

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

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**Sub-Committee of Experts on the  
Transport of Dangerous Goods**

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Item 10 (b) of the provisional agenda

**Issues relating to the Globally Harmonized System  
of Classification and Labelling of Chemicals:  
Simultaneous classification in physical hazards and  
possible combination of hazards**

**Sub-Committee of Experts on the Globally Harmonized  
System of Classification and Labelling of Chemicals**

**Forty-fifth session**

Geneva, 6-8 December 2023

Item 2 (b) of the provisional agenda

**Work on the Globally Harmonized System of  
Classification and Labelling of Chemicals:  
Simultaneous classification in physical hazards and  
precedence of hazards**

**Informal working group on combinations of physical  
hazards: Notes for aerosols and chemicals under pressure**

**Transmitted by the expert from Germany on behalf of the informal  
working group**

**I. Introduction**

1. The group has finalized its considerations on the combinations of aerosols and chemicals under pressure with the other physical hazard classes.
2. As stated in the GHS in Note 3 in 2.3.1.2.1 and in Note 2 in 2.3.2.2.2 neither aerosols nor chemicals under pressure should be additionally classified as flammable gases, gases under pressure, flammable liquids or flammable solids. Moreover, aerosols should not be classified as chemicals under pressure and vice versa, chemicals under pressure should not be classified as aerosols.
3. On the combinations of aerosols and chemicals under pressure with the other physical hazards, the group concluded that they all could be possible, even though practical cases have not been identified for some of the combinations. Consequently, none of the other combinations should be excluded.
4. To avoid any ambiguity, the group suggests some amendments to the existing Notes.

**II. Justification**

5. The main issue is that Note 1 below Table 2.3.1 for aerosols is worded such that different interpretations would be possible whether the mentioned combinations are just never used or whether they are to be excluded by definition – which then would contradict the conclusion in paragraph 3. In a similar way Note 1 below Table 2.3.3 for chemicals under pressure might be interpreted differently whether the combinations that are not allowed for transport are then also supposed to be excluded under the GHS or not.
6. Furthermore, the exclusion of the combinations in line with paragraph 2 above are deemed to be normative and thus should be in the main text rather than in a Note. The other information such as the explanations for the specific regulations for the purposes of transport is informative and thus should be kept in Notes.
7. Further explanations for the amendments are given in paragraphs 9 and 15 below. The proposal for chemicals under pressure is presented first because the respective special provision 362 in the UN Model Regulations is more recent than the corresponding special

provision 63 for aerosols, and document UN/SCETDG/63/INF.4-UN/SCEGHS/45/INF.4 by FEA already proposes to align these two special provisions. Similarly, the group seeks to align the notes for chemicals under pressure and aerosols in the GHS.

### III. Proposals

#### Chemicals under pressure

8. The current notes below Table 2.3.3 read as follows:

“NOTE 1: The flammable components in a chemical under pressure do not include pyrophoric, self-heating or water-reactive, substances and mixtures because such components are not allowed in chemicals under pressure in accordance with the UN Model Regulations.

NOTE 2: Chemicals under pressure do not fall additionally within the scope of section 2.3.1 (aerosols), chapters 2.2 (flammable gases), 2.5 (gases under pressure), 2.6 (flammable liquids) and 2.7 (flammable solids). Depending on their contents, chemicals under pressure may however fall within the scope of other hazard classes, including their labelling elements.”

#### Option 1 for chemicals under pressure

9. In addition to the justification above, some further considerations were taken into account:

(a) The order of the Notes is changed. The revised text starts with current Note 2 because it refers to the GHS itself.

(b) In the proposed revision the text of current Note 2 is divided because the first sentence is related to the exclusion of certain specific combinations whereas the second sentence is related to the possible additional application of other hazard classes.

(c) Furthermore, the first part on the exclusion of certain combinations is proposed to become main text (as a new paragraph 2.3.2.1.2) because it deviates from the principle of the GHS that all combinations are generally possible.

(d) The second part on the possible application of other hazard classes only highlights a principle that already applies and as such is informative and should be in the form of a Note.

(e) In the proposed revision, the text of current Note 1 is put at the end of the notes because it contains informative text about (deviating) principles in other sectors – specifically transport (currently in Note 1). The wording is amended such that it reflects more closely special provision 362 and adds an according reference.

10. The resulting text reads as follows:

“2.3.2.1 Definition and general considerations

2.3.2.1.1 [definition as currently given in 2.3.2.1]

2.3.2.1.2 Chemicals under pressure do not fall additionally within the scope of section 2.3.1 (aerosols), chapters 2.2 (flammable gases), 2.5 (gases under pressure), 2.6 (flammable liquids) and 2.7 (flammable solids).”

The following Notes remain below Table 2.3.3:

“NOTE 1: Depending on their contents, chemicals under pressure may fall within the scope of other hazard classes than those mentioned in 2.3.2.1.2, including their labelling elements.

NOTE 2: Some sectors, e.g. transport, may have other specific regulations regarding the applicability of other hazard classes. For example, chemicals under pressure may

not contain components meeting the properties of: Class 1, explosives; Class 3, liquid desensitized explosives; Division 4.1, self-reactive substances and solid desensitized explosives; Division 4.2, substances liable to spontaneous combustion; Division 4.3, substances which, in contact with water, emit flammable gases; Division 5.1 oxidizing substances; Division 5.2, organic peroxides in order to be transported as chemicals under pressure (see special provision 362 of the Model Regulations).”

#### **Option 2 for Notes 1 and 2 for chemicals under pressure**

11. Are the last four words “including their labelling elements” in Note 1 needed?
- (a) There might be a historical background for their addition because the approach under the GHS is different from that for transport and these words were meant to ensure that all information is on the label.
- (b) On the other hand, it is a general principle of the GHS that classification always includes the requirement for all appropriate labelling. Stating it here, might raise the question why it is mentioned explicitly here but not at all other places.
12. In the new Note 2, should the respective content of special provision 362 be repeated or should only a reference be given?
- (a) Repeating the contents has the advantage that it might be helpful for those who are not so familiar with the Model Regulations and would spare the reader to actually look it up.
- (b) On the other hand, it might be a drawback because it would have to be amended again, should transport amend the according text. Experience shows that consequential amendments are sometimes overlooked.
13. Notes 1 and 2 would then read as follows:
- “NOTE 1: Depending on their contents, chemicals under pressure may fall within the scope of other hazard classes than those mentioned in 2.3.2.1.2.
- NOTE 2: Some sectors, e.g. transport, may have other specific regulations regarding the applicability of other hazard classes. For chemicals under pressure, see special provision 362 of the Model Regulations.”

#### **Aerosols**

14. The current Notes below Table 2.3.1 read as follows:
- “NOTE 1: Flammable components do not cover pyrophoric, self-heating or water-reactive substances and mixtures because such components are never used as aerosol contents.
- NOTE 2: Aerosols containing more than 1 % flammable components or with a heat of combustion of at least 20 kJ/g, which are not submitted to the flammability classification procedures in this chapter should be classified as aerosols, Category 1.
- NOTE 3: Aerosols do not fall additionally within the scope of chapter 2.2 (flammable gases), section 2.3.2 (chemicals under pressure), chapters 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, including their labelling elements.”

#### **Option 1 for aerosols**

15. In addition to the justifications given in paragraphs 5 and 6 above, equivalent considerations as mentioned above in paragraph 9 for chemicals under pressure were taken into account. The text for the resulting Note 3 is worded in line with the proposal in UN/SCETDG/63/INF.4-UN/SCEGHS/45/INF.4 by FEA and of course is supposed to be amended in line with any decision the Sub-Committee TDG might take.

16. With these amendments the resulting text would be as follows:

“2.3.1.1 Definition and general considerations

2.3.1.1.1 [definition as currently given in 2.3.1.1]

2.3.1.1.2. Aerosols do not fall additionally within the scope of section 2.3.2 (chemicals under pressure), chapters 2.2 (flammable gases), 2.5 (gases under pressure), 2.6 (flammable liquids) and 2.7 (flammable solids).

The following Notes remain below Table 2.3.1:

NOTE 1: [text of current Note 2. This note is not in the scope of this working group – however, the group identified some potential for improvement: 1. make it main text as it is normative and 2. reword it slightly to become more unambiguous. The group seeks advice of the Sub-Committees whether this might be proposed by the group as well or whether this should be done separately.]

NOTE 2: Depending on their contents, aerosols may fall within the scope of other hazard classes than those mentioned in 2.3.1.1.2, including their labelling elements.

NOTE 3: Some sectors, e.g. transport, may have other specific regulations regarding the applicability of other hazard classes. For example, aerosols may not meet the classification criteria of Class 1, explosives; Class 3, liquid desensitized explosives; Division 4.1, self-reactive substances and solid desensitized explosives; Division 4.2, substances liable to spontaneous combustion; Division 4.3, substances which, in contact with water, emit flammable gases; Division 5.2, organic peroxides in order to be transported as aerosols (see special provision 63 (g) of the Model Regulations). Additionally, their propellant may not be a mixture of gases meeting the classification criteria of Division 2.1, flammable gases and Division 2.2, oxidizing gases (see special provision 63 (h) of the Model Regulations).”

#### **Option 2 for Notes 1 and 2 for aerosols**

17. In addition to the questions as posed in paragraphs 11 and 12 above, the following additional question arises for aerosols: Would an amendment as shown underlined in the box below be deemed useful – because the container plays a role for the classification in the hazard class “Aerosols” as opposed to most other hazard classes?

18. Notes 1 and 2 would then read as follows:

“NOTE 1: Depending on their contents, aerosols may fall within the scope of other hazard classes than those mentioned in 2.3.1.1.2. The applicability of other physical hazard classes is established by classification of the contents as a whole.

NOTE 2: Some sectors, e.g. transport, may have other specific regulations regarding the applicability of other hazard classes. For aerosols, see special provision 63 of the Model Regulations.”

## **IV. Possible consequential amendments**

19. When going through the equivalent Notes in the excluded hazard classes, which are Note 2 below Table 2.2.1 (Chapter 2.2), Note below Table 2.5.1 (Chapter 2.5), Note 4 below Table 2.6.1 (Chapter 2.6) and Note 2 below Table 2.7.1. (Chapter 2.7), we found that only the Note below Table 2.5.1 (Chapter 2.5) has been amended to include the exclusion relating to chemicals under pressure. However, the other Notes were not amended to reflect the according exclusions for chemicals under pressure. For consistency, we propose to amend these other existing Notes as follows:

(a) Amend Note 2 below Table 2.2.1 in chapter 2.2 as follows: “Note 2: Aerosols and chemicals under pressure should not be classified as flammable gases. See chapter 2.3.”

(b) Amend Note 4 below Table 2.6.1 in chapter 2.6 as follows:  
“Note 4: Aerosols and chemicals under pressure should not be classified as flammable liquids. See chapter 2.3.”

(c) Amend Note 2 below Table 2.7.1 in chapter 2.7 as follows:  
“Note 2: Aerosols and chemicals under pressure should not be classified as flammable solids. See chapter 2.3.”

## V. Requests to the Sub-Committees

20. The Sub-Committees TDG and GHS are invited to consider the above proposals in paragraphs 10 and 16. Additionally, we would appreciate comments on the alternative options as presented in paragraphs 13 and 18. Moreover, we seek the views of the Sub-Committees on the amendments as proposed in paragraph 19.

21. The working group wants to point out that in a later stage of its work, it might reconsider where to put information on possible or impossible combinations. For the time being, we therefore would appreciate the Sub-Committee’s feedback rather on the proposed text itself than on its proposed location.

22. Additionally, we would like to point out that the above proposals do not include amendments to the transport regulations but that we rather seek the advice of the Sub-Committee TDG as the focal point for physical hazards.

23. The working group aims at preparing an official document in 2024 taking into account the comments received by the Sub-Committees.

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