-tert-BUTYLPEROXYISOPROPYL)-3-ISOPROPENYLBENZENE	≤ 42			≥ 58		OP8B			3108	
tert-BUTYL MONOPEROXYMALEATE	≤ 52 as a paste					OP8B			3108	
tert-BUTYL MONOPEROXYMALEATE	≤ 52			≥ 48		OP8B			3108	
tert-BUTYL PEROXY-2-METHYLBENZOATE	≤ 100					OP5A			3103	
tert-BUTYL PEROXYNEODECANOATE	≤ 42 as a stable dispersion in water					OP8A	0	+ 10	3117	
tert-BUTYL PEROXYNEODECANOATE	≤ 42 as a stable dispersion in water (frozen)					OP8B	0	+ 10	3118	
tert-BUTYL PEROXYPIVALATE	≤ 27		≥ 73			OP8A, N, H	+ 30	+ 35	3119	
tert-BUTYL PEROXY-3,5,5-TRIMETHYLHEXANOATE	≤ 32	≥ 68				OP8A, N, H			3109	
CUMYL HYDROPEROXIDE	>90 - 98	≤ 10				OP8A			3107	13)
DIBENZOYL PEROXIDE	>36 - 42	≥ 58				OP8A			3107	

Table 11.4 : Add the following entries:

Additions to Table 11.4: CURRENTLY ASSIGNED ORGANIC PEROXIDES SUITABLE FOR TRANSPORT IN IBCS

UN No.	ORGANIC PEROXIDE	Type of IBC 1/	Maximum quantity (litres)	Control Temperature	Emergency Temperature
3109	ORGANIC PEROXIDES, TYPE F, LIQUID				
	tert-Butyl peroxyacetate, not more than 32% in diluent type A	31HA1	1000		
	tert-Butyl peroxy-3,5,5-trimethylhexanoate, not more than 32% in diluent type A	31HA1	1000		
	Di-tert-butyl peroxide, not more than 32% in diluent type A	31HA1	1000		
3119	ORGANIC PEROXIDES, TYPE F, LIQUID, TEMPERATURE CONTROLLED				
	tert-Butyl peroxy-2-ethylhexanoate, not more than 32% in diluent type B	31HA1	1000	+ 30 °C	+ 35 °C
	tert-Butyl peroxypivalate, not more than 27% in diluent type B	31HA1	1000	+ 10 °C	+ 15 °C
	Di-(3,5,5-trimethylhexanoyl) peroxide, not more than 38% in diluent type A	31HA1	1000	+ 10 °C	+ 15 °C

Table 11.5 : Add the following entries:

Additions to Table 11.5: CURRENTLY ASSIGNED ORGANIC PEROXIDES SUITABLE FOR TRANSPORT IN TANK-CONTAINERS

UN No.	ORGANIC PEROXIDE	Control Temperature	Emergency Temperature
3109	ORGANIC PEROXIDES, TYPE F, LIQUID Di-tert-butyl peroxide, not more than 32% in diluent type A		
3119	ORGANIC PEROXIDES, TYPE F, LIQUID, TEMPERATURE CONTROLLED		
	tert-Butyl peroxyacetate, not more than 32% in diluent type B	+ 30 °C	+ 35 °C
	tert-Butyl peroxy-2-ethylhexanoate, not more than 32% in diluent type B	+ 10 °C	+ 15 °C
	tert-Butyl peroxypivalate, not more than 27% in diluent type B	- 5 °C	+ 5 °C
	tert-Butyl peroxy-3,5,5-trimethylhexanoate, not more than 32% in diluent type B	+ 35 °C	+ 40 °C
	Di-(3,5,5-trimethylhexanoyl) peroxide, not more than 38% in diluent type A	- 10 °C	0 °C

CHAPTER 14 - SPECIAL RECOMMENDATION RELATING TO CLASS 4

Paragraph

14.2.2.1 Division 4.1 (b), Self-reactive and related substances, paragraph 14.2.2.1.1, first sentence should be amended as follows:

"Self-reactive substances are thermally unstable substances liable to undergo a strongly exothermic decomposition even without participation of oxygen (air)."

and

a second note should be added reading as follows:

"Any substance which shows the properties of a self-reactive substance should be classified as such, even if this substance gives a positive test result according to 14.5.5 for inclusion in Division 4.2."

14.2.2.1.1 Amend the fifth indent to read:

"their self-accelerating decomposition temperature (SADT) (see 11.3.5.3) is greater than 75°C for a 50 kg package."

14.2.2.1.2 (new) Add a new paragraph to read:

"**14.2.2.1.2** Substances related to self-reactive substances are distinguished from the latter by having a self-accelerating decomposition temperature greater than 75 °C. They are liable to undergo, as are self-reactive substances, a strongly exothermic decomposition and are liable, in certain packagings, to meet the criteria for explosive substances in Class 1 (see 4.4.4)".

14.2.2.3.1 Amend last sentence of paragraph 14.2.2.3.1 to read: "UN 2956, UN 3242 and UN 3251 are such entries."

14.2.2.3.3 Add to the first sentence: "... on the basis of a test report."

Replace the rest of the text with the following new text:

"Test methods and criteria and an example of a report are given in the current edition of the Recommendations on the Transport of Dangerous Goods, Tests and Criteria, Part III. The statement of approval should contain the classification and the relevant transport conditions (see 13.6.1.5)."

14.2.2.3.5 Delete the last sentence.

14.2.2.4.2(g) In the second sentence replace "or a diluent other than type A" by "or a compatible diluent having a boiling point less than 150 °C".

14.2.2.9.1 Delete the second paragraph reading: "A notification, including ... till ... a report with the test results."

14.2.3.1 At the end of the first sentence, add: "(see 4.4.5)".
Add "3270" in the list of UN numbers.

14.3.2.2 A Note should be added reading as follows:

"Note: Self-reactive substances, except for type G, giving also a positive result with this test method, should not be classified in Division 4.2 but in Division 4.1 (see 14.2.2.1.1)."

Table 14.1

1. In the entry for "N,N'-DINITROSOPENTAMETHYLENETETRAMINE" delete "with diluent type A", add "(5)" in the column "Remarks" and replace "OP7B" by "OP6B".

2. In the entry for "4-METHYLBENZENESULPHONYLHYDRAZIDE" replace "3236" by "3226".

3. Replace the current reference "(5)" in the column "Remarks" by "(6)" (four times).

4. Add a new entry:

	(1)	(2)	(3)	(4)	(5)	(6)
"4-NITROSOPHENOL	100	0P7B	+35	+40	3236"	

5. At the end of Table 14.1 insert the following new remark "(5)":

"(5) With a compatible diluent having a boiling point of not less than 150 °C". Renumber the existing remark "(5)" as "(6)".

CHAPTER 15 - SPECIAL RECOMMENDATIONS FOR DANGEROUS GOODS IN LIMITED QUANTITIES

Paragraph

15.2 (c) Amend to read:

"(c) Self-reactive and related substances, and desensitized explosives of Division 4.1;"

15.2 (e) Amend the text of footnote 1/ to read as follows:

"This exclusion should not apply to test kits, repair kits or similar mixed packets that may contain small quantities of these substances or to packages containing small quantities of organic peroxides (types D, E or F only)."
