

**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**

**Fiftieth session**

Geneva, 28 November-6 December 2016

Item 7 (h) of the provisional agenda

**Issues related to the Globally Harmonized System  
of Classification and Labelling of Chemicals:**

Review of Chapter 2.1 of the GHS

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

**Thirty-second session**

Geneva, 7-9 December 2016

Item 2 (b) of the provisional agenda

**Classification criteria and related hazard  
communication: Work of the Sub-Committee of  
Experts on the Transport of Dangerous Goods (TDG  
Sub-Committee) on matters of interest to the GHS Sub-  
Committee**

**Comments on the report on the work of the informal  
correspondence group on the revision of GHS Chapter 2.1  
(UN/SCEGHS/32/INF.8 - UN/SCETDG/50/INF.11)**

**Transmitted by the expert from the United States of America**

**Introduction**

1. This informal paper provides comments on the report submitted by the informal correspondence group (ICG) addressing the revision of GHS Chapter 2.1 (informal documents INF.8 (32nd session, GHS) and INF.11 (50th session, TDG). The expert from the United States of America would like to thank the delegate from Sweden for his continued work and leadership of this issue and all the participants for their contributions.

**Background**

2. At the twenty-ninth session of the Sub-Committee of Experts on the Globally Harmonized System (GHS Sub-Committee), the expert from Sweden agreed to lead the work on the revision of GHS Chapter 2.1. An ICG was formed for the task, which mainly consists of members from the Working Group on Explosives (EWG) under the Sub-Committee of Experts on the Transport of Dangerous Goods (TDG Sub-Committee).

3. Since the ICG was formed in September 2015, the work has moved swiftly and dealt with a number of fundamental issues, including “unstable” explosives and the particularities of the class of explosives. One of the proposals currently under consideration is the creation of a new explosives classification system to identify new categories as a replacement for the current transport division system in GHS. This represents a significant expansion of the original scope of modifying hazard communication elements without changing the existing classification system.

4. Representatives from several U.S. agencies have been involved in the discussions on this chapter. The U.S. Agencies include the Occupational Safety and Health Administration (OSHA), the Department of Transportation (DOT), the Department of Defense Explosives Safety Board (DDESB), and the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF). DOT, DDESB, and ATF have all actively participated in the Explosives Working Group discussions both in this and other bienniums. For the U.S. to develop a unified position on explosives, it must rely on input from experts representing all of these affected agencies.

## **Timeline for the work**

5. As originally conceived, the initiative to update GHS Chapter 2.1, Explosives, was intended to be an iterative process (see paragraph 68 of the Report of the GHS Sub-Committee on its 28th session (ST/SG/AC10/C4/56), and the proposed work streams included addressing any gaps in Chapter 2.1 that might be found (informal document INF.13 (29th session (GHS))). A draft revised chapter was circulated for the first time to interested parties after the thirty-first session of the GHS, which was the first time many United States experts saw the full proposal. Our first review suggests that there are still gaps in the work and unintended consequences that need to be identified and addressed in the new proposed chapter. As no formal paper has been introduced for the chapter, the United States believes that we are in the first iteration and needs time for internal discussions about how the changes would affect all U.S. agencies regulating explosives, as well as affected United States stakeholders.

6. The draft chapter that has been developed proposes major modifications and a totally different approach for the classification and communication of this complex and serious hazard. The United States believes that the scope of the original mandate has been broadened and it would be premature to move ahead with the new alternative approach without a thorough review by the entire GHS. In addition, the United States expects that the regulatory impact of the proposed changes to GHS Chapter 2.1 will be significant. Therefore, the United States recommends the scope of the expanded work be redefined to include the purpose and application to the various sectors. The United States also believes the work on GHS Chapter 2.1 should continue into the next biennium.

## **Concerns and proposed path forward**

7. The draft revised GHS Chapter 2.1 provided by the informal correspondence group identified a new classification and category system to replace the existing system of transport divisions, which are not based on intrinsic hazards. While we initially believe this new system has significant merit, the United States believes that a substantial undertaking of this nature needs to be reviewed thoroughly to ensure that intrinsic properties are prioritized, criteria for classification are properly developed, and appropriate hazard communication elements are identified. The United States notes several examples in the draft revised GHS Chapter 2.1 that cause concern and, as noted above, recommends the work continue in the next biennium to further develop the revised chapter:

- The draft revision to GHS Chapter 2.1 introduces a new classification system. As such, the United States recommends experts be given the opportunity to review and update the scope of the work for the informal correspondence group, as needed. Some suggested scope topics include identifying the purpose of the work on the chapter and how the application of a new classification system may impact various sectors, including impacts to manufacturing, storage, sale and use. In particular, the number of classification categories and their criteria should be developed with

forethought to their use. The United States recommends that the categories developed take into account potential packaging dependencies, and address their link(s), if any, to transport classifications, which are often only valid in the transport configuration in which they were evaluated.

- The impact on a variety of regulations and consensus standards that different agencies administer to control all life cycle stages of explosives should be anticipated once new classifications appear in the safety data sheet (SDS) and addressed. For example, downstream impacts to local building and fire code authorities having jurisdiction over occupied structures are expected and should carefully be assessed. Local authorities normally do not have expertise to classify explosives, and currently rely on transport classification information provided on the Safety Data Sheet to trigger storage prohibitions or quantity limits.
- The classification criteria proposed for hazard categories should be clearly defined. In relation to the currently proposed category 2B, some concerns have been raised with relying on a list-based approach to identify specific hazard categories. While UN numbers allow capture of risk and what is accepted in other sectors, the GHS does not normally use lists to classify hazards. The United States supports a criteria-based approach to defining category 2B, along with guidance that certain UN numbers, in certain circumstances, might meet such criteria. In any event, a number of elements should be considered, including the fact that some UN numbers containing broad variations of hazard levels, transport classifications depend on the exact packaging configuration to mitigate hazards, and that fire codes may regulate products by name and not by UN number or a list.
- The proposed definition of category 2A appears to provide classification criteria that first requires the classifier to determine whether the substance or article is eligible for classification in category 2B (since mixtures are treated the same as substances when dealing with explosives). This appears to be contrary to the approach used when establishing classification criteria. In addition, the draft chapter currently provides some of the classification criteria in a footnote, which should be elevated into the main text.
- In the U.S., transport authorities, including the military, may classify complex articles containing explosives plus other hazardous materials outside the class of explosives, even though an explosive hazard may still exist in excess of the allowances in the UN Model Regulations (UNMR) Chapter 2.1, paragraph 2.1.3.6 and the corresponding GHS Chapter 2.1.1.2(b). We believe such assignments are correct and properly executed classifications. In the GHS, the general prohibition of any hazardous effect in 2.1, paragraph 2.1.1.2(b) is unintentionally stricter than the quantitative criteria it was based on UNMR 2.1.3.6. These parallel texts should be revised concurrently to provide additional clarity. Before this review occurs, the U.S. suggests the GHS Sub-Committee decide if or how an intrinsic explosive hazard posed by an explosive-containing article not classified as explosive should be treated from a hazard communication perspective in sectors other than transport. For example, should the label or SDS convey to downstream entities that an explosive hazard is indeed present, even though the explosive hazard is not the predominant hazard?
- Similar to the above point, some products are not classified as an explosive, even though they may contain an explosive item. For example, automotive airbags contain an explosive element; however, regulations and standards that govern them are less restrictive or an alternative regulatory approach is used so that airbags may be used as designed, since the public depends on them for safety reasons. Other examples include hobby rocket motors, consumer fireworks, indoor pyrotechnic

articles, and road fuses. We recommend that these exceptions be addressed as a whole.

- A note in proposed paragraph 2.1.4.2.2 in Chapter 2.1 has been identified as a placeholder for a discussion on risk assessment. The United States agrees that further guidance on risk assessment is needed, especially as to how it applies to explosives outside GHS Chapter 2.1 and suggests this be further developed and expanded.

8. Finally, the U.S. believes that the peculiarities of explosives should be kept in mind during this work:

- The GHS is based on intrinsic hazards. Explosives classification is only intrinsic for entering the class, while the transport divisions currently used by GHS are not intrinsic, but based on (1) the degree of hazard as controlled by quantity, form and packaging, and (2) the probability of initiation, i.e., risk. Additional packaging can mitigate the hazard, and in transport Division 1.4 and 1.4S the hazard mitigation achieved by using additional packaging is accompanied by less stringent controls.
- The GHS assumes self-classification. Under the current criteria, explosives are only classified by competent authorities, case by case, using the UN Manual of Tests and Criteria (UNMTC). Parts of the UNMTC are written only for use by competent authorities with explosives expertise, and other use in the current form could result in inconsistent classifications.
- Although the GHS does not require testing, testing is rigorously required for explosives. Explosives must be tested both small-scale, and full-scale empirically in their transport packaging. New testing is often required by the competent authority for packaging or quantity changes of a previously classified product. The number of tests are required, and controlled by a guide - the UNMTC. Therefore, we recommend the informal correspondence group's work avoid introducing even more testing for explosives.
- The GHS places controls on untested mixtures to prevent dilution as an escape from a class, with ingredient thresholds of 0.1% to 1.0% for many classes. In contrast, explosives mixtures are evaluated for classification with the same rigor as a substance. Small percentage changes that may not alter a health classification can greatly reduce the explosives hazard.
- Most countries have dedicated explosives legislation, with strict regulatory controls, whereas health hazards are treated differently. For example, building codes do not limit the presence of carcinogens, but do place quantity limits or prohibitions on explosives in a structure, commensurate with their classification.

9. In addition, the U.S. believes that to support this new proposed system for identifying explosive hazards, classification criteria should be properly assigned and the procedure for their determination should be included in the UNMTC. As such, the U.S. recommends that the work on the UNMTC should also be deferred until after the work on GHS Chapter 2.1 is complete. This will allow time for the scope and criteria to be properly established before the tests are assigned, and that other major issues, such as the proposed explanation for articles in the GHS, to be thoroughly compared to GHS parameters before any final decisions are made and consensually approved. The U.S. has provided a companion paper about the UNMTC to discuss this in more depth (See UN/SCEGHS/32/INF.14; UN/SCETDG/50/INF.17).

10. At the thirty-first session, a working group of the GHS was held on this work for the first time. The U.S. believes that this GHS working group should continue at each meeting of the GHS during this project, and that the ICG led by the expert from Sweden should be

expanded to include those GHS experts who attend the working group. This will enable the GHS to carefully assess the work and ensure that GHS principles are applied and that any modifications of principle for this unique class are developed appropriately.

## **Conclusions**

11. The United States recommends the program of work for GHS Chapter 2.1, Explosives, be reviewed and updated, as needed, and include a stepwise approach to establish proper criteria for classification, before addressing hazard communication elements. As part of this approach, a thorough review by all experts should be provided to ensure that optimal criteria are developed, and the appropriate number of categories and boundaries are established. The United States also recommends continuing the work on Chapter 2.1 into the next biennium.

12. Since the UNMTC will describe the tests used to assign the new classifications still under development in the draft revised Chapter 2.1, the United States also recommends that the work on the UNMTC be deferred and continue into the next biennium.

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