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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****Thirty-seventh session**

Geneva, 21-30 June 2010

Item 10 of the provisional agenda

**Issues relating to the Globally Harmonized System  
of Classification and Labelling of Chemicals (GHS)****Sub-Committee of Experts on the Globally Harmonized  
System of Classification and Labelling of Chemicals****Nineteenth session**

Geneva, 30 June - 2 July 2010

Item 3 of the provisional agenda

**Hazard communication issues****Hazard communication for supply and use of aerosols****Transmitted by the expert from the United Kingdom and the  
Federation of European Aerosol Associations (FEA)<sup>1</sup>****Introduction**

1. At the seventh session of the Sub-Committee of Experts on the GHS (GHS Sub-Committee), the expert from the United Kingdom submitted an informal document UN/SCEGHS/17/INF.4 (also submitted to the thirty-fifth session of the Sub-Committee of Experts on the Transport of Dangerous Goods (TDG Sub-Committee) as UN/SCETDG/35/INF.11) proposing that aerosols should not fall within the scope of Chapter 2.5 of the GHS (gases under pressure).

2. At the last session of the GHS Sub-Committee, United Kingdom and FEA jointly submitted a second informal document UN/SCEGHS/18/INF.16 proposing to include specific label elements for both flammable and non-flammable aerosols in Chapter 2.3 (flammable aerosols) and then to exempt aerosols from the scope of Chapter 2.5 (gases under pressure) of the GHS. The GHS Sub-Committee invited the authors of the proposal to take account of the comments received and to submit a formal document for the 19<sup>th</sup> session.

3. Under the UN Model Regulations all aerosols are considered as dangerous goods and included in Class 2 (gases). Criteria of special provision 63 specifically apply to

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<sup>1</sup> In accordance with the report of the Sub-Committee of Experts on its eighteenth session (ST/SG/AC.10/C.4/36, para.33)



aerosols: division 2.1 (flammable gases) applies to flammable aerosols Category 1 and 2 and division 2.2 (non-flammable, non-toxic gases) applies to non-flammable aerosols. Gases of division 2.3 (toxic gases) may not be used in aerosol dispensers.

4. The experts from United Kingdom and FEA consider that, as pressurised containers, flammable and non-flammable aerosols possess hazard characteristics which bring them within the scope of the GHS, and which would make locating them in the same hazard class the most logical approach.

5. To classify both flammable and non-flammable aerosols in the same chapter 2.3 (flammable aerosols) is consistent with special provision 63 of the UN Model Regulations and additionally is the most easy-to-apply and easy-to-enforce approach.

6. Currently, flammable aerosols do not fall additionally within the scope of chapters 2.2 (flammable gases), 2.6 (flammable liquids) or 2.7 (flammable solids). If, as proposed, both flammable and non-flammable aerosols were covered in chapter 2.3 (flammable and non-flammable aerosols), aerosols could be exempted from chapter 2.5 (gases under pressure) since the pressure hazard would be adequately covered by the hazard communication elements in chapter 2.3. However, depending on their contents, aerosol dispensers may additionally fall within the scope of other hazard classes (e.g. health and environmental hazard classes).

7. The proposal incorporates the following label elements which were proposed at the last GHS Sub-Committee session and modified following further input from several Sub-Committee experts:

<i>Label elements for aerosols</i> (i.e. for extremely flammable, flammable and non-flammable aerosols)			
CLASSIFICATION	Category 1	Category 2	new "Category 3" (not classified as flammable aerosols)
GHS Pictograms			<i>No pictogram</i>
Signal word	Danger	Warning	[Warning]
Hazard statement	Extremely flammable aerosol (H222)	Flammable aerosol (H223)	<i>No hazard statement</i>
Precautionary statement prevention	Keep away from heat/sparks/open flames/hot surfaces. No smoking. (P210)  Do not spray on an open flame or other ignition source. (P211)  Pressurized container: Do not pierce or burn, even after use. [May burst if heated.] ([revised] P251)	Keep away from heat/sparks/open flames/hot surfaces. No smoking. (P210)  Do not spray on an open flame or other ignition source. (P211)  Pressurized container: Do not pierce or burn, even after use. [May burst if heated.] ([revised] P251)	Keep away from heat/sparks/open flames/hot surfaces. No smoking. (P210)  Pressurized container: Do not pierce or burn, even after use. [May burst if heated.] ([revised] P251)

<i>Label elements for aerosols</i> (i.e. for extremely flammable, flammable and non-flammable aerosols)			
Precautionary statement response			
Precautionary Statement storage	Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. (P410 + P412)	Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. (P410 + P412)	Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. (P410 + P412)  [X% by mass of the contents are flammable <sup>a</sup> (new P414)]
Precautionary statement disposal			

<sup>a</sup> only when the aerosol contains  $\geq 1\%$  of flammable components

8. Additionally ‘Keep out of reach of children’ (P102) is assigned to aerosols for the general public.

9. During discussions some suggestions have been made for alternative options as to how to formulate the hazard communication elements for flammable and non-flammable aerosols. Some of these have been indicated in square brackets in the table above and in the proposal at the end of this paper. The experts from the United Kingdom and FEA would welcome the views of the GHS Sub-Committee on the inclusion (or non-inclusion) of the relevant text. The proposal below can be finalised as appropriate depending on the Sub-Committee’s views.

## Proposal

*Note: Inserted text is underlined; deleted text is crossed out*

10. Chapter 2.3 amend the title to read:

“FLAMMABLE ~~AND NON-FLAMMABLE~~ AEROSOLS

11. Paragraph 2.3.2.1, amend NOTE 2 to read:

“**NOTE 2:** ~~Flammable~~ ~~a~~ ~~Aerosols do not fall additionally within the scope of chapters 2.2 (flammable gases), 2.5 (gases under pressure), 2.6 (flammable liquids) and 2.7 (flammable solids).~~”

12. Paragraph 2.3.2.2, amend the beginning of the first sentence to read:

“An ~~flammable~~ aerosol is classified in one of the three categories for this Class ...”

13. Paragraph 2.3.2.2 add a new sentence at the end of the paragraph to read:

“Aerosols which do not meet the criteria for inclusion in category 1 or category 2 (extremely flammable or flammable aerosols) should be classified in category 3 (non-flammable aerosols)”

14. Section 2.3.3 insert a new column “Category 3” in Table 2.3.1 and amend to read:

“Table 2.3.1.: Label elements for flammable and non-flammable aerosols






	Category 1	Category 2	<u>Category 3</u>
<b>Symbol</b>	Flame	Flame	--
<b>Signal word</b>	Danger	Warning	[ <u>Warning</u> ]
<b>Hazard statement</b>	Extremely flammable aerosol	Flammable aerosol	--

15. Paragraph 2.3.4.1, modify the introductory text to read:

‘To classify an aerosol as a flammable aerosol,...’.



16. Paragraph 2.3.4.1, in the three decision logics 2.3 (a) to 2.3 (c), replace all “Not classified” by “Category 3”

17. Annex 1, amend the table related to flammable aerosols to read:

FLAMMABLE <u>AND NON-FLAMMABLE</u> AEROSOLS				
Category 1	Category 2	<u>Category 3</u>	-	Note
 Danger Extremely flammable aerosol	 Warning Flammable aerosol	<i>No pictogram</i>  [Warning] <i>No hazard statement</i>		Under the UN <i>Recommendations on the Transport of Dangerous Goods, Model Regulations</i> , the symbol, number and border line may be shown in black instead of white. The background colour stays red in <u>the first two cases</u> , <u>and green in the third case</u> .
 2	 2	 <u>2</u>		

18. Annex 2, table A.2.3, insert a new row “3” and amend to read:

“

Hazard category	Criteria	Hazard communication elements	
1	On the basis of its ingredients, of its chemical heat of combustion and, if applicable, of the results of the foam test (for foam aerosols), and of the ignition distance test and enclosed space test, (for spray aerosols) (see decision logic in 2.3.4.1 of Chapter 2.3)	Symbol	
		Signal word	Danger
		Hazard statement	Extremely flammable aerosol
2	On the basis of its ingredients, of its chemical heat of combustion and, if applicable, of the results of the foam test (for foam aerosols), and of the ignition distance test and enclosed space test, (for spray aerosols) (see decision logic in 2.3.4.1 of Chapter 2.3)	Symbol	
		Signal word	Warning
		Hazard statement	Flammable aerosol
3	<u>On the basis of its ingredients, of its chemical heat of combustion and, if applicable, of the results of the foam test (for foam aerosols), and of the ignition distance test and enclosed space test, (for spray aerosols) (see decision logic in 2.3.4.1 of Chapter 2.3).</u>	<u>Symbol</u>	<u>No symbol</u>
		<u>Signal word</u>	<u>[Warning]</u>
		<u>Hazard statement</u>	<u>No hazard statement</u>

”

19. Annex 3, Section 2, paragraph A3.2.3.7, in Table A3.2.2 amend rows ‘P210’ and ‘P251’ to read:

“Table A3.2.2: Codification of prevention precautionary statements

Code (1)	Prevention precautionary statements (2)	Hazard class (3)	Hazard category (4)	Conditions of use (5)
...				
P210	<b>Keep away from heat/sparks/open flames/hot surfaces. <u>No smoking.</u></b>	Flammable <u>and non-flammable</u> aerosols (chapter 2.3)	1, 2, <u>3</u>	Manufacturers/supplier or the competent authority to specify applicable ignition source(s)
...				
P251	<b>Pressurized container: Do not pierce or burn, even after use. <u>May burst if heated</u></b>	Flammable <u>and non-flammable</u> aerosols (chapter 2.3)	1, 2, <u>3</u>	

”

20. Annex 3, Section 2, paragraph A3.2.3.7, in Table A3.2.4 insert a new row “P414” to include a new precautionary statement (possibly) and amend rows “P410 + P412” to read:

“Table A3.2.4: Codification of storage precautionary statements

Code (1)	Prevention precautionary statements (2)	Hazard class (3)	Hazard category (4)	Conditions of use (5)
...				
[P414]	<b><u>[X% by mass of the contents are flammable.]</u></b>	<u>[Flammable and non-flammable aerosols (chapter 2.3)]</u>	<u>[3]</u>	<u>[- if the aerosol contains <math>\geq</math> 1% of flammable components]</u>
...				
P410 + P412	<b>Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.</b>	Flammable <u>and non-flammable</u> aerosols (chapter 2.3)	1, 2, <u>3</u>	

”

21. Annex 3, Section 3, A3.3.5.1 amend the matrix related to flammable aerosols (hazard categories 1 and 2) to read:

**FLAMMABLE AND NON-FLAMMABLE AEROSOLS**  
(Chapter 2.3)

<b>Symbol</b> Flame
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Hazard category	Signal word	Hazard statement
1	Danger	H222 Extremely flammable aerosol
2	Warning	H223 Flammable aerosol



Precautionary statements			
Prevention	Response	Storage	Disposal
P210 <b>Keep away from heat/sparks/open flames/hot surfaces.- No smoking.</b> Manufacturer/supplier or the competent authority to specify applicable ignition sources(s).  P211 <b>Do not spray on an open flame or other ignition source.</b>  P251 <b>Pressurized container: Do not pierce or burn, even after use. <u>May burst if heated.</u></b>		P410 + P412 <b>Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.</b>	

22. Annex 3, Section 3, A3.3.5.1 add a new matrix related to flammable aerosols (hazard category 3) to read:

**FLAMMABLE AND NON-FLAMMABLE AEROSOLS**  
**(Chapter 2.3)**

<b><u>Symbol</u></b> <i>No symbol</i>
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<b>Hazard category</b>	<b>Signal word</b>	<b>Hazard statement</b>	
3	[Warning]		
<b><u>Precautionary statements</u></b>			
<b><u>Prevention</u></b>	<b><u>Response</u></b>	<b><u>Storage</u></b>	<b><u>Disposal</u></b>
<p><u>P210</u> <b><u>Keep away from heat/sparks/open flames/hot surfaces.- No smoking.</u></b> <u>Manufacturer/supplier or the competent authority to specify applicable ignition sources(s).</u></p> <p><u>P251</u> <b><u>Pressurized container: Do not pierce or burn, even after use.[May burst if heated.]</u></b></p>		<p><u>P410 + P412</u> <b><u>Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.</u></b></p> <p><u>[P414</u> <b><u>[X% by mass of the contents are flammable.</u></b> <i>- if the aerosol contains ≥ 1% of flammable components]</i></p>	