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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

Twenty-fifth session, 5-14 July 2004
Item 5 of the provisional agenda

DANGEROUS GOODS PACKED IN LIMITED QUANTITIES

Limited Quantities

Transmitted by the experts from Canada and France

1. During the last session of the Sub-Committee, a discussion was held on provisions concerning “limited quantities”, as defined in Chapter 3.4., based on an informal paper from a working group whose last meeting took place in Ottawa on 22 to 24 October 2003. (see paras. 51 to 55 of the report). This document was meant to present new requirements suitable for all modes of transport in order to achieve harmonization on that subject
2. Because no decision could be made on the basis of an informal paper, the experts from France and Canada offered to draft a formal paper based on the results obtained by the working group up to that point and comments made during the Sub-Committee meeting.
3. This is the purpose of this document.
4. After the last session of the Sub-Committee, there were still some options open for discussion. These are reflected in the alternative proposals for amendments to the model rules presented in Annexes 1 and 2 of this document. Modified text appears in bold italics. In both proposals some parts of the text were not subject to consensus and appear in square brackets.
5. Both options are meant to provide a system that could be implemented in different modal regulations to cover the concept of limited quantities as currently defined in IMDG and some land modes, the concept of consumers commodities as currently defined in the ICAO Technical Instructions (ID 8000), The concept of “household products”...

But they would not cover the current concept of “limited quantities” as defined in the ICAO Technical Instructions because in this last case the exemptions are related mainly to the use of non approved packagings.

The title has been changed to “DANGEROUS GOODS PACKED IN SMALL QUANTITIES”, in order to avoid future confusion.

This change would not be necessary if consistent changes were made to the ICAO T.I. with respect to limited quantities.

6. The discussions on excepted quantities, at this point, do not allow presentation of a formal proposal for consideration by the Sub-Committee. Annex 3 of this document reproduces the text of Part 1, Chapter 2, Section 2.4 of the ICAO technical instructions for information and further discussion

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Annex 1

Option 1

With different requirements for dangerous goods packed in small quantities suitable for retail sale and others.

1. Amendments to chapter 3.4

CHAPTER 3.4

DANGEROUS GOODS PACKED IN SMALL QUANTITIES

3.4.1 This Chapter provides the provisions applicable to the transport of certain *dangerous goods packed in small quantities*. The applicable quantity for the inner packaging or article is specified for each substance in Column 7 of the Dangerous Goods List in Chapter 3.2. In addition, the word "None" has been indicated in Column 7 of the Dangerous Goods List in Chapter 3.2 for each entry not permitted to be transported in accordance with this Chapter. All provisions and requirements of these Regulations apply to the transport of *dangerous goods packed in small quantities* except as specifically provided in this Chapter.

3.4.2 Dangerous goods shall be packed only in inner packagings placed in suitable outer packagings. However, the use of inner packagings is not necessary for the transport of articles such as aerosols or "receptacles, small, containing gas". The packagings shall meet the provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8 and be so designed that they meet the constructions requirements of 6.1.4. The total gross mass of the package shall not exceed 30 kg.

3.4.3 Shrink-wrapped or stretch-wrapped trays meeting the conditions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8 are acceptable as outer packagings for articles or inner packagings containing dangerous goods transported in accordance with this Chapter, except that inner packagings that are liable to break or be easily punctured such as those made of glass, porcelain, stoneware or certain plastics, materials, etc., shall not be transported in such packagings. The total gross mass of the package shall not exceed 20 kg.

3.4.4 Liquid goods of Class 8, packing group II in glass, porcelain or stoneware inner packagings shall be enclosed in a compatible and rigid intermediate packaging.

3.4.5 Different dangerous goods packed in small quantities may be placed in the same outer packaging provided they will not interact dangerously in the event of leakage.

3.4.6 Packages of dangerous goods transported according to this Chapter need not be labeled. Any segregation provisions for dangerous goods need not apply within a *transport unit*.

3.4.7 *For the transport of dangerous goods packed in small quantities, information mentioned in 5.4.1.4. and 5.4.1.5. are not required in the transport document. However, [the document shall indicate:*

- *the words "dangerous goods packed in small quantities"*
- *or "UN 8000 consumer commodities" if 3.4.9. applies*
- *the class (including subsidiary risk)*
- *the gross mass for each type of goods defined by class and subsidiary risk]*

3.4.8 *Packages containing dangerous goods in small quantities need not be marked with the proper shipping name of the contents, but shall be marked with the UN number of the contents preceded by the letters "UN" placed within a diamond that has a minimum dimension of 100 x100 mm (if the size of the package so requires, the dimensions may be reduced, provided the marking remain clearly visible). The width of line forming the diamond shall be at least 2 mm; the number shall be at least 6 mm high. Where more than one substance is included in the package and the substances are assigned to different UN numbers, then the diamond shall be large enough to include each relevant UN number. The mark shall be applied on at least one side or end of the outer packaging and conform to the provisions of paragraphs 5.2.1.2(a) to (d).*

3.4.9 *Dangerous goods packed in small quantities, that are consumer commodities, and are in a quantity and concentration that makes them suitable for sale to and for direct household or personal use by consumers may be marked "UN8000" instead of the UN number of the contents as required in 3.4.8.*

3.4.10 *Transport units where the total load of dangerous goods packed in small quantities exceeds [a figure between 3 to 10 tons to be determined by the sub-committee] gross mass shall be a marked with ["UN 8000" in black digit not less than 65 mm high placed within a white diamond with minimum dimension 250X250 mm with a black line running 12,5 mm inside the edge and parallel with it.] This marking shall be displayed:*

- *on each of the two external lateral walls in the case of a rail vehicle;*
- *on each of the two external lateral walls and the rear wall in the case of road vehicle;*
- *on each of the two external lateral walls and on both end for other cargo transport units*

2. Consequential amendments

1. Add the following entry in the dangerous goods list

UN No.	Name and Description	Class or division	Subsidiary risk	UN packing group	Special provisions	Limited quantities	Packagings and IBCs	
							Packing Instruction	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8000	CONSUMER COMMODITIES	See chapter 3.4 and paragraph 3.4.9.-						

2. delete 5.4.1.5.2 and renumber the following paragraphs accordingly.

Annex 2

Option 2

Only one set of requirements for all dangerous goods packed in small quantities

Amendments to chapter 3.4

CHAPTER 3.4

DANGEROUS GOODS PACKED IN SMALL QUANTITIES

3.4.1 This Chapter provides the provisions applicable to the transport of certain ***dangerous goods packed in small quantities***. The applicable quantity for the inner packaging or article is specified for each substance in Column 7 of the Dangerous Goods List in Chapter 3.2. In addition, the word "None" has been indicated in Column 7 of the Dangerous Goods List in Chapter 3.2 for each entry not permitted to be transported in accordance with this Chapter. All provisions and requirements of these Regulations apply to the transport of ***dangerous goods packed in small quantities*** except as specifically provided in this Chapter.

3.4.2 Dangerous goods shall be packed only in inner packagings placed in suitable outer packagings. However, the use of inner packagings is not necessary for the transport of articles such as aerosols or "receptacles, small, containing gas". The packagings shall meet the provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8 and be so designed that they meet the constructions requirements of 6.1.4. The total gross mass of the package shall not exceed 30 kg.

3.4.3 Shrink-wrapped or stretch-wrapped trays meeting the conditions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8 are acceptable as outer packagings for articles or inner packagings containing dangerous goods transported in accordance with this Chapter, except that inner packagings that are liable to break or be easily punctured such as those made of glass, porcelain, stoneware or certain plastics, materials, etc., shall not be transported in such packagings. The total gross mass of the package shall not exceed 20 kg.

3.4.4 Liquid goods of Class 8, packing group II in glass, porcelain or stoneware inner packagings shall be enclosed in a compatible and rigid intermediate packaging.

3.4.5 Different dangerous goods packed in small quantities may be placed in the same outer packaging provided they will not interact dangerously in the event of leakage.

3.4.6 Packages of dangerous goods transported according to this Chapter need not be labelled. Any segregation provisions for dangerous goods need not apply within a ***transport unit***.

3.4.7 ***For the transport of dangerous goods packed in small quantities, information mentioned in 5.4.1.4 and 5.4.1.5. are not required in the transport document. However, [the document shall indicate:***

- ***the words "UN 8000 DANGEROUS GOODS PACKED IN SMALL QUANTITIES"***
- ***the class (including subsidiary risk)***
- ***the gross mass for each type of goods defined by class and subsidiary risk]***

- 3.4.7 *Packages containing dangerous goods in small quantities need not be marked with the proper shipping name of the contents, but shall be marked with “UN 8000” at least 6 mm high placed within a diamond that has a minimum dimension of 100x100 mm (if the size of the package so requires, the dimensions may be reduced, provided the marking remain clearly visible). The width of line forming the diamond shall be at least 2 mm. The mark shall be applied on at least one side or end of the outer packaging and conform to the provisions of paragraphs 5.2.1.2(a) to (d).*
- 3.4.8 *Transport units where the total load of dangerous goods packed in small quantities exceeds [a figure between 3 to 10 tons to be determined by the sub-committee] gross mass shall be a marked with [“UN 8000” in black digit not less than 65 mm high placed within a white diamond with minimum dimension 250X250 mm with a black line running 12,5 mm inside the edge and parallel with it.] This marking shall be displayed:*
- *on each of the two external lateral walls in the case of a rail vehicle;*
 - *on each of the two external lateral walls and the rear wall in the case of road vehicle;-*
 - *on each of the two external lateral walls and on both end for other cargo transport units*

2. Consequential amendments

1. Add the following entry in the dangerous goods list

UN No.	Name and Description	Class or division	Subsidiary risk	UN packing group	Special provisions	Limited quantities	Packagings and IBCs	
							Packing Instruction	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8000	DANGEROUS GOODS PACKED IN SMALL QUANTITIES	See chapter 3.4						

2. delete 5.4.1.5.2 and renumber the following paragraphs accordingly

Annex 3

CHAPTER 2

LIMITATION OF DANGEROUS GOODS ON AIRCRAFT

2.4 DANGEROUS GOODS IN EXCEPTED QUANTITIES

2.4.1 General

Small quantities of dangerous goods meeting the provisions of this paragraph are not subject to the other provisions of these Technical Instructions except for:

- (a) the prohibition in air mail in 1;2.3;
- (b) the definitions in 1;3;
- (c) the classification and packing group criteria in Part 2;
- (d) the loading restrictions in 7;2.1;
- (e) the reporting of dangerous goods accidents, incidents and other occurrences in 7;4.4 and 4.5;
- (f) the training requirements in Chapter 4; and
- (g) in the case of radioactive material, the requirements for radioactive material in excepted packages in 2;7.7.1.2 and 2;7.9.1.

2.4.2 Applicability

2.4.2.1 Excepted quantities of dangerous goods may only be carried in accordance with the limitations and provisions contained in this paragraph and must meet all the applicable requirements of those parts of the Technical Instructions listed in 2.4.1 above.

2.4.2.2 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 excepted quantities:

- Division 2.2 Without subsidiary risk
- Class 3 All packing groups
- Class 4 Packing Groups II and III but excluding all self-reactive substances
- 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 All substances other than those having an inhalation toxicity of Packing Group I

Class 8 Packing Groups II and III but excluding UN Nos. 2803 and 2809

Class 9 All substances and articles other than mag-netized material

Substances and articles in the above classes, divisions and packing groups may also be radioactive material in excepted packages.

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

- (a) *those forbidden for transport under any circumstance as provided for in 2.1;*
- (b) *those permitted only by exemption or approval;*
- (c) *those forbidden for transport on passenger aircraft in Table 3-1;*
- (d) *those in Class 1 or Divisions 2.1, 2.3 or 6.2;*
- (e) *other than for temperature sensing devices, dangerous goods contained within a device which is an integral part of an article or device which is not subject to these Instructions (e.g. mercury switches in electrical or other appliances).*

2.4.3 Quantity limits

- (a) Inner packagings. The maximum quantity of dangerous goods in each inner packaging must be limited to:
 - (1) 1 g or 1 mL for solids or liquids of Packing Group I or II in Division 6.1 or requiring a subsidiary risk toxic label;
 - (2) 30 g or 30 mL for solids or liquids other than those covered in 1) above; or
 - (3) for gases, the quantity contained in a receptacle with a water capacity of 30 mL;
- (b) Outer packagings. The total net quantity of dangerous goods contained in each outer packaging must be limited to:
 - (1) for other than Divisions 2.2 and 5.2:
 - Packing Group I — 300 g or 300 mL;
 - Packing Group II — 500 g or 500 mL;
 - Packing Group III — 1 kg or 1 L;
 - (2) for Division 2.2 — 1 L; or
 - (3) for Division 5.2 — 500 g or 250 mL.

Note.— The 1 L maximum quantity referred to in b) 2) above is intended to apply to the sum of the water capacities of each of the inner packagings contained in the outer packaging.

2.4.4 Packing requirements

Packagings, including their closures, used for the transport of dangerous goods in excepted quantities must be of good quality. Packaging materials which may come into contact with the substance or article must not react dangerously with the substance or article and must not adversely affect its packaging functions. In addition:

- (a) each inner packaging must be constructed of plastic having a minimum thickness of not less than 0.2 mm, or of glass, earthenware or metal. The materials of inner packagings must not contain substances which may react dangerously with the contents, form hazardous products or significantly weaken the packagings. The closure of each inner packaging with a removable closure must be held securely in place with wire, tape or other positive means. Any receptacle having a neck with moulded screw threads must have a leakproof threaded type cap completely resistant to the contents. Except for temperature sensing devices, inner packagings must not completely fill with liquid when at a temperature of 55°C;
- (b) each inner packaging must be securely packed in an intermediate packaging with cushioning material. The intermediate packaging must completely contain the contents in case of breakage or leakage, regardless of package orientation. For liquid dangerous goods, the intermediate packaging must contain sufficient absorbent material to absorb the entire contents of the inner packaging. In such cases, the absorbent material may be the cushioning material. Dangerous goods must not react dangerously with cushioning and absorbent material or adversely affect their properties;
- (c) the intermediate packaging must be securely packed in a strong, rigid outer packaging (wooden, fibreboard or other equally strong material);
- (d) the complete package must be capable of withstanding the tests specified under 2.4.5;
- (e) dangerous goods in excepted quantities must not be packed together in the same outer packaging if they react dangerously with each other and cause:
 - (1) combustion and/or evolution of considerable heat;
 - (2) evolution of flammable, toxic or asphyxiant gases;
 - (3) the formation of corrosive substances; or
 - (4) the formation of unstable substances;
- (f) when different dangerous goods are contained in one outer packaging, the quantities of different dangerous goods contained in one outer packaging must be calculated using the formula:

$$\frac{n_1}{M_1} + \frac{n_2}{M_2} + \frac{n_3}{M_3} + \dots + \frac{n_x}{M_x} \leq 1$$

where n_1, n_2 etc., are the net quantities of the different dangerous goods contained in the same outer packaging and M_1, M_2 etc., are the maximum net quantities permitted for the

appropriate packing group by 2.4.3 b). However, the following dangerous goods do not need to be taken into account in the calculation:

- (1) carbon dioxide, solid (dry ice), UN 1845;
- (2) those with the same UN number, packing group and physical state (i.e. solid or liquid), provided they are the only dangerous goods in the package and the total net quantity does not exceed the maximum net quantity according to 2.4.3 b);
- (g) each package must be of such size that there is adequate space to apply all necessary markings; and
- (h) overpacks may be used and may also contain packages of dangerous goods or goods not subject to these Instructions provided there are no packages enclosing different substances that might react dangerously with each other.

2.4.5 Package tests

2.4.5.1 Tests must be carried out on packages prepared as if for transport. Inner packagings must be filled to not less than 95 per cent of their capacity for solids or 98 per cent for liquids. The substances to be transported in the packaging may be replaced by other substances except where this would invalidate the results of the tests. For solids, when another substance is used, it must have the same physical characteristics (mass, grain size, etc.) as the substance to be carried. In the drop tests for liquids, when another substance is used, its relative density (specific gravity) and viscosity should be similar to those of the substance to be transported.

2.4.5.2 The complete package, as demonstrated by testing, must be capable of withstanding, without breakage or leakage of any inner packaging and without significant reduction in effectiveness:

- (a) the following free drops onto a rigid, non-resilient flat and horizontal surface from a height of 1.8 m:
 - (1) for a packaging with six sides (i.e. a box shape):
 - one drop flat on the bottom;
 - one drop flat on the top;
 - one drop flat on the long side;
 - one drop flat on the short side; and
 - one drop on a corner at the junction of three intersecting edges;
 - (2) for a cylindrical packaging (i.e. a drum shape):
 - one drop diagonally on the chime or on a circumferential seam or an edge; and
 - one drop on the weakest part not tested by the first drop, e.g. a closure.

Note.— Each of the above tests may be performed on different but identical packages.

- (b) a force applied to the top surface for a duration of 24 hours, equivalent to the total weight of identical packages if stacked to a height of 3 m (including the test sample).

2.4.6 Marking and certification

2.4.6.1 Each package prepared according to these provisions must be durably and legibly marked with the words “Dangerous goods in excepted quantities” and with the name and address of the shipper. If the package is included in an overpack, these markings must be clearly visible or appear on the overpack.

2.4.6.2 Each package prepared according to these provisions must be accompanied by a statement certifying that the package has been prepared in accordance with the provisions for dangerous goods in excepted quantities. This statement may be attached to or printed on the outside of the package.

2.4.6.3 In addition to the languages which may be required by the State of Origin, English should be used.

2.4.7 Marking of air waybill

When an air waybill is issued it must contain the words “Dangerous goods in excepted quantities” and when excepted radioactive material is involved, the additional words “Radioactive material, excepted package ...” as required in 5.4.3 as appropriate.

2.4.8 Baggage and airmail

Dangerous goods in excepted quantities are not permitted in or as checked or carry-on baggage nor in the mail.
