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

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Item 2 (a) of the provisional agenda

UPDATING OF THE SECOND REVISED EDITION OF THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS)

Physical hazards

Report of the 3rd meeting of the informal working group on chemically unstable gases

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

Introduction

1. During its twelfth session the Sub-Committee of Experts on the Globally Harmonized System of Classification and Labelling of Chemicals agreed on the terms of reference for an informal working group that shall address the additional classification of chemically unstable gases.

2. The third meeting of the informal working group took place on July 7 and 8, 2008. Experts from CGA (Compressed Gas Association), EIGA (European Industrial Gases Association), and Germany (BAM) attended the meeting.

Report of the Meeting – Discussion of the alternative test methods

3. During the last meeting two alternative test methods (Accelerating Rate Calorimetry and a test method based on ISO 10156 and ASTM E 918) for the classification of chemically unstable gases were identified and it was agreed to validate the tests methods by subjecting six agreed candidate unstable gases to them (see UN/SCEGHS/14/INF.19).

Accelerating Rate Calorimetry (ARC)

4. CGA could not find existing data of chemically unstable gases using ARC and tests were not carried out so that adoption of this test method is not followed up further.

Test method based on ISO 10156 and ASTM E 918

5. BAM presented results that were obtained with the agreed six benchmark gases (and two further gases) using the proposed test method which is based on ISO 10156 and ASTM E918.

6. The results showed that the test method is able to differentiate between gases that are chemically unstable at ambient conditions and gases that are chemically unstable at elevated conditions (65 °C and corresponding pressure).

7. The set-up of the test method had to be refined regarding the necessary ignition energy in the first test at ambient conditions and regarding the location of the ignition source in the test vessel. For details of the test method see UN/SCEGHS/13/INF.5 and UN/SCEGHS/14/INF.19.

Report of the Meeting – Possibilities for inclusion into the GHS

8. It was agreed that creating a new hazard class for chemically unstable gases is not appropriate since the number of pure chemically unstable gases is limited.

9. Since most chemically unstable gases are flammable gases as well, corresponding additional categories could be included in the hazard class of flammable gases.

10. This could be achieved by including an additional, optional hazard category to which a hazard statement is linked for chemically unstable gases (just as it is done for reproductive toxicity and the optional additional effects on or via lactation).

11. Although there are oxidizing gases that are chemically unstable, no corresponding addition for the hazard class of oxidizing gases is proposed. This is equivalent to oxidizing liquids and solids which are excluded from the hazard class of self-reactive substances and mixtures.

12. A draft of such a proposal is included in the Annex of this document for information.

Report of the Meeting – Further proceeding

13. For the first meeting EIGA had proposed to include information about concentration limits of chemically unstable gases in mixtures below which no classification is required thereby limiting testing requirements.

14. The group agreed that this approach is meaningful and the participants agreed to check available data for flammable gases that are of special interest for industry.

15. For other gases for which no data are available the lower explosion limit or the T_{ci}-value (as indicated in ISO 10156) might be used as a concentration limit below which classification of mixtures as chemically unstable is not necessary. The participants will form an opinion on these alternatives until the next meeting.

16. The group has not yet a concrete proposal where the agreed test method for testing gases as chemically unstable can be put and will work on it and come back with a concrete proposal possibly for the next meeting.

17. A next meeting, if necessary, is envisaged in connection with the next Sub-Committee-Meetings (on December 8 and 9, 2008).

Annex

Proposal for inclusion into hazard class of flammable gases

Amend sections 2.2.2 and 2.2.3 of the GHS as follows (proposed amendments are underlined):

"2.2.2 Classification criteria

A flammable gas is classified in one of the two categories for this class according to the following table:

Table 2.2.1: Criteria for flammable gases

Category	Criteria
1	Gases, which at 20 °C and a standard pressure of 101.3 kPa: (a) are ignitable when in a mixture of 13% or less by volume in air; or (b) have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit.
2	Gases, other than those of Category 1, which, at 20 °C and a standard pressure of 101.3 kPa, have a flammable range while mixed in air.

NOTE 1: *Ammonia and methyl bromide may be regarded as special cases for some regulatory purposes.*

NOTE 2: *For the classification of aerosols, see Chapter 2.3.*

NOTE 3: *Some flammable gases in addition may be chemically unstable and may react explosively without any amount of air or oxygen.*

A flammable gas is additionally classified as in one of the two categories for chemically unstable gases according to the following table:

Table 2.2.2: Criteria for chemically unstable gases

Additional category of chemically unstable gas	Criteria
1	Gases which are chemically unstable at ambient conditions
2	Gases which are chemically unstable at 65 °C and the corresponding pressure

2.2.3 Hazard communication

General and specific considerations concerning labelling requirements are provided in *Hazard communication: Labelling* (Chapter 1.4). Annex 2 contains summary tables about classification and labelling. Annex 3 contains examples of precautionary statements and pictograms which can be used where allowed by the competent authority.

Table 2.2.3: Label elements for flammable gases

	Category 1	**Category 2**	**Additional category 1 of chemically unstable gases**	**Additional category 2 of chemically unstable gases**
Symbol	Flame	*No symbol*	*No symbol*	*No symbol*
Signal word	Danger	Warning	*No signal word*	*No signal word*
Hazard statement	Extremely flammable gas	Flammable gas	May decompose explosively at ambient conditions	May decompose explosively at elevated conditions

Consequential changes to the decision logic and guidance

Section 2.2.4 "decision logic and guidance should be amended by an appropriate decision logic and by reference to the agreed test method. The decision logic to be added in section 2.2.4.1 could be as follows:

Proposal for additional decision logic 2.2.2 for flammable gases which are chemically unstable