
**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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Explosives and related matters:

Review of Chapter 2.1 of the GHS

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

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Item 2 (b) of the provisional agenda

**Classification criteria and related hazard
communication: review of Chapter 2.1**

**Possible hazard communication elements for the
classifications of the potential new GHS Chapter 2.1**

Transmitted by the expert from Sweden

Background

1. The progress of the work on revising Chapter 2.1 for Explosives in the GHS has been reported in many papers to the Sub-Committees over the past two biennia.¹ At the previous (36:th) session of the SCEGHS, new Terms of Reference (ToR) and associated Programme of Work (PoW) were adopted, and the work is to be completed within the 2019-2020 biennium.² The core of the new GHS classification system and current status of the items within this PoW have been described in working document 5 to the 37:th session of SCEGHS (working document 32 to the 55:th session of the SCETDG).³

2. This informal paper addresses item 2 of the PoW, which is to assign hazard communication elements to the various GHS classifications within the new system under development. It sets out to provide a basis for the discussions around this item and is not intended to preclude their outcome nor to exclude any possibilities not brought up herein. The ideas reflected in this paper build upon discussions in the Informal Correspondence Group (ICG) for the review of GHS Chapter 2.1. Although the paper was circulated within the ICG for comments, it reflects the thoughts of the expert from Sweden only.

Hazard communication for Category 1

3. Category 1 of the new system will presumably comprise all types of explosives with the common factor that they have not been assigned a division (as configured for transport) in accordance with Part I of the UN Manual of Tests and Criteria (the Manual).⁴ Within the ICG it has been more or less assumed that the exploding bomb symbol (GHS-pictogram

¹ See e.g. the most recent status reports, UN/SCEGHS/35/INF.16 - UN/SCETDG/53/INF.46, UN/SCEGHS/34/INF.10 - UN/SCETDG/52/INF.20 and UN/SCEGHS/33/INF.07 - UN/SCETDG/51/INF.15.

² See UN/SCEGHS/36/INF.43/Rev.1 and the report from the 36th SCEGHS ST/SG/AC.10/C.4/72.

³ ST/SG/AC.10/C.4/2019/5 - ST/SG/AC.10/C.3/2019/32

⁴ See draft criteria of the new classification system in UN/SCEGHS/36/INF.46

GHS01) and the signal word “Danger” will be assigned to this category, although that could of course be reconsidered.

4. When it comes to assigning an appropriate hazard statement for Category 1, however, views have been divided within the ICG. The core of the discussion is how to highlight the sensitivity to impact, friction and/or elevated temperatures of explosives that do not pass Test series 3 of the Manual. It has been argued by some that a simple hazard statement like “Explosive” assigned to Category 1 as a whole does not cover this concern, and that information on sensitivity will be lost in comparison with the current GHS classification and hazard statement “Unstable explosive”.

5. In order to cover also the properties of the current “Unstable explosives”, it has been suggested by some experts that the hazard statement for Category 1 should be “Extremely sensitive explosive” or something similar. While this would address the concern over these particular explosives, it would however also exaggerate the hazard for the explosives in this category that are not “extremely sensitive”.

6. One option around this that has been discussed in the ICG is to use a “flexible” hazard statement similar to the hazard statements used for the health hazards in Chapters 3.5- 3.9 of the GHS. These hazard statements may be said to have the general form:

General hazard (*state if more detailed information is available*)

For explosives in Category 1, the description of the hazard could e.g. be “Explosive”, and the more detailed information would be information on any extreme sensitivity towards the properties investigated in Test series 3 of the Manual:

Explosive (*state if explosive is extremely sensitive to impact, friction or elevated temperatures, or if these properties have not been determined*)

It could be considered to explicitly refer to Test series 3 of the Manual as a suitable set of tests to determine these properties, e.g. via a note or footnote.

7. Another option could be to use a precautionary statement for these sensitive explosives, such as “Avoid impact/friction/elevated temperatures/... due to extreme sensitivity.” To this, conditions for use could be added to achieve the desired application, and a reference to Test series 3 of the Manual could be added if desirable.” To cover the concern over explosives that have not been sufficiently tested for sensitivity, the precautionary statement could probably be modified to include this, e.g. by inserting the word “[possible]” as an optional addition within the statement.

8. In Annex 1 to this document, the two possible options elaborated above are displayed side by side in order to facilitate the discussions. As stated in the introduction to this paper, this does not exclude that there are other possibilities to achieve the desired hazard communication and the precise wordings can of course be refined.

Hazard communication for Subcategory 2A

9. Subcategory 2A will presumably comprise all substances, mixtures and articles assigned to Division 1.1, 1.2, 1.3, 1.5 and 1.6, as well as those assigned to Division 1.4 that do not qualify for classification in Subcategory 2B or 2C.⁵ The general hazard of these is that they are all explosive in some sense, and the ICG appears to be in some agreement on assigning the exploding bomb symbol (GHS01) and the signal word Danger to Subcategory 2A, which represents a high hazard.

10. Regarding the hazard statement for Subcategory 2A, the discussions within the ICG have revolved around the simple statement “Explosive”. It has been argued by many ICG-

⁵ See draft criteria of the new classification system in UN/SCEGHS/36/INF.46

members that “Explosive” is a clear and universally understood warning that is sufficient to describe the hazardous effect regardless of whether it is a shock wave, energetic fragments or intense fire.

11. As a result of discussions in the ICG, it has been agreed that the division (as configured for transport) should be stated on the GHS-label in some way for Explosives at least in Subcategory 2A.⁶ Looking at the options available within the GHS, this could be achieved in a few ways.

12. One option could be to make that hazard statement “flexible”, e.g. “Explosive (state division as configured for transport)”, rendering for example “Explosive, Division 1.1” on the GHS label. Whether this could be considered to be a true hazard statement is an open question to the expert from Sweden, given that the division number does not really communicate a hazard to those that do not understand what a division is and what it means.

13. Another option is to use a precautionary statement that includes the division, e.g. “Store as Division 1.X in the original transport configuration.” or the more elaborate “Store in accordance with applicable regulation and hazard analysis/risk assessment. Division 1.X in the original transport configuration.”. Jurisdictions implementing the GHS could then require this precautionary statement on the GHS-label, or at least (strongly) encourage it. One version of this potential solution that has been brought forward in the ICG discussions is to modify the current precautionary statement P234 (“Keep only in original packaging.”).

14. A further option is to state the division as supplemental information on the label. Section 1.4.6.3 within Chapter 1.4 of the GHS describes what supplemental information is, and the provisions for it. The only example of supplemental information that the expert from Sweden can find in the GHS is for Respiratory or skin sensitization (Chapter 3.4), where in sub-section 3.4.4.2 there is a provision that “[...] certain authorities may choose to require the name of the ingredients as a supplemental label element whether or not the mixture as a whole is classified as sensitizer.”. Mimicking this, it may be considered to add a provision in Chapter 2.1 stating that “authorities may choose to require the division as configured for transport as a supplemental label element”.

15. In Annex 2 to this document, the three options for hazard communication for Subcategory 2A elaborated above are displayed side by side, to facilitate the discussions. Again, this does not exclude that there are other possibilities to achieve the desired hazard communication, and the precise wordings can of course be refined also here.

Hazard communication for Subcategory 2B and 2C

16. Subcategory 2B and 2C will presumably comprise Explosives assigned to Division 1.4 that meet some additional criteria basically demonstrating that the assignment to this division (which is the least hazardous amongst the divisions⁷) does not depend on a particular configuration other than possibly the immediate container/primary packaging.⁸ Only explosives in Division 1.4 that have been assigned to Compatibility group⁹ S (as configured for transport) and meet the additional criteria will be eligible for Category 2C, which is the

⁶ See UN/SCEGHS/36/INF.43/Rev.1. Restricting this to Subcategory 2A assumes that the hazard communications for Subcategory 2B and 2C are different from that of Subcategory 2A, so that the division (which according to current criteria is always 1.4) can be indirectly read from the GHS-label.

⁷ See description of the divisions in subsection 2.1.1.4 of Chapter 2.1 in the Model Regulations, which are virtually identical to those of current GHS Chapter 2.1.

⁸ See draft criteria of the new classification system in UN/SCEGHS/36/INF.46. Whether “primary packaging” or “immediate container” is the most appropriate term is still under discussion

⁹ Compatibility groups are used in transport to describe which explosives can be packed together, see section 2.1.2 in Chapter 2.1 of the Model Regulations.

category representing a low hazard. Explosives in Division 1.4 assigned to any other Compatibility group would be referred to Subcategory 2B, which represents a medium hazard, provided they meet the additional criteria.

17. Criteria for Subcategory 2B and 2C were provisionally agreed at the 36:th session of the SCEGHS, but it was noted that some fine-tuning was still needed to complete them.¹⁰ At the time of writing there are still discussions on the precise wordings for these, and it is anticipated that the experts of the Working Group on Explosives (EWG) will fine-tune them at their meeting in parallel with the 55:th session of the SCETDG. There has also been concern raised as regards allowing any detonating articles (such as blasting caps) into Subcategory 2B or 2C, even if they meet the criteria due to a mitigating immediate container/primary packaging. Some have also argued that substances and mixtures should not be eligible for these classifications.

18. The appropriate hazard communication elements for subcategories 2B and 2C would depend on what types of explosives they will comprise, and hence needs to await the precise criteria. Very preliminary discussions within the ICG have revolved around the signal word “Warning” and the hazard statement “Fire or projection hazard” (which is the existing H204) for both subcategories. As regards the symbol, it has been discussed to assign the “exploding bomb” to Subcategory 2B but that it may not be needed for Subcategory 2C.

19. In Annex 3 to this document, the possible hazard communication elements for Subcategory 2B and 2C as outlined above are shown, to facilitate the discussions. The expert from Sweden observes that there was a discussion on the need for the exploding bomb symbol to appear on the GHS label for Explosives assigned to Division 1.4 more than ten years ago that may still be relevant in the current discussions around this.¹¹

¹⁰ See draft criteria of the new classification system in UN/SCEGHS/36/INF.46 and the report from the 36:th session of the SCEGHS, ST/SG/AC.10/C.4/72.

¹¹ See ST/SG/AC.10/C.3/2006/61 - ST/SG/AC.10/C.4/2006/7 by the expert from SAAMI and ST/SG/AC.10/C.4/2004/12 by the expert from Norway.

Annex 1

Options for Category 1 hazard communication elements.

	Option 1	Option 2
Symbol	Exploding bomb	Exploding bomb
Signal word	Danger	Danger
Hazard statement	Explosive (<i>state if explosive is extremely sensitive to impact, friction or elevated temperatures, or if these properties have not been determined*</i>) <i>*Tests series 3 of the UN Manual provides a suitable set of tests to determine this.</i>	Explosive
Precautionary statement		Avoid impact/friction/elevated temperatures/... due to [possible] extreme sensitivity. <u>Conditions for use:</u> <i>Manufacturer/supplier or competent authority to indicate if explosive is extremely sensitive to certain stimuli as e.g. determined by Test series 3 of the UN Manual, or if these properties have not been investigated.</i>

Annex 2

Options for Subcategory 2A hazard communication elements.

	Option 1	Option 2	Option 3
Symbol	Exploding bomb	Exploding bomb	Exploding bomb
Signal word	Danger	Danger	Danger
Hazard statement	Explosive (state division as configured for transport)	Explosive	Explosive
Precautionary statement		<p>Store as Division 1.X in the original transport configuration.</p> <p>or</p> <p>Store in accordance with applicable regulation and hazard analysis/risk assessment. Division 1.X in the original transport configuration.</p> <p><u>Conditions for use:</u> <i>Manufacturer/supplier or competent authority to indicate the Division within Class 1 as assigned in the transport configuration according to the UN Model Regulations</i></p>	
Supplemental information			Statement in Chapter 2.1 that “authorities may choose to require the division as configured for transport as a supplemental label element”

Annex 3

Possible hazard communication elements for Subcategory 2B and 2C.

Subcategory	2B	2C
Symbol	Exploding bomb	Exploding bomb <u>or</u> <i>No symbol</i>
Signal word	Warning	Warning
Hazard statement	Fire or projection hazard	Fire or projection hazard