

## COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS AND ON THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS

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

Eleventh session, 12 (pm) – 14 July 2006  
Item 2(a) of the provisional agenda

#### UPDATING OF THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS)

##### Physical hazards

##### Work of the Sub-Committee of Experts on the Transport of Dangerous Goods

##### Note by the Secretariat

This document contains a summary of the conclusions of the discussions held during the 29<sup>th</sup> session of the Sub-Committee on experts on the TDG on matters of concern to the GHS Sub-Committee.

The proposed draft amendments to the first revised edition of the GHS are listed in the Annex to this document for consideration by the GHS Sub-Committee.

### 1. Gases

- (a) *Updating of references to ISO standards for the classification of flammable gases and gas mixtures*

Document: ST/SG/AC.10/C.3/2006/2 - ST/SG/AC.10/C.4/2006/2 (EIGA)

The Sub-Committee of experts on the TDG decided to accept the proposal by EIGA to update the references to ISO standards for the classification of flammable gases and gas mixtures (see annex) on the understanding that its decision would require the endorsement of the Sub-Committee of Experts on the GHS. (See paras. 15 to 17 of the draft report of the Sub-Committee on experts on the TDG on its 29<sup>th</sup> session ST/SG/AC.10/C.3/2006/CRP.1/Add.1).

- (b) *Proposal to harmonize the values in the UN Recommendations and the GHS and RID/ADR*

Document: ST/SG/AC.10/C.3/2006/4 - ST/SG/AC.10/C.4/2006/3 (EIGA)

The Sub-Committee of experts on the TDG also adopted the proposal to clarify the values to be used in exempting gases from the scope of the above-mentioned instruments. The proposal would necessitate amending the provisions of the GHS (see Annex). See also para. 18 of the draft report of the Sub-Committee on experts on the TDG on its 29<sup>th</sup> session ST/SG/AC.10/C.3/2006/CRP.1/Add.1.

- (c) *Physical hazards of chemically unstable gases*

Document: ST/SG/AC.10/C.3/2006/28 - ST/SG/AC.10/C.4/2006/6 (Germany)

The Sub-Committee of experts on the TDG considered that instability of gases was duly taken into account in the transport regulations and that since the UN Model Regulations did not contain

hazard communication provisions in this respect, it would be useful to consider gas instability under GHS for all sectors. The expert from Germany offered to organize an intersessional working group on this subject. This offer was accepted by the Sub-Committee on TDG. (See paras. 107 and 108 of the draft report of the Sub-Committee on experts on the TDG on its 29th session ST/SG/AC.10/C.3/2006/CRP.1/Add.9).

## 2. Outcome of the work of the Working Group on Explosives

The Working Group on Explosives met from 3 to 7 July 2006, in a session parallel to the plenary session of the Sub-Committee of Experts on TDG.

The Sub-Committee requested the Working Group to discuss several official and informal documents among which the following were of interest to the GHS Sub-Committee:

ST/SG/AC.10/C.3/2006/27 } ST/SG/AC.10/C.4/2006/5 }	(Germany) Physical hazards due to explosive properties
ST/SG/AC.10/C.3/2006/61 } ST/SG/AC.10/C.4/2006/7 }	(SAAMI) Proposal of amendment to Chapter 2.1 of the GHS (Explosives)
UN/SCETDG/29/INF.41 } UN/SCEGHS/11/INF.9 }	(Germany) Proposal of amendment to figure 2.1.4 in Chapter 2.1 of the GHS

The full report of the Working Group on Explosives was reproduced as informal document UN/SCETDG/29/INF.65. See also paras. 107 and 108 of the draft report of the Sub-Committee of Experts on TDG on its 29th session ST/SG/AC.10/C.3/2006/CRP.1/Add.9.

### **Extracts from the report of the Working Group on Explosives** **(as corrected and endorsed by the TDG Sub-Committee)**

#### ***Physical hazards due to explosive properties***

Document: ST/SG/AC.10/C.3/2006/27 - ST/SG/AC.10/C.4/2006/5 (Germany)

The four issues raised by Germany are dealt with in the sub-sections (a) to (d) below. It was acknowledged that the current Manual of Tests and Criteria was written for transport purposes. Furthermore, GHS does not address substances having more than one hazardous property. These shortcomings might be solved by introducing a new sub-paragraph in 1.3.2.4.5 of the GHS (see Annex).

#### (a) Ammonium nitrate

The possibility raised by Germany to introduce a new sub-category for ammonium nitrate in the GHS was felt not appropriate by the majority of the Working Group. Germany's main concern was that certain types of ammonium nitrate classified as oxidizers may have an explosion hazard but a warning to that effect is missing in the current system. Since the GHS does not have Special Provisions, it was felt that a note to Table 2.14.1 was the best solution. This new note would be Note 1, the existing note would become Note 2 (see Annex).

#### (b) Substances having explosive properties but not classified as explosives

The Group considered how the explosive properties of this category of substances were assessed. On the one hand, it would involve substances having explosive properties based on mechanical sensitivity (like friction and impact) and heating under confinement (Koenen test) as currently used in the EU. On the other hand, it also includes substances having explosive properties in Test Series 1 and 2 and which are, for transport, classified outside Class 1 based on the results of the 6(c) test. The working group was not convinced that mechanical sensitivity alone would necessarily address

all explosive properties since it only concerns initiation and not propagation.

The expert from Germany will provide additional information, including examples of substances and test data, in the next biennium. The expert from ICCA offered support in drafting the additional information

(c) Explosive substances and articles not packaged for transport

The group confirmed the need to give more guidance in the GHS document on how to deal with unpackaged and repackaged explosives, especially since the classification and related hazards are often dependent on the packaging. This could be solved by adding a note to Table 2.1.2 giving guidance on symbols, signal words and hazard statements to be used (see Annex).

(d) Desensitized explosives

In the GHS, explosives wetted with water or alcohols, or diluted with other substances to suppress their explosive properties, are dealt with in the Chapter on explosives. It is recognised that they may be treated differently for some regulatory purposes, e.g. transport. However, the storage regulations for these substances in most of the countries represented in the Working Group treat them as flammable liquids or solids.

It was felt not appropriate to include these substances in the Chapters 2.6 or 2.7 of the GHS since they may not have flammable properties. The Sub-Committee identified three possible solutions:

- (i) make no changes;
- (ii) create a new chapter in Part 2 of the GHS document, dealing with desensitized explosives; or
- (iii) create a new Division 1.7 for these substances.

Although the last option may have a large number of consequential amendments, text revisions and regulatory consequences, the working group had a preference for the last option. The consequences of each solution must be clearly assessed before the TDG Sub-Committee takes a decision on the best way forward.

To make the current situation clearer, a reference to the newly proposed text in 1.3.2.4.5 is to be added to Note 2 to Table 2.1.1 (see Annex).

***Proposal of amendment to Chapter 2.1 of the GHS (Explosives)***

Document: ST/SG/AC.10/C.3/2006/61- ST/SG/AC.10/C.4/2006/7 (SAAMI)

SAAMI introduced its paper. Sporting ammunition is typically sold in the USA in retail shops where they are outside the transport packaging. An exploding bomb symbol on these packages could send the message that it is not appropriate to have these products in a store. The fire services might be confused and decide not to fight a fire whilst the current drill is that 1.4S products can be approached in case of a fire. There are also security issues with the exploding bomb symbol.

The experts from the USA and France had sympathy for the proposal and agreed that applying exploding bomb symbols to 1.4S products is not appropriate. They believed that a more general approach for 1.4S products should be used, not just only for sporting ammunition.

Other experts stressed that, once outside the packaging, some products might behave differently and show more hazardous effects. For several situations, like consumer use, it is important to communicate that the product contains materials with explosive properties.

It should be made clear, e.g. by training and information, that the exploding bomb symbol does not necessarily mean mass explosion hazard.

The attention was drawn to another proposal (ST/SG/AC.10/C.4/2006/11 by CEFIC) where the opposite is proposed: to assign the exploding bomb sign to Hazard Divisions 1.5 and 1.6.

The majority of the Working Group was not in favour of removing the exploding bomb sign for certain 1.4S products. A new proposal from SAAMI, including a more specific description of the products concerned, will be prepared.

***Proposal of amendments to the procedure for classification of ammonium nitrate emulsions, suspensions and gels (Figure 2.1.4 in Chapter 2.1 of the GHS)***

Informal document: UN/SCETDG/29/INF.41- UN/SCEGHS/11/INF.9 (Germany)

The Working Group agreed that the proposal contained in INF.41 was only a consequential amendment and supported the proposed change (see Annex).

### **3. Classification criteria for Division 6.1 and Class 8 Human experience**

Document: ST/SG/AC.10/C.3/2006/19 - ST/SG/AC.10/C.4/2006/4 (United Kingdom)

The Sub-Committee of experts on the TDG briefly discussed the document from the United Kingdom. Several experts shared the view of the United Kingdom that the classification of substances on the basis of human experience raises practical problems given that information of this nature is not always publicly available and it is not always possible to confirm the validity of the information that is. Accordingly, the Sub-Committee on the TDG decided to follow up on the work done by the United Kingdom in order to promote international consistency in the use of data on human experience. The expert of the United Kingdom said that he would submit a revised proposal in due course. (ST/SG/AC.10/C.3/2006/CRP.1/Add.6, para.68).

## Annex

### **Draft amendments to the 1st revised edition of the GHS proposed by the Sub-Committee of experts on the TDG for consideration by the GHS Sub-Committee**

#### **Chapter 1.2**

In the definition of “Gas”, insert the word “(absolute)” after “300 kPa”.

(Ref. Doc: ST/SG/AC.10/C.4/2006/3)

#### **Chapter 1.3**

1.3.2.4.5 Renumber existing paragraph as 1.3.2.4.5.1 and add a new paragraph 1.3.2.4.5.2 to read as follows:

“1.3.2.4.5.2 Certain physical hazards (e.g. due to explosive or oxidizing properties) may be altered by dilution, as is the case for desensitized explosives, by inclusion in a preparation or article, packaging or other factors. Classification procedures for specific sectors (e.g. storage) should take experience and expertise into account.”.

(Ref. Doc: ST/SG/AC.10/C.4/2006/5)

#### **Chapter 2.1**

2.1.2.2 In Note 2 to table 2.1.1, insert “, see 1.3.2.4.5” at the end of the paragraph after “(e.g. transport)”.

(Ref. Doc: ST/SG/AC.10/C.4/2006/5)

2.1.3 Insert the following note after table 2.1.2:

“**NOTE:** Unpackaged explosives or explosives repacked in packages other than the original or similar packages shall have the following label elements:

- (a) Symbol: exploding bomb;
- (b) Signal word: “Danger”; and
- (c) Hazard statement: “explosive; mass explosion hazard”

unless the hazard is shown to correspond to one of the columns of this table, in which case the corresponding symbol, signal word and/or the hazard statement shall be assigned.”.

(Ref. Doc: ST/SG/AC.10/C.4/2006/5)

Figure 2.1.4: In the first box on the right from the top, replace the text “Too unstable to be classified as an oxidizing liquid or an oxidizing solid. Go to Figure 2.1.2, Test Series 1” with “Classify as unstable explosive”.

(Ref. Doc: UN/SCEGHS/11/INF.9)

#### **Chapter 2.4**

2.4.4.1 In the introductory text before the decision logic, insert “and ISO 10156-2:2005 “Gas cylinders, Gases and gas mixtures. Part 2: Determination of oxidizing ability of toxic and corrosive gases and gas mixtures” before “should be performed.”

2.4.4.2 Amend the end of the title to read "...according to ISO 10156:1996 and ISO 10156-2:2005"

(Ref. Doc: ST/SG/AC.10/C.4/2006/2)

### **Chapter 2.5**

2.5.1 In the definition, replace "280 kPa at 20° C or as a refrigerated liquid" with "200 kPa (gauge) or be liquefied".

2.5.4.1 In the decision logic, 2<sup>nd</sup> box from the top on the left hand side, in (a), replace "3 bar" with "300 kPa (absolute)".

(Ref. Doc: ST/SG/AC.10/C.4/2006/3)

### **Chapter 2.14**

2.14.2 Current note under table 2.14.1, becomes note 2. Insert a new note 1 to read as follows:

**“NOTE 1:** Some oxidizing solids may also present explosion hazards under certain conditions (e.g. when stored in large quantities). For example, some types of ammonium nitrate may give rise to an explosion hazard under extreme conditions and the Resistance to Detonation Test (Reference: IMO BC Code 2005; Code of Practice for Solid Bulk Cargoes, Annex 3, Test 5) may be used to assess this hazard. Appropriate comments should be made in the Safety Data Sheet.”.

-----