



**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-eighth session**

Geneva, 29 November–7 December 2010

Item 11 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****Twentieth session**

Geneva, 7–9 December 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)¹****Introduction**

1. At the seventeenth 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 eighteenth session of the GHS Sub-Committee, the expert from the United Kingdom and FEA jointly submitted a second informal document 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.

3. At the nineteenth session of the GHS Sub-Committee, the expert from the United Kingdom and FEA jointly submitted a formal document ST/SG/AC.10/C.3/2010/17 (also submitted to the thirty-seventh session of the TDG Sub-Committee as ST/SG/AC.10/C.3/2010/17) which took into account the comments received. There was

¹ In accordance with the report of the Sub-Committee of Experts on its nineteenth session (ST/SG/AC.10/C.4/38, para.40)

general support for the proposal to include all aerosols (flammable and non-flammable aerosols) under a single chapter of the GHS but several experts considered that further work was needed regarding the proposed hazard communication elements. The Sub-Committee invited the authors of the document to take account of the comments received and to submit a revised proposal. The expert from the United Kingdom and FEA hope that this formal proposal, which takes into careful account the comments received will be finalised and adopted at this last meeting of the biennium.

Discussion

Classification of aerosols

4. Chapter 2.3 of the GHS as currently drafted deals with the classification criteria of aerosols as flammable. The intention of the present proposal by the expert from the United Kingdom and FEA is to consolidate and clarify the physical hazard classification criteria and hazard communication elements for all aerosols within this chapter, and in particular to include appropriate criteria and hazard communication elements for non-flammable aerosols. This will help to simplify the GHS requirements for aerosols by creating a single chapter which covers the physical hazards of aerosols.

5. Chapter 2.3 presently includes a note clarifying that aerosols do not fall additionally within the scope of chapters 2.2 (flammable gases), 2.6 (flammable liquids) or 2.7 (flammable solids), which was agreed at the sixteenth session of the GHS Sub-Committee. The expert from the United Kingdom and FEA propose to add to this note that aerosols do not additionally fall under chapter 2.5 (gases under pressure), and to include a note to the same effect in Chapter 2.5.

6. The expert from the United Kingdom and FEA believe that the proposal to exempt aerosols from Chapter 2.5 of GHS is consistent with the GHS as currently drafted and does not in any way reduce the protection the GHS currently offers. The reasoning behind this derives in part from the relationship between this chapter of the GHS and transport Class 2 (Gases), and will be fully set out in a separate supporting informal document.

7. The expert from the United Kingdom and FEA agree that aerosols remain subject to classification in health and environmental hazard classes (and possibly some other physical hazard classes such as corrosive to metals). In order to emphasise this, the expert from United Kingdom and FEA propose to clarify the note related to exemptions (note 2 of paragraph 2.3.2.1), so that this states that “depending on their contents, aerosols may however fall within the scope of other hazard classes”.

8. The present proposal deals with classification and labelling of aerosols for supply and use only and it was confirmed by the TDG Sub-Committee at its thirty-seventh session that the proposal does not modify or contradict the existing classification of aerosols under Class 2 of the UN Model Regulations. In particular, the proposal to exempt aerosols from chapter 2.5 of the GHS does not entail that aerosols would be removed from Transport Class 2. On the contrary, aerosols would continue to be covered in Class 2 according to special provision 63 (SP63), which allocates aerosols to either division 2.1 or division 2.2 depending on flammability criteria (gases of division 2.3 (toxic gases) may not be used in aerosol dispensers). Classification according to SP63 harmonises with the criteria proposed for aerosols in Chapter 2.3, so that flammable aerosols, categories 1 and 2 will be allocated to Division 2.1 and non-flammable aerosols to Division 2.3. The relationship between the proposed GHS classification of aerosols will also be set out further in a separate supporting informal document.

9. As suggested by several experts, and since it is proposed to make explicit the requirement to consider other hazard classes as well as physical hazards, the expert from United Kingdom and FEA propose the title for Chapter 2.3 should become “AEROSOLS”.

Hazard communication elements for aerosols

10. The proposal to exempt aerosols from Chapter 2.5 of GHS entails that aerosols would not require the hazard communication elements in that chapter, and in particular would not receive the pictogram “gas cylinder”. This is consistent with the fact that at present no national regulations currently require the pictogram “gas cylinder” for either flammable or non-flammable consumer aerosols (as shown in UN/SCEGHS/18/INF.16). In addition, the expert from the United Kingdom and FEA believe that the “gas cylinder” pictogram would be misleading as applied to aerosols, since the “gas cylinder” symbol does not directly indicate the hazard involved and was clearly designed with much larger gas cylinders in mind. Use of this symbol on aerosols therefore seems to risk causing confusion for users who are not already familiar with it. For this reason, it is not proposed to assign the gas cylinder pictogram to either flammable or non-flammable aerosols.



11. The expert from the United Kingdom and FEA agree that the phrase “May burst if heated” is best understood as a hazard statement and propose that it is included among the hazard statements for all aerosols. However, as a consequence it is proposed to modify the precautionary statement P251 (which currently reads, “Pressurized container: Do not pierce or burn, even after use”), so that the words, “Pressurized container:” are deleted. The rationale for this is that the pressure hazard presented by aerosols is fully described in the statement “may burst if heated”. In addition, although “pressurised container” is currently included as part of a precautionary statement, it does not give useful precautionary information. Therefore the expert from the United Kingdom and FEA believe that required hazard and precautionary information can be conveyed more simply and briefly without use of this wording.

12. The previous version of this proposal set out in working document ST/SG/AC.10/C.4/2010/3 - ST/SG/AC.10/C.3/2010/17 suggested that the precautionary statement “X% by mass of the contents is flammable” should be assigned to non-flammable aerosols including a flammable contents higher than 1%. However, several experts expressed concern that this new proposed precautionary statement could convey a misleading or confusing message. The expert from the United Kingdom and FEA agree that the precautionary statement – currently used in European regulations – is now somewhat obsolete following the new classification scheme: today aerosols are classified for flammability on the basis of the flammable components in the formulation, the chemical heat of combustion and results of flammability tests. This statement is therefore no longer proposed for inclusion.

13. The expert from the United Kingdom and FEA consider that “Keep away from heat and hot surfaces” may be a relevant precautionary statement for some aerosols classified as non-flammable and propose to maintain the requirement P210 “Keep away from heat/sparks/open flames/hot surfaces. No smoking.” for all aerosols.

14. The table below summarises the proposal incorporating the above points.

Note: The table is intended to indicate the pictograms which are present for the flammability hazard only, where this is present. Other pictograms may be present for other hazards that aerosols may present.

Label elements for aerosols (i.e. for extremely flammable, flammable and non-flammable aerosols)			
CLASSIFICATION	Category 1	Category 2	new "Category 3" (non-flammable aerosols)
GHS pictograms			--
Signal word	Danger	Warning	Warning
Hazard statement	Extremely flammable aerosol (H222) May burst if heated (H229)	Flammable aerosol (H223) May burst if heated (H229)	May burst if heated (H229)
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) Do not pierce or burn, even after use. (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) Do not pierce or burn, even after use. (revised P251)	Keep away from heat/sparks/open flames/hot surfaces. No smoking. (P210) Do not pierce or burn, even after use. (revised P251)
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)
Precautionary statement disposal	--	--	--

15. Additionally "Keep out of reach of children" (P102) is assigned to aerosols for the general public.

Proposal

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

Chapter 2.3

Amend the title to read: “~~FLAMMABLE~~-AEROSOLS”

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). Depending on their contents, aerosols may however fall within the scope of other hazard classes.”

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 ...”

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)”

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>
Symbol	Flame	Flame	==
Signal word	Danger	Warning	<u>Warning</u>
Hazard statement	Extremely flammable aerosol <u>May burst if heated</u>	Flammable aerosol <u>May burst if heated</u>	<u>May burst if heated</u>

2.3.4.1 Amend the introductory text to read: “To classify an aerosol as a flammable aerosol,...”






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

Chapter 2.5

2.5.2 Add a new note at the end of the paragraph to read: “***NOTE:** Aerosols should not be classified as gases under pressure. See Chapter 2.3.*”



Annex 1

Amend the table related to flammable aerosols to read:

FLAMMABLE AEROSOLS				
Category 1	Category 2	Category 3	-	Note
 Danger Extremely flammable aerosol <u>May burst if heated</u>	 Warning Flammable aerosol <u>May burst if heated</u>	<u>No pictogram</u> <u>Warning</u> <u>May burst if heated</u>		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> , and green in <u>the third case</u> .
				

Annex 2

In 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 <u>May burst if heated</u>
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 <u>May burst if heated</u>
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>May burst if heated</u>

Annex 3

Section 1

A3.1.2.4 In Table A3.1.1 amend rows “H222” and “H223”, and add a new row “H229” to read:


“Table A3.1.1: Hazard statement codes for physical hazards

Code (1)	Physical hazard statements (2)	Hazard class (3)	Hazard category (4)
...			
H222	Extremely flammable aerosol	Flammable Aerosols (chapter 2.3)	1
H223	Flammable aerosol	Flammable Aerosols (chapter 2.3)	2
...			
<u>H229</u>	<u>May burst if heated</u>	<u>Aerosols (chapter 2.3)</u>	<u>1, 2, 3</u>

Section 2

A3.2.3.7 In Table A3.2.2 amend rows “P210”, “P211” 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	Keep away from heat/sparks/open flames/hot surfaces.  No smoking.	Flammable Aerosols (chapter 2.3)	1, 2, <u>3</u>	Manufacturers/supplier or the competent authority to specify applicable ignition source(s)
P211	Do not spray on an open flame or other ignition sources.	Flammable Aerosols (chapter 2.3)	1, 2	
...				
P251	Pressurized container: Do not pierce or burn, even after use.	Flammable Aerosols (chapter 2.3)	1, 2, <u>3</u>	

A3.2.3.7 In Table A3.2.4 amend rows P410”, “P412” and “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)
...				
P410	Protect from sunlight.	Flammable Aerosols (chapter 2.3)	1, 2, <u>3</u>	
...				
P412	Do not expose to temperatures exceeding 50°C/122°F.	Flammable Aerosols (chapter 2.3)	1, 2, <u>3</u>	
...				
P410 + P412	Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.	Flammable Aerosols (chapter 2.3)	1, 2, <u>3</u>	

Section 3

A3.3.5.1 Amend the matrix related to flammable aerosols (hazard categories 1 and 2) to read:

~~FLAMMABLE AEROSOLS~~
(Chapter 2.3)

Symbol Flame

Hazard category	Signal word	Hazard statement
1	Danger	H222 Extremely flammable aerosol <u>H229</u> <u>May burst if heated</u>
2	Warning	H223 Flammable aerosol <u>H229</u> <u>May burst if heated</u>



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

Add a new matrix related to flammable aerosols (hazard category 3) to read:

AEROSOLS
(Chapter 2.3)

<u>Symbol</u> <i>No symbol</i>
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<u>Hazard category</u>	<u>Signal word</u>	<u>Hazard statement</u>
<u>3</u>	<u>Warning</u>	<u>H229</u> <u>May burst if heated</u>

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