

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

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DANGEROUS GOODS PACKED IN LIMITED QUANTITIES

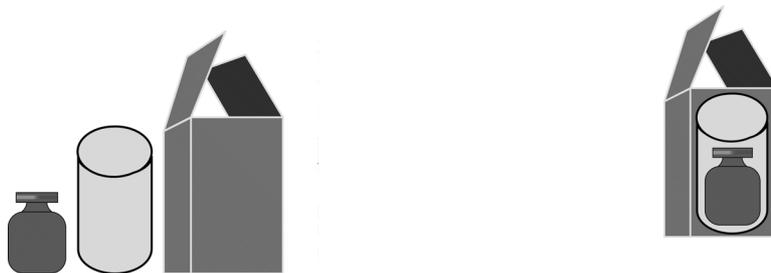
Transmitted by the expert from the United Kingdom

Introduction

1. The expert from the United Kingdom has reviewed document ST/SG/AC.10.C.3/2004/44 presented by France and Canada and notes the comments made by Belgium (2004/50), the Netherlands (INF.17) and ICAO (INF.6). The United Kingdom regrets that better progress towards a truly multimodal solution to the issue of 'Limited Quantities' of dangerous goods has not been possible.
2. Since the last meeting of the Sub-Committee, the expert from the United Kingdom has consulted industry (carriers of all modes and consignors) widely to try to establish a common UK position and a measure of agreement has been achieved. Having reviewed the document from France and Canada, the comments from IMO, ICAO and Belgium and the Netherlands; as well as the work of the Paris and Ottawa working groups, the expert from the United Kingdom submits the following comments and proposal as an alternative approach in order that further progress can be made.

Excepted quantities

3. Given the success of application in air transport, it is proposed that the text from the ICAO *Technical Instructions* be included in the *Model Regulations* for all modes of transport to adopt. This subject arose during the Paris working group where there was much discussion as to its value outside the air mode. The following comments address some of the points made then:
 - Excepted quantities are not solely an air mode issue. Recently the competent authority in the United Kingdom has been asked for concessions to move by road tiny quantities of chemicals, some of which cannot be transported under 'Limited Quantities' provisions, i.e. they are in Packing Group I. The current ICAO provisions would have met the requirement.
 - There is some concern expressed regarding full container loads of such goods, but this is likely to be the exception rather than the rule. However it must be remembered that the level of packaging prescribed for excepted quantities is far higher than that normally required for most of the substances so permitted. A receptacle must be placed in absorbent/cushioning material inside an intermediate packaging that must be placed in an outer packaging. The volume of packing material will always exceed the quantity of chemical.

Goods packed in excepted quantities

- ‘Excepted quantities’ is a well-established and well-used concept in the air mode, but there are no statistics of any kind of incident in the air mode to give rise to any concerns, and this probably results from the severe packaging requirements. They are permitted on board passenger aircraft and are not subject to acceptance checks.
- Finally, the fact that this concept exists in air transport means that goods moving from or to an airport with no marking could be in contravention of surface mode regulations. This is particularly so under ‘ADR’ in Europe, because the substances approved for carriage as excepted quantities extend to PG I and the limited quantities provisions, by and large, do not.
- A simple reference to the ICAO *Technical Instructions* would not be helpful when a consignor wanted to use land transport only. They would have to have access to a set of air regulations to identify the requirements for excepted quantities.

Limited quantities

4. Because there has been so little progress towards a new multimodal approach, the expert from the United Kingdom believes that the term "Limited Quantities" should be retained, Although this term may be felt by many to be confusing, changing to "Small Quantities" without significant differences elsewhere in the Model Regulations, agreed on a multimodal basis, would be equally confusing. Therefore, it is proposed to keep the existing term “Limited Quantities” to which people are accustomed.
5. However, the expert from the United Kingdom does believe that a single entry UN substance identification number might prove a simplification to the system and would be happy to see UN 8000 assigned to limited quantities of dangerous goods in transport in all circumstances.
6. Some will argue that an all-encompassing identifier such as UN 8000 may not provide sufficient information to emergency responders or to those needing to segregate loads. As an alternate approach, the Sub-Committee could consider a different identifier. Rather than use the number UN 8000 everywhere, the relevant individual 4-digit numbers could be retained but instead of marking, for example, “UN1263” the requirement could be to use “LQ1263”. This would be a positive statement that the consignor is complying with the limited quantity concession, whilst giving some indication of the substance transported.

Consumer Commodities and 'Goods packaged for retail sale'

7. The concept of 'Consumer Commodities' is easily misinterpreted. As defined in the ICAO TIs, and given the identifier ID 8000, it appears to be most widely used in the United States, as such goods are recognised for onward land transport disassociated from an international journey involving an air leg. This also solves a documentation problem for 'pick and pack' products in the domestic road transport mode. There is also benefit from using ICAO TI Consumer Commodities to address difficulties in the application of a 25kg hold limit on other dangerous goods in aircraft holds imposed through USG 13D. These problems do not arise in Europe, since ADR does not require transport documentation for goods

packed in limited quantities and because there has not been an identified air transport need for a hold limitation on passenger aircraft.

8. Whilst ICAO TI 'Consumer Commodities' have been common in air transport for many years, they have never been allocated a UN number nor have they been recognized in sea or land transport. They also require a different level of packaging integrity (see ICAO Packing Instruction 910) than goods packed in limited quantities. The packaging may include a variety of dangerous and non-dangerous goods and attract a Class 9 label. They are permitted simplified documentation requirements in air transport. Thus consignors and operators are faced with difficulties for onward transport of such goods beyond the point of delivery for a trans-Atlantic international journey. In some ways, the concept of consumer commodities are recognised in IMDG (3.4.7 - 'LQs intended or suitable for sale through retail agencies'), RID/ADR (1.1.3.1 (a) goods packaged for retail sale intended for personal or domestic use) and the UN Model Regulations (1.1.1.2 (b) - goods 'packaged for retail sale, that are carried for individuals own use') by reference to goods 'for household use', 'retail sale' etc but these are exemptions which are not harmonised and that are not readily and clearly defined. But such products should not be described as 'dangerous goods in limited quantities'.
9. The United Kingdom would still favour, therefore, a comprehensive 'Limited Quantities' regime that would preclude the need for a separate concept of 'Consumer Commodities' or other 'exemptions' based on use rather than hazard, thereby simplifying international multimodal transport considerably.

The United Kingdom proposal

10. The United Kingdom proposal set out below also offers two approaches for text to be adopted into the Model Regulations for limited quantities (3.4.3). The principal issues of conflict have been the requirement or otherwise for documentation, the type of marking required and the need or otherwise for placarding transport units. Broadly, the UK does not believe that there is a need for full dangerous goods transport documentation. On marking two alternates are offered. It is recognised that a symbol might be better than letters to overcome language difficulties - perhaps the Canadian red and white diamond with the word 'Danger' (meaning the same in both English and French) would be better? The UK remains unconvinced of the need to placard transport units, but recognising the desires of some; text has been included in the proposal below for possible consideration.
11. For ease of reading the whole text of the new Chapter 3.4 is reproduced below.

"Replace the existing Chapter 3.4 with the following:

CHAPTER 3.4

DANGEROUS GOODS PACKED IN EXCEPTED, CONSUMER AND LIMITED QUANTITY PACKAGES

3.4.1. The provisions of this Chapter apply to the transport of certain dangerous goods in excepted quantity packages and to goods packed in limited quantities. All provisions and requirements of these Regulations apply to the transport of these categories of dangerous goods except as specifically provided for in this Chapter.

Excepted Quantity Packages

3.4.2 Excepted quantity packages of dangerous goods may only be carried in accordance with the limitations and provisions contained in this section.

3.4.2.1. The table below shows quantities that may be excepted from the regulations when carried in

accordance with the provisions in 3.4.2.2 to 3.4.2.7.

Class or Division	PG	Qty per inner
Division 2.2 (without subsidiary risk)		30mL
Class 3	I	30mL
	II	30mL
	III	30mL
Class 4 (excluding all self-reactive substances)	II	30mL/30g
	III	30mL/30g
Division 5.1	II	30mL/30g
	III	30mL/30g
Division 5.2 (only when contained in a chemical kit or first-aid kit)		30ml/30g
Division 6.1 (all substances other than those having an inhalation toxicity at the Packing Group I level)	I	1mL/1g
	II	1mL/1g
	III	30mL/30g
Class 8 (excluding UN2803 and UN2809)	II	30mL/30g
	III	30mL/30g
Class 9		30mL/30kg

The total net quantity of dangerous goods contained in each outer packaging shall be not more than:

- for other than Divisions 2.2 and 5.2:
 - PG I - 300 g or 300 ml
 - PG II - 500 g or 500 ml
 - PG III - 1 kg or 1 L;
- for Division 2.2 - 1 L;
- for Division 5.2 - 500 g or 250 ml.

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

- (a) Each inner packaging shall be constructed of plastics [having a minimum thickness of not less than 0.2 mm or of] glass, earthenware or metal. The materials of inner packagings shall not contain substances that may react dangerously with the contents, form hazardous products or significantly weaken the packagings. The closure of each inner packaging with a removable closure shall be held securely in place with [wire], tape or other positive means. Any receptacle having a neck with moulded screw threads shall have a leakproof threaded type cap completely resistant to the contents. Except for temperature sensing devices, inner packagings shall not completely fill with liquid at a temperature of 55 C;
- (b) Inner packagings shall be securely packed in an intermediate packaging with cushioning material. The intermediate packaging shall completely contain the contents in case of breakage or leakage,

regardless of package orientation. For liquid dangerous goods, the intermediate packaging shall 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 shall not react dangerously with cushioning and absorbent material or adversely affect their properties;

- (c) The intermediate packaging shall be securely packed in a strong, rigid outer packaging ([wooden], [plastics] fibreboard or other equally strong material);
- (d) the complete package shall be capable of withstanding the tests specified under 3.4.2.4;
- (e) dangerous goods in excepted quantities shall not be packed together in the same outer packaging or overpack, 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;

3.4.2.3 Packages prepared as for transport shall be [capable of being] tested. Inner packagings shall 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 packagings may be replaced by other substances except where this would invalidate the results of the tests. For solids, when another substance is used, it shall 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.

3.4.2.4 The complete package, as demonstrated by testing, shall 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).

- 3.4.2.5 Excepted quantity packages transported in accordance with this Chapter need not be labelled and transport units containing excepted quantity packages need not be placarded. Any segregation provisions for dangerous goods need not apply within a vehicle or freight container.
- 3.4.2.6 Dangerous goods transport documentation is not required.
- 3.4.2.7 Excepted quantity packages need not be marked with the proper shipping name of the contents, but shall be marked with:



the letters "EQ" placed within a diamond with minimum dimensions of 100x 100mm. If the size of the package so requires, the dimensions may be reduced, provided the markings remain clearly visible. The width of line forming the diamond shall be at least 2 mm; the letters shall be at least 6 mm high.

- 3.4.3 The provisions of this Chapter apply to the transport of certain dangerous goods packed in limited quantities.
- 3.4.3.1 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 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 limited quantities except as specifically provided in this Chapter.
- 3.4.3.2 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.
- 3.4.3.3 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.
- 3.4.3.4 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.
- 3.4.3.5 Different dangerous goods packed in limited quantities may be placed in the same outer packaging provided they will not interact dangerously in the event of leakage.
- 3.4.3.6 Packages of dangerous goods transported in accordance with this Chapter need not be labelled. Any segregation provisions for dangerous goods need not apply within a transport unit.
- 3.4.3.7 For the transport of dangerous goods packed in limited quantities, information mentioned in 5.4.1.4 and 5.4.1.5 is not required in the transport document. However, **[the document shall indicate:**

- the words “UN 8000 DANGEROUS GOODS PACKED IN LIMITED QUANTITIES”
- the class (including subsidiary risk)
- the total mass of goods]

3.4.3.8 Packages containing dangerous goods in limited quantities need not be marked with the proper shipping name of the contents, but shall be marked with the number “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 remains 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).

3.4.3.9 Transport units where the total load of dangerous goods packed in limited quantities exceeds [in excess of 15 tons – UK does not believe a threshold is necessary as there is no evidence that there is a problem] gross mass shall be a marked with [“UN 8000” in black digits 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

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 LIMITED QUANTITIES	See chapter 3.4						

2. Delete 5.4.1.5.2 and renumber the following paragraphs accordingly

OPTION USING "LQ" INSTEAD OF UN 8000

3.4.3 The provisions of this Chapter apply to the transport of certain dangerous goods packed in limited quantities.

3.4.3.1 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 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 limited quantities except as specifically provided in this Chapter.

3.4.3.2 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.

3.4.3.3 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.

3.4.3.4 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.

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

3.4.3.6 Packages of dangerous goods transported in accordance with this Chapter need not be labelled. Any segregation provisions for dangerous goods need not apply within a transport unit.

3.4.3.7 For the transport of dangerous goods packed in limited quantities, information mentioned in 5.4.1.4 and 5.4.1.5 is not required in the transport document. However, [the document shall indicate:

- the words "LQ XXXX"(being the UN number preceded by the letters "LQ" instead of "UN"
- the class (including subsidiary risk)
- the total mass of goods].
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3.4.3.8 Packages containing dangerous goods in limited quantities need not be marked with the proper shipping name of the contents, but shall be marked with the substance identification number preceded by the letters "LQ" 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 remains 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).
E.g.



3.4.3.9 Transport units where the total load of dangerous goods packed in limited quantities exceeds [in excess of 15 tons – *UK does not believe a threshold is necessary as there is no evidence that there is a problem*] gross mass shall be marked with [e.g. "LQ1263" in black digits 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."