

**Committee of Experts on the Transport of Dangerous Goods
and on the Globally Harmonized System of Classification
and Labelling of Chemicals**

16 November 2010

**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:
discussion to support ST/SG/AC.10/C.3/2010/86 and
ST/SG/AC.10/C.4/2010/13**

**Transmitted by the expert from the United Kingdom and the
Federation of European Aerosol Associations (FEA)**

Issue

1. The experts from UK and FEA have proposed in document ST/SG/AC.10/C.3/2010/86 – ST/SG/AC.10/C.4/2010/13 to amend Chapter 2.3 of the GHS so that it consolidates physical hazard classification criteria and hazard communication elements for aerosols in a single chapter of the GHS. The text proposed makes it clear that aerosols do not additionally fall under chapter 2.5 (gases under pressure).

2. The experts from UK and FEA believe that this proposal entails no reduction in scope as compared with the GHS as currently drafted, and is also fully consistent with the provisions on classification and labelling of aerosols set out in the UN Recommendations on the Transport of Dangerous Goods: Model Regulations (henceforward “Model Regulations”).

3. To support the above, this informal document sets the reasoning behind these claims in further detail. The paper in particular argues that:

- Comparing the use of terminology in the GHS and in the Model Regulations strongly indicates that aerosols should not be seen as falling within the definition of a “gas under pressure” in the GHS¹;
- Comparing the scope of GHS Chapter 2.5 and Class 2 of the Model Regulations shows that exempting aerosols from Chapter 2.5 is consistent with Class 2, and does not create any pressure to remove aerosols from, or otherwise to modify, Class 2; and,

¹ The reasoning for the first of these claims was set out to some extent in informal document UN/SCEGHS/17/INF.4, submitted at the 17th session.

- The proposal not to require the “gas cylinder” pictogram for aerosols in the GHS, aligns as far as possible with the use of the corresponding Class 2 label (containing the “gas cylinder” symbol) in the Model Regulations.

(a) Terminological considerations in GHS and Model Regulations: aerosols should not fall within GHS Chapter 2.5

4. In the Model Regulations (Rev.16), gases are defined within Class 2 (Gases) as follows (Chapter 2.2 of the Model Regulations):

“2.2.1.1 A gas is a substance which:

- (a) At 50°C has a vapour pressure greater than 300kPa; or
- (b) Is completely gaseous at 20 °C at a standard pressure of 101.3 kPa.”

5. The Model Regulations describe in paragraph 2.2.1.2 the transport condition of a gas according to its physical state in one of four groups: *compressed gas, liquefied gas, refrigerated liquefied gas and dissolved gas* (hereinafter referred to as “the four main groups of gases”). The definition of each group is set out in full in the annex to this document.

6. The Model Regulations list in paragraph 2.2.1.3, the categories covered in Class 2:

“The class comprises compressed gases, liquefied gases, dissolved gases, refrigerated liquefied gases, mixtures of one or more gases with one or more vapours of substances of other classes, articles charged with a gas and aerosols.”

7. It is clear from the above paragraph that while aerosols fall within Class 2, they are regarded for the purposes of transport as separate from the four main groups of gases. Indeed special provision 63 (Chapter 3.3 of the Model Regulations) gives specific classification provisions for aerosols only.

8. In the GHS, a gas under pressure is defined in paragraph 2.5.1. This differs slightly from the definition of a gas in Class 2 of the Model Regulations, however, it also refers to the four main groups of gases. It reads:

“*Gases under pressure* are gases which are contained in a receptacle at a pressure of 200kPa (gauge) or more, or which are liquefied or liquefied and refrigerated.

They comprise compressed gases, liquefied gases, dissolved gases and refrigerated liquefied gases. “

9. Subsequently **Table 2.5.1** of the GHS gives classification criteria for the four main groups of gases. It can be seen from the table in annex 1 to this document that the criteria for the four main groups of gases set out in GHS are equivalent to those in paragraph 2.2.1.2 of the Model Regulations.

10. The experts from UK and FEA believe that comparison of the above provisions in Class 2 and GHS Chapter 2.5 make clear that although aerosols are covered in transport Class 2, they are not intended to be covered in Chapter 2.5 of the GHS. This is because, in Class 2, aerosols are listed separately from the four main groups of gases, and are clearly not intended to fall within these groups. Chapter 2.5 of the GHS picks up the same main groups of gases, describing them in the same way as the Model Regulations, but does not contain an additional reference to aerosols. Therefore, consistency with the Model Regulations strongly suggest that aerosols should not be interpreted as falling within Chapter 2.5 as it stands.

11. It is worth recalling that when all the GHS criteria were developed, it was decided that a specific category for aerosols should be created, recognising the particularities of aerosols. The GHS criteria for gases under pressure were thus developed in parallel to those for aerosols; there was clearly an opportunity to amalgamate the requirements but no intention to do so was expressed and aerosols have been kept as a discrete category.

(b) Scope issues: clarifying that aerosols are not within scope of GHS Chapter 2.5 does not entail changes to transport Class 2

12. The UK/FEA proposal brings out a difference in scope between Chapter 2.5 and Class 2, in that it makes clear that aerosols are covered in Class 2 but not by GHS Chapter 2.5. However, the experts from UK and FEA believe that the proposal is fully consistent with Class 2 and does not entail any changes to the Model Regulations.

13. While there are clear relationships between GHS Chapter 2.5, other GHS hazard classes, and transport Class 2, there is no clear equation between Chapter 2.5 of GHS either with the whole of transport Class 2 or with any Division within it. This is already the case for reasons independent, and generally much broader, than considerations arising from aerosols. For example, the definitions of “gas” and “gas under pressure” make clear a difference in scope in that, while Class 2 is intended to cover all gases, GHS Chapter 2.5 is only intended to cover specific pressurised gases. There are also several other differences between the chapters that are unrelated to aerosols.

14. Because these differences already exist the experts from UK and FEA do not believe that their proposal would create a precedent in terms of establishing differences in scope between the GHS and the Model Regulations. On the contrary, the proposal is intended to be entirely consistent with the current Class 2, including the inclusion of aerosols therein, and will not change the relationship that already exists between Class 2 and Chapter 2.5 of the GHS in any significant way.

(c) Labelling considerations: proposal not to require “gas under pressure” pictogram for aerosols in GHS is consistent with use of Class 2 label (including “gas cylinder” symbol) in Model Regulations

15. The experts from UK and FEA believe that their proposal not to require the “gas under pressure” pictogram for aerosols is consistent, and harmonised as far as possible, with the relevant transport provisions concerning the use of the Class 2 (Gases) label. This is because in practice there are no situations where the Class 2 label would be used on aerosols dispensers themselves, and only very rare situations where it would be used on outer packagings containing aerosols.

16. Aerosols are assigned to Divisions 2.1, 2.2 within Class 2 by special provision 63. Packages containing aerosols would be assigned the relevant Class 2 labels as appropriate. In practice almost all aerosols are transported as limited quantities, marked in accordance with Chapter 3.4 of the Model Regulations and the packs are not labelled.

17. Where aerosols are transported under limited quantity provisions, (up to 1000ml for flammable and non flammable aerosols and 120 ml for aerosols with toxic substances) the outer packaging in which aerosols are transported would be marked with the limited quantity marking (Figures 3.4.1 and 3.4.2 in the Model Regulations) but would not need the relevant label (i.e. the class 2 label). The aerosol itself would not be labelled either with the relevant Class 2 label or the limited quantity mark. Only packs of aerosols transported outside the limited quantities provisions would require the labels.

- In summary, aerosols when transported would virtually never be required to carry any transport class 2 label, including the “gas cylinder” symbol.
- Aerosols are always transported in outer packagings. Even in rare cases where limited quantities provisions do not apply and Class 2 labels were required for the outer packaging, the label would appear on the outer packaging only and would not be required for the aerosol dispenser itself.

18. As a result of the above considerations the experts from UK and FEA do not believe there is any conflict between their proposal that the GHS should be understood not to require the gas under pressure pictogram to appear on aerosols, and the corresponding use of the Class 2 symbol in the Model Regulations.

19. For ease of reference the definitions and criteria for gases under pressure, and gases, in the GHS and in the Model Regulations are summarised in the annex to this document.

Annex

Comparison of criteria for gases/gases under pressure in the UN Recommendations on the Transport of Dangerous Goods, Model Regulations (Rev.16) and Chapter 2.5 of GHS (Rev.3)

GHS (Rev.3)	Model Regulations (Rev.16)										
<p>2.5.1 Definition</p> <p><i>Gases under pressure</i> are gases which are contained in a receptacle at a pressure of 200kPa (gauge) or more, or which are liquefied or liquefied and refrigerated.</p> <p>They comprise compressed gases, liquefied gases, dissolved gases and refrigerated liquefied gases.</p>	<p>2.2.1 Definitions and general provisions</p> <p>2.2.1.1 A gas is a substance which:</p> <p>(a) At 50°C has a vapour pressure greater than 300kPa; or</p> <p>(b) Is completely gaseous at 20 °C at a standard pressure of 101.3 kPa.</p>										
<p>2.5.2 Classification criteria</p> <p>Gases are classified, according to their physical state when packaged, in one of four groups in the following table:</p> <p style="text-align: center;">Table 2.5.1: Criteria for gases under pressure</p> <table border="1" data-bbox="315 730 1218 1241"> <thead> <tr> <th data-bbox="315 730 633 767">Group</th> <th data-bbox="640 730 1218 767">Criteria</th> </tr> </thead> <tbody> <tr> <td data-bbox="315 772 633 863">Compressed gas</td> <td data-bbox="640 772 1218 863">A gas which when packaged under pressure is entirely gaseous at -50°C; including all gases with a critical temperature ≤ -50°C.</td> </tr> <tr> <td data-bbox="315 868 633 1107">Liquefied gas</td> <td data-bbox="640 868 1218 1107">A gas which when packaged under pressure, is partially liquid at temperatures above -50°C. A distinction is made between: <p>(a) High pressure liquefied gas: a gas with a critical temperature between -50°C and +65°C; and</p> <p>(b) Low pressure liquefied gas: a gas with a critical temperature above +65°C.</p> </td> </tr> <tr> <td data-bbox="315 1112 633 1171">Refrigerated liquefied gas</td> <td data-bbox="640 1112 1218 1171">A gas which when packaged is made partially liquid because of its low temperature.</td> </tr> <tr> <td data-bbox="315 1176 633 1241">Dissolved gas</td> <td data-bbox="640 1176 1218 1241">A gas which when packaged under pressure is dissolved in a liquid phase solvent.</td> </tr> </tbody> </table>	Group	Criteria	Compressed gas	A gas which when packaged under pressure is entirely gaseous at -50°C; including all gases with a critical temperature ≤ -50°C.	Liquefied gas	A gas which when packaged under pressure, is partially liquid at temperatures above -50°C. A distinction is made between: <p>(a) High pressure liquefied gas: a gas with a critical temperature between -50°C and +65°C; and</p> <p>(b) Low pressure liquefied gas: a gas with a critical temperature above +65°C.</p>	Refrigerated liquefied gas	A gas which when packaged is made partially liquid because of its low temperature.	Dissolved gas	A gas which when packaged under pressure is dissolved in a liquid phase solvent.	<p>2.2.1.2 The transport condition of a gas is described according to its physical state as:</p> <p>(a) <i>Compressed gas</i> – a gas which when packaged under pressure for transport is entirely gaseous at -50 °C; this category includes all gases with a critical temperature less than or equal to -50 °C</p> <p>(b) <i>Liquefied gas</i> – a gas which when packaged under pressure for transport is partially liquid at temperatures above A distinction is made between:</p> <p><i>High pressure liquefied gas</i>: a gas with a critical temperature between -50°C and +65°C; and</p> <p><i>Low pressure liquefied gas</i>: a gas with a critical temperature above +65°C.</p> <p>(c) <i>Refrigerated liquefied gas</i> – a gas which when packaged for transport is made partially liquid because of its low temperature</p> <p>(d) <i>Dissolved gas</i> – a gas which when packaged under pressure for transport is dissolved in a liquid phase solvent.</p>
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