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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****Forty-sixth session**

Geneva, 1 – 9 December 2014

Item 2 (b) of the provisional agenda

**New proposals for amendments to the Model Regulations on the Transport of Dangerous Goods****Dangerous goods in machinery, apparatus or articles, N.O.S.****Transmitted by the expert from the United Kingdom<sup>1</sup>****Introduction**

1. At the forty-fifth session, the Sub-Committee considered ST/SG/AC.10/C.3/2014/44 from the United Kingdom which further developed a proposal to apply a generic approach to the classification of machinery, apparatus or articles containing dangerous goods. The proposal for consideration in ST/SG/AC.10/C.3/2014/44 was presented as a thought starter developed from conclusions of previous discussions on informal document INF.36 submitted to the forty-fourth session and was the basis for discussions at a lunch time working group.

2. The proposal was to have three entries in the Dangerous Goods List for UN No. 3363, Types 1-3 which were designated according to the amount of dangerous goods they contained i.e. those substances which are not permitted to be transported in limited quantity amounts; those transported within limited quantity amounts and those which were in excess of limited quantity amounts. Each Type had differing transport requirements such as additional labelling and transport document requirements.

3. On consideration of the proposal, the Sub-Committee raised the following queries:

- (a) The proposal did not present an upper limit meaning any quantity of dangerous goods could be contained within the machinery, apparatus or article. It was felt that this could lead to abuse of the provisions.

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<sup>1</sup> In accordance with the programme of work of the Sub-Committee for 2013-2014 approved by the Committee at its sixth session (refer to ST/SG/AC.10/C.3/84, para. 86 and ST/SG/AC.10/40, para. 14).

- (b) Should some quantities of dangerous goods within articles be exempt from the regulations?
- (c) Some delegations felt that assignment to Class 9 in all circumstances was not appropriate.
- (d) Was it necessary to include Class 1 when there are existing N.O.S entries for Class 1 articles?
- (e) How would articles already listed in the Dangerous Goods List be transported if they were within another article?
- (f) Multiple hazard communication for Class 9 consignments may be confusing.
- (g) It was suggested that new UN numbers could be introduced rather than 'Types' of UN3363.
- (h) There was a question over whether it should be the capacity of the article rather than the quantity of the dangerous goods contained which should determine the transport conditions. It was felt that this would help with enforcement of the provisions.
- (i) What would the additional packaging requirements be for articles containing larger quantities of dangerous goods (those in excess of the permitted limited quantity amounts)?

The discussion of 2014/44 was remitted to a lunch time working group.

### **Conclusions of the lunch time working group**

- 4. In response to the issues raised above, the working group concluded:
  - (a) If no upper limit is proposed what provisions would apply to quantities in excess of that limit? We would find ourselves in the same situation with Competent Authorities issuing ad-hoc approvals. Specifying that the provisions only applied to articles where the dangerous substance(s) is an integral element to the article should prevent misuse of the provision.
  - (b) It was felt that for very small quantities, there should be a general exemption from the regulations. The working group felt that this should be based on quantities that are less than those permitted in Excepted Quantities.
  - (c) The group agreed that assignment to Class 9 was not appropriate in all cases particularly when larger quantities of dangerous goods are present. It was suggested that a new UN entry is developed for each Class of dangerous goods (excluding Classes 1 and 7) to be used when quantities were in excess of those permitted in limited quantity provisions. Class 9 would still be appropriate for UN3363 when quantities were within the limited quantity provisions. However a new Class 9 entry would be appropriate for the transport of articles where the amount of dangerous goods contained is in excess of those permitted in limited quantities.
  - (d) It was agreed that any provisions proposed for such carriage should exclude Class 1 and Class 7.
  - (e) Articles which already have an entry in the Dangerous Goods List, already have transport provisions such as Class established. This means that they can be treated like any other dangerous good for which there is an entry in the Dangerous Goods List.

(f) It was agreed that multiple hazard communication for Class 9 may lead to confusion. It was suggested that when multiple dangerous goods are present within an article, a primary hazard should be identified using the Precedence of Hazards section in 2.0.3 of the Model Regulations. Allocation would then be made to an appropriate new UN entry for that Class. This would ensure appropriate hazard communication for both labelling of the package and in the transport document. It was also suggested that a maximum of two subsidiary risks should be indicated. These would correspond to the primary hazard of any other dangerous goods contained in the article or the subsidiary risk(s) of the primary hazard when there is only one dangerous good present in the article.

(g) As mentioned in c) above, new UN entries would be proposed rather than “Types” allocated to the existing UN3363 as proposed in 2014/44.

(h) There was a general understanding that it would be difficult for enforcers to determine the quantity of dangerous goods that an article contains and had sympathy with the argument to base the provisions on the capacity of the article rather than the quantity it contains. However, the lunchtime working group felt that if the transport provisions were determined on the basis of the capacity of the article rather than the quantity of dangerous goods it actually contains, then it would lead to more stringent provisions than were necessary and may also mislead the emergency services.

(i) The working group did not conclude what, if any, additional packaging requirements would be for transport of articles where the quantity of dangerous goods contained is in excess of the limited quantity provisions. It was suggested that the article itself could be considered as an inner packaging so that the packaging requirements would only relate to outer packagings. It was agreed that a new packing instruction similar to P907 but more stringent could be introduced and allocated to the new UN entries which would be based upon the packing group requirements for the primary hazard present in the article for the integrity requirements. Unpackaged articles would require competent authority approval and would be treated in the same manner as empty, uncleaned unpackaged articles.

The United Kingdom expert has concluded that a new packing instruction that addresses all possible configurations would be difficult to devise and proposes therefore simply to utilise packing instruction P003 together with an equivalent large packing instruction. If the Sub-Committee has concerns about the packaging requirements for articles containing dangerous substances in significantly larger quantities, a special packing provision could be added to both P003 and LP XXX to require UN testing to performance level [II] e.g.

“PPxx For UN Nos. 35xx, 35xy..... 35zx packaging shall be subject to 4.1.1.3 where the total quantity of dangerous substances contained in the machinery, apparatus or article exceeds [20kg/l].”

An example large packing instruction will be provided by the United Kingdom in a later informal document.

5. The working group felt that it would be helpful to have some examples of articles containing dangerous goods which have been the subject of competent authority approvals to help in determining whether the proposed provisions are workable. The United Kingdom expert will present a working example as an informal paper for the forty-sixth session of the Sub-Committee.

6. The proposal below is based on the conclusions of the lunch-time working group’s discussions. Due to lack of time the United Kingdom has not been able to circulate this proposal to the participants of the working group for their comments in advance as had

been envisioned. The United Kingdom expert therefore welcomes written comments and suggestions on this proposal in advance of the forty-sixth session of the Sub-Committee so that these comments can be considered in full by all delegations.

## Proposal

7. Note – throughout the proposal the term ‘dangerous substances’ has been used in the text. The Sub-Committee may wish to consider if this is the correct term to use or whether it would be more appropriate to use the term ‘dangerous goods’ as this would align with the proper shipping name. The existing text of special provision 301 uses both terms and P907 uses “dangerous goods”. The United Kingdom believes that whichever term is used it should be consistent.

8. Add the following new UN entries to Chapter 3.2 Dangerous Goods List and amend existing UN entries as follows (new text underlined):

UN No.	Name and description	Class or division	Subsidiary risk	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	(8)	(9)	(10)	(11)
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
35XX	<u>DANGEROUS GOODS IN MACHINERY, N.O.S. or DANGEROUS GOODS IN APPARATUS, N.O.S. or DANGEROUS GOODS IN ARTICLES, N.O.S.</u>	<u>2</u>	<u>See SP XXX</u>		<u>XXX</u>	<u>0</u>	<u>E0</u>	<u>P003</u>			
35XY	<u>DANGEROUS GOODS IN MACHINERY, N.O.S. or DANGEROUS GOODS IN APPARATUS, N.O.S. or DANGEROUS GOODS IN ARTICLES, N.O.S.</u>	<u>3</u>	<u>See SP XXX</u>		<u>XXX</u>	<u>0</u>	<u>E0</u>	<u>P003</u>			

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<u>35XZ</u>	<u>DANGEROUS GOODS IN MACHINERY, N.O.S. or DANGEROUS GOODS IN APPARATUS, N.O.S. or DANGEROUS GOODS IN ARTICLES, N.O.S.</u>	<u>4</u>	<u>See SP XXX</u>	<u>XXX</u>	<u>0</u>	<u>E0</u>	<u>P003</u>
<u>35YX</u>	<u>DANGEROUS GOODS IN MACHINERY, N.O.S. or DANGEROUS GOODS IN APPARATUS, N.O.S. or DANGEROUS GOODS IN ARTICLES, N.O.S.</u>	<u>5</u>	<u>See SP XXX</u>	<u>XXX</u>	<u>0</u>	<u>E0</u>	<u>P003</u>
<u>35YY</u>	<u>DANGEROUS GOODS IN MACHINERY, N.O.S. or DANGEROUS GOODS IN APPARATUS, N.O.S. or DANGEROUS GOODS IN ARTICLES, N.O.S.</u>	<u>6</u>	<u>See SP XXX</u>	<u>XXX</u>	<u>0</u>	<u>E0</u>	<u>P003</u>
<u>35YZ</u>	<u>DANGEROUS GOODS IN MACHINERY, N.O.S. or DANGEROUS GOODS IN APPARATUS, N.O.S. or DANGEROUS GOODS IN ARTICLES, N.O.S.</u>	<u>8</u>	<u>See SP XXX</u>	<u>XXX</u>	<u>0</u>	<u>E0</u>	<u>P003</u>

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35ZX	<u>DANGEROUS GOODS IN MACHINERY, N.O.S. or DANGEROUS GOODS IN APPARATUS, N.O.S. or DANGEROUS GOODS IN ARTICLES, N.O.S.</u>	<u>9</u>	<u>See SP XXX</u>	<u>XXX</u>	<u>0</u>	<u>E0</u>	<u>P003</u>
3363	<u>DANGEROUS GOODS IN MACHINERY, N.O.S. or DANGEROUS GOODS IN APPARATUS, N.O.S. or DANGEROUS GOODS IN ARTICLES, N.O.S.</u>	<u>9</u>		<u>301</u>	<u>0</u>	<u>E0</u>	<u>P907</u>

9. Add a new Special Provision XXX into Chapter 3.3 as follows:

“XXX This entry applies to machinery, apparatus or articles containing dangerous substances as an integral element of the machinery, apparatus or article in quantities in excess of those permitted in Column 7a of the Dangerous Goods List of Chapter 3.2. for the dangerous substances contained within the machinery, apparatus or article. It shall not be used for machinery, apparatus or articles for which a proper shipping name already exists in the Dangerous Goods List. For machinery, apparatus or articles containing dangerous substances where the dangerous substances contained are within the permitted limited quantity amounts, the machinery, apparatus or article shall be assigned to UN 3363.

Machinery, apparatus or articles containing dangerous substances shall be assigned to the appropriate Class or Division of the dangerous substance(s) it contains. If the machinery, apparatus or article contains more than one Class or Division of dangerous substances then the Class or Division to which it should be assigned is to be determined by the primary risk present as determined by the Precedence of Hazards section in 2.0.3 of these Regulations, regardless of the quantities of each.

A maximum of two subsidiary risks shall be indicated as necessary. These subsidiary risks shall be representative of the primary risk posed by the other dangerous substances contained within the machinery, apparatus or article or they shall be the subsidiary risk(s) identified in column 4 of the Dangerous Goods List when only one dangerous substance is present in the machinery, apparatus or article.

If the machinery, apparatus or article contains more than one item of dangerous goods, the individual substances shall not be capable of reacting dangerously with one another. When it is required to ensure liquid dangerous goods remain in their intended orientation, orientation labels

meeting the specifications of ISO 780:1997 shall be affixed and visible on at least two opposite vertical sides where possible, with the arrows pointing in the correct upright direction.

This entry shall not be used for the transport of machinery, apparatus or articles containing dangerous substances of Class 1 or Class 7.

This entry shall not apply to machinery, apparatus or articles containing only UN 3077 and/or UN 3082 or to batteries not listed in the Dangerous Goods List. [*This relates to the query raised by RECHARGE and PRBA in INF.23 from the forty-fifth session*]"

10. Amend Special Provision 301 in Chapter 3.3 as follows (new text underlined, deleted text ~~struck through~~):

“301 This entry only applies to machinery, articles or apparatus containing dangerous substances as a residue or an integral element of the machinery, article or apparatus. It shall not be used for machinery, articles or apparatus for which a proper shipping name already exists in the Dangerous Goods List of Chapter 3.2. Machinery, articles and apparatus transported under this entry shall only contain dangerous goods which are permitted authorized to be transported in accordance with the provisions of Chapter 3.4 (Limited quantities). The quantity of dangerous goods in machinery, articles or apparatus shall not exceed the quantity specified in Column 7a of the Dangerous Goods List of Chapter 3.2 for each item of dangerous goods contained. If the machinery, article or apparatus contains more than one item of dangerous goods, the individual substances shall not be capable of reacting dangerously with one another (see 4.1.1.6). When it is required to ensure liquid dangerous goods remain in their intended orientation, package orientation labels meeting the specifications of ISO 780:1997 shall be affixed and visible on at least two opposite vertical sides where possible, with the arrows pointing in the correct upright direction.

~~The competent authority may exempt from regulation machinery or apparatus which would otherwise be transported under this entry. The transport of dangerous goods in machinery or apparatus where the quantity of dangerous goods exceeds the quantity specified in Column 7a of the Dangerous Goods List of Chapter 3.2 is authorized when approved by the competent authority, except where special provision 363 applies.~~

This entry shall not apply to machinery, apparatus or articles containing only UN 3077 and/or UN 3082 or to batteries not listed in the Dangerous Goods List. [*This relates to the query raised by RECHARGE and PRBA in INF.23 from the forty-fifth session*]"

11. Add the following text to the end of packing instruction P003 in 4.1.4.1 as follows:  
 “Machinery, apparatus or articles which cannot be packaged according to this packing instruction are subject to competent authority approval as specified in 4.1.3.8.1 and 4.1.3.8.2.”

## Consequential Amendments

12. Add a new paragraph to Chapter 1.1 as follows:  
 “1.1.1.10 **Dangerous Goods in machinery, apparatus or articles**

Machinery, apparatus or articles containing dangerous substances shall not be subject to these regulations where the quantity of dangerous substance(s) contained within machinery, apparatus or article is below the quantity permitted in Excepted Quantities as indicated in Column 7b of the Dangerous Goods List in Chapter 3.2 for all the dangerous substances contained.”

13. Amend the proper shipping name for UN3363 in the Dangerous Goods List of Chapter 3.2 as follows (new text underlined):

“3363 DANGEROUS GOODS IN MACHINERY, N.O.S. or DANGEROUS GOODS IN APPARATUS, N.O.S. or DANGEROUS GOODS IN ARTICLES, N.O.S.”

(Amendment would also need to be made to the alphabetical index, to Appendix A, List of Generic and N.O.S. Proper Shipping Names and to Chapter 2.9)

14. Amend 4.1.3.8.1 as follows (new text underlined):

“4.1.3.8.1 Where large and robust machinery, apparatus or articles cannot be packaged in accordance with the requirements of Chapters 6.1 or 6.6 and they have to be carried empty, uncleaned and unpackaged or are being transported in accordance with special provision XXX, the competent authority of the country of origin may approve such carriage. In doing so the competent authority shall take into account that:” [*the remainder of text is to remain the same*]

15. Amend Packing Instruction P907 in 4.1.4.1 as follows (new text underlined):

“P907 If the machinery, article or apparatus is constructed and designed so that the receptacles containing the dangerous goods are afforded adequate protection, an outer packaging is not required. Dangerous goods in machinery, articles or apparatus shall otherwise be packed in outer packagings constructed of suitable material, and of adequate strength and design in relation to the packaging capacity and its intended use, and meeting the applicable requirements of **4.1.1.1**.

Receptacles containing dangerous goods shall conform to the general provisions in 4.1.1, except that 4.1.1.3, 4.1.1.4, 4.1.1.12 and 4.1.1.14 do not apply. For Division 2.2 gases, the inner cylinder or receptacle, its contents and filling density shall be to the satisfaction of the competent authority of the country in which the cylinder or receptacle is filled.

In addition, the manner in which receptacles are contained within the machinery, article or apparatus, shall be such that under normal conditions of transport, damage to receptacles containing the dangerous goods is unlikely; and in the event of damage to receptacles containing solid or liquid dangerous goods, no leakage of the dangerous goods from the machinery, article or apparatus is possible (a leakproof liner may be used to satisfy this requirement). Receptacles containing dangerous goods shall be so installed, secured or cushioned as to prevent their breakage or leakage and so as to control their movement within the machinery, article or apparatus during normal conditions of transport. Cushioning material shall not react dangerously with the content of the receptacles. Any leakage of the contents shall not substantially impair the protective properties of the cushioning material.”



16. Add a new paragraph to 5.4.1.5 as follows:

“5.4.1.5.11 Dangerous goods in machinery, apparatus or articles, N.O.S

For UN entries transported in accordance with special provision XXX in column 6 of the Dangerous Goods List of Chapter 3.2, in addition to the Proper Shipping Name, the transport document shall additionally bear the name and description of the substance presenting the primary hazard as indicated in column 2 of the Dangerous Goods List contained in the machinery, apparatus or article as determined by the precedence of hazards section in 2.0.3 of these regulations, for example:

UN35XY, DANGEROUS GOODS IN MACHINERY, N.O.S, (Pyrrolidine), 3, (8)”

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