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**Sub-Committee of Experts on the Transport of Dangerous Goods****Fifty-fifth session**

Geneva, 1-5 July 2019

Item 2 (h) of the provisional agenda

**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****Thirty-seventh session**

Geneva, 8-10 July 2019

Item 2 (b) of the provisional agenda

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

## **Development of a new Chapter 2.1 for the GHS (explosives)**

### **Transmitted by the expert from Sweden\***

### **Background**

1. The work on revising Chapter 2.1 for Explosives in the GHS has been going on since the twenty-ninth session of the Sub-Committee of Experts on the Globally Harmonized System (SCEGHS). It is discussed within an informal correspondence group (ICG) led by the expert from Sweden, and the progress of the work has been reported on in status reports since the thirtieth session of the SCEGHS.<sup>1</sup>

2. Over the years, the work has gradually ripened into a potential new GHS classification system that can overcome the difficulties associated with the current system, which relies on the explosive being in a particular (transport) configuration. When this configuration is broken or not present, e.g. in supply, use, manufacturing and processing, the current GHS hazard communication often understates the actual hazard, as it reflects the explosive behaviour in that particular configuration. Furthermore, the current GHS system is unable to classify an explosive unless it is in a configuration suitable for performing the classification

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\* In accordance with the programme of work of the Sub-Committee for 2019-2020 approved by the Committee at its ninth session (see ST/SG/AC.10/C.3/108, paragraph 141 and ST/SG/AC.10/46, paragraph 14).

<sup>1</sup> These status reports have also been submitted to the Sub-Committee of Experts on the Transport of Dangerous Goods (SCETDG), in their capacity as focal point for the physical hazards of the GHS.

test, which is normally the transport configuration for which these tests were originally designed.<sup>2</sup>

3. The potential new GHS classification system developed within the ICG introduces two main categories for explosives – Category 2 for explosives that have been assigned a Division in a certain (transport) configuration and Category 1 for explosives that have not. Category 2 is divided into three subcategories 2A, 2B and 2C, reflecting the degree of hazard (high, medium and low, respectively) independently of the configuration in which the division was assigned.<sup>3</sup> Category 2 as a whole would be identical in scope to Class 1 of the Model Regulations on the Transport of Dangerous Goods (the Model Regulations).

4. Importantly, the new GHS system under consideration retains the divisions that presently constitute the classification for all explosives except the classification “Unstable explosives”, as this is the relevant level of classification for e.g. storage in the transport configuration.<sup>4</sup> Furthermore, no changes to the transport classification system for explosives (i.e. Class 1) are intended to result from the potential modifications to the GHS. The Annex to this document shows an overview the new GHS classification system under consideration and its relation to the transport classification system.

## Tasks for the biennium 2019-20

5. At the thirty-sixth session of the SCEGHS, new terms of reference and a programme of work for the remaining work were adopted as reflected in INF.43/Rev.1 (GHS, thirty-sixth session). The programme of work sets out to complete the task of developing a new Chapter 2.1 within the 2019-20 biennium, and describes the route to this goal in terms of four work items which are addressed below.

### Item 1 – Finalise the criteria for the new system

6. The criteria for the various classifications within the new GHS system were provisionally agreed at the thirty-sixth session of the SCEGHS, after discussions within the Working Group on Explosives (EWG) at their meeting in parallel with the fifty-fourth session of the Sub-Committee of Experts on the Transport of Dangerous Goods (SCETDG), and are reflected in INF.46 (GHS, thirty-sixth session). It was noted that there were still some adjustments needed in order to complete them, as well as a few open issues, see the EWG report from that session INF.50 (TDG, fifty-fourth session), reproduced in INF.34 GHS, thirty-sixth session). In informal document INF18 (GHS, thirty-sixth session) – INF.24 (TDG, fifty-fourth session), the resulting GHS classifications for many explosives, based on these provisionally agreed criteria, are illustrated.

7. In the months that have passed since these sessions of the Sub-Committees, there has been some exchange of views on the refinement of the criteria within the ICG. In addition, the working group on Explosives, Propellants and Pyrotechnics (EPP) within the International Group of experts on the explosion risks of Unstable Substances (IGUS)<sup>5</sup> has discussed the remaining details regarding the criteria at its annual meeting held in March

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<sup>2</sup> For a recent detailed account of the problems with the current GHS classification and discussions around the new system under development, see the status report on the work in INF16 (GHS, thirty-fifth session) – INF46 (TDG, fifty-third session).

<sup>3</sup> The suggested criteria would, however, take the immediate container (or primary packaging) into account, see details in INF.46 to the thirty-sixth session of the SCEGHS.

<sup>4</sup> It is common practice to refer to the Divisions in regulations and guidance on the storage of explosives, e.g. concerning safety distances.

<sup>5</sup> See [www.igus-experts.org](http://www.igus-experts.org)

2019. Some further work is thus needed to finalise the criteria for the new classification system.

**Item 2 – Assign appropriate hazard communication elements and precautionary statements**

8. Like any other chapter of the GHS, the various classifications within the new system for Chapter 2.1 will need associated GHS hazard communication elements, i.e. symbols (or not), signal words and hazard statements. Discussions on appropriate hazard communication elements have taken place for some time already, but as the criteria are now virtually settled it is clearer what the hazards associated with the various classifications are, which should facilitate the assignment of appropriate hazard communication elements.

9. On basis of the previous discussions within the ICG, it appears that finding agreeable hazard communication elements for the subcategories within Category 2 should not pose too much difficulty. Finding an appropriate hazard statement for Category 1 of the system, however, has proven to be more of a challenge – the core problem being that this category will comprise explosives with very differing properties (see INF.30 (GHS, thirty-fifth session) for details on this).<sup>6</sup>

10. It has been agreed within the ICG that a way would be found to communicate on the GHS label which Division the Explosive is (or was) assigned to as configured for transport. Various ways to achieve this have been put forward and discussed, but a solution is yet to be found (see INF.30 (GHS, thirty-fifth session)). Regarding the assignment of precautionary statements to the various classifications, this has not yet been discussed within the ICG.

**Item 3 – Draft a new GHS Chapter 2.1 and review the Manual of tests and Criteria for associated amendments needed**

11. While it is still too early to start drafting the new chapter, some preparatory work to this end has begun within the ICG. The expert from Sweden believes that it could be useful to have some basic discussions on the conditions for this drafting, to provide the foundation for the development of a potential new Chapter 2.1. For instance, the degree of alignment needed with the corresponding texts for Class 1 of the Model Regulations (Chapter 2.1 in Part 2) and the Manual of Tests and Criteria (Part I) is a fundamental topic, as is the appropriate terminology and language in relation to these. Furthermore, the new GHS chapter may require the introduction of new terms and/or definitions in the GHS, which is also a potential discussion that could be initiated at this stage.

**Item 4 – Propose a new Chapter 2.1 for inclusion in the ninth revised edition of the GHS, and the associated changes to the Manual of Tests and Criteria**

12. Clearly it is not yet time to make any firm proposals for a new Chapter 2.1 nor changes to the Manual of Tests and Criteria. No such proposals are therefore made at this stage.

## Suggestions

13. It is suggested that the SCETDG tasks the EWG to discuss the criteria in order to arrive at definite criteria for the new GHS classification system (see Item 1), which can be presented to the SCEGHS for further evaluation.

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<sup>6</sup> It is recognised that a few experts in the ICG advocate for a splitting of Category 1 unless a hazard statement can be found that addresses the mechanical and/or thermal sensitivity of Explosives currently classified as “Unstable explosives”. For a more detailed discussion on this, see INF19 (GHS, thirty-sixth session) – INF29 (TDG, fifty-fourth session).

14. It is suggested that the SCEGHS discusses the hazard communication elements for all the classifications within the new system (see Item 2) as well as some of the fundamental issues relating to the drafting of a potential new Chapter 2.1 (see Item 3).

15. Additional papers may of course appear before the sessions of the sub-committees commence that could influence the suggested discussions. The expert from Sweden encourages in particular more GHS experts from across the field (physical, health or environmental hazards) to involve themselves in the work on Chapter 2.1, as it now enters into a phase where general expertise on the GHS is needed.

## Annex

### Overview of the potential new GHS classification system for explosives and its relation to transport classification

GHS Hazard class	Explosives			
GHS Division	<i>Not applicable*</i>	1.1 – 1.6		
GHS Category	1	2		
GHS Subcategory	<i>Not applicable**</i>	2A	2B	2C
Model Regulations Class	<i>Not applicable***</i>	Class 1		
Model Regulations Division	<i>Not applicable***</i>	1.1 – 1.6		

\* Explosives that cannot be assigned to a Division would be classified as Category 1, see INF.46 (GHS, thirty-sixth session).

\*\* The issue on whether Category 1 should be split into subcategories is not yet completely settled, see discussion in INF.19(GHS, thirty-sixth session) – INF.29 (TDG, fifty-fourth session).

\*\*\* Too dangerous for transport, see Chapter 2.1 of the Model Regulations.