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COMMITTEE OF EXPERTS ON THE
TRANSPORT OF DANGEROUS GOODS
Sub-Committee of Experts on the
Transport of Dangerous Goods
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agenda item 6c)

Global Harmonised System of Classification and Labelling (GHS)

Joint ILO/UN Committee Working Group on Classification Criteria for physical Hazards

Submitted by the Expert from Germany

Presented by the Chairman of the Joint ILO/UN-Working Group

Background

The proposal for criteria for physical hazards (see ST/SG/AC.10/C.3/28/Add.3) does not yet include criteria for flammability of Aerosols (dispensers). When the Joint Working Group discussed this issue during its last meeting, various views were presented and no consensus could be reached on the test methods as well as on the criteria (see ST/SG/AC.10/C.3/34/annex5).

Confirmed results of previous meetings:

- definition of an Aerosol (ST/SG/AC.10/C.3/28/Add.3, annex, paragraph 3.4)
 - Consideration of an Aerosol for flammability if it contains any flammable component which is classified as flammable according to the proposed criteria for the GHS (ST/SG/AC.10/C.3/28/Add.3, Annex), i. e.
 - flammable liquids (flashpoint $\leq 93^{\circ}\text{C}$), see § 3.1
 - flammable solids, see § 3.2
 - flammable gases and gas mixtures, see § 3.3
- Note: "Any flammable component" could be interpreted also to cover criteria for pyrophoric, self heating and water reactive substances; are such substances not part of an Aerosol content?
- application of a test regime consisting of three tests (Ignition Distance Test, Enclosed Space Test, Foam Test)
 - classification of an Aerosol as flammable, if in any of the tests a positive result is obtained.

Test Methods

Documents: ST/SG/AC.10/C.3/28/Add.3, §§ 27 to 34
ST(SG/AC.10/C.3/34, §§ 134 to 135 and Annex 5
ST/SG/AC.10/C.3/34 (FEA/CSMA)
Inf. 42 (USA)

The Joint Working Group is invited to agree principally on the test methods – leaving technical and editorial refinement to the Sub Committee for inclusion in the Manual of Tests and Criteria – and to base the criteria for flammability of Aerosols on these test methods.

Issue: If the discharge valve – and potentially the construction of the can, especially upper part – may have an influence on the test results – this is mentioned in Inf. 12 of FEA – shouldn't then the description of valve and can be included in the test report?

Criteria for Flammability of Aerosols

Documents: ST/SG/AC.10/C.3/28/Add.3
ST/SG/AC.10/C.3/34, §§ 134 to 135 and Annex 5
ST/AG/AC.10/C.3/46 (USA)
ST/SG/AC.10/C.3/49 (CSMA)
Inf. 7 (FEA)
Inf. 12 (FEA)
Inf. 28 (F)
Inf. 42 (USA)

The Joint Working Group is invited to discuss all relevant issues and to agree on a proposal for criteria for flammability of Aerosols for the GHS.

Main issues: **Hazard Level(s)**

Should there be just one hazard level (flammable or not) or should there be more hazard levels?

It is neither a task of the Joint Working Group nor part of the GHS to fix which hazard level(s) is(are) relevant for the different target audiences (e. g. transport, storage, emergency response, worker and consumer protection). This will remain to be decided by the relevant international, regional and national authorities when they are starting to implement the GHS criteria into existing or new legislation.

But if in view of future implementation it is reasonable to expect that different hazard levels (e. g. highly flammable and flammable Aerosols) are needed to make differentiation possible in downstream consequences, which depend on the classification, the Joint Working Group should include the necessary differentiation of the flammability hazard into sufficient hazard levels in the proposal for the GHS.

Basically three methods are proposed:

- choice of tests plus heat of combustion testing or calculation (CSMA – ST/SG/AC.10/C.3/2000/46)
- choice of tests (FEA – Inf. 7)
- Interpretation of test results plus composition limits and heat of combustion of content (USA – ST/SG/AC.10/C.3/2000/46 and Inf. 42 – and F – Inf. 28)

Proposals range from just one hazard level to three (extremely flammable, highly flammable and flammable).

Problem: All methods proposed are more related to risk considerations than to intrinsic properties of the dangerous content. An additional – internationally agreed – combustion heating test is not available or proposed, a national test method is mentioned in ST/SG/AC.10/C.3/2000/49.

Consideration: To correlate more with intrinsic properties and to avoid excessive testing or expert calculation, already proposed criteria for the flammability of gases and liquids could be used. The Chairman is suggesting for discussion

- to declare as highly flammable all Aerosols containing highly flammable gases according to the criteria in § 3.1 and/or very highly flammable liquids according to the criteria in § 3.1 (i. e. Initial Boiling Point $\leq 35^{\circ}\text{C}$ and Flashpoint $< 23^{\circ}\text{C}$) and
- to declare as flammable all Aerosols containing other flammable components.

Lower cut-off value

“Any flammable component” could be interpreted as covering even very small amounts of components where a positive result in one of the three proposed tests is reasonably not to be expected. To avoid excessive testing the Joint Working Group is invited to discuss a lower cut-off value, below which no testing is necessary and the Aerosol could be classified as non-flammable.

In Inf. 12 FEA is proposing 1 % for consideration.

Upper cut-off value

Aerosols with a very high amount of flammable components probably may show a positive result in the tests in all possible compositions. To avoid excessive testing the Joint Working Group is invited to discuss an upper cut-off value above which no testing is necessary and the Aerosol could be classified as flammable.

No specific value is proposed, but 85 % are mentioned in Inf. 28 from F and Inf. 42 from USA, both linked to specific descriptions of flammable content.

Range between lower and upper cut-off value

For Aerosols containing flammable amounts of flammable components between the lower and the upper cut-off value, classification as flammable should be determined in the test regime proposed; if no testing is carried out, the Aerosol should be classified as flammable (CSMA – ST/SG/AC.10/C.3/2000/46 – and FEA – Inf. 7).

Other issues

In the context of the work on harmonisation of hazard communication (ILO Working Group) some tendencies have shown up which may require additional action by the Joint Working Group.

Compressed, liquefied, refrigerated and dissolved gases

Document: -

Criteria for these hazards have not been included in the proposal of the Joint Working Group for the GHS. The Joint Working Group deemed these criteria to be relevant for transport but saw no specific need to include them in the GHS.

Discussions on the Harmonisation of Labelling in the ILO Working Group on Harmonisation of Hazard Communication indicate, that a Harmonisation of Labelling is only envisaged for hazards which – together with criteria – will be part of the GHS.

But compressed, liquefied, refrigerated and dissolved gases are transported to and from establishments where they are handled or stored. Also in these areas they could lead to accidents or incidents with damage to workers or rescue services. Views were expressed that a harmonisation of hazard communication should also be part of the GHS, which may require to include criteria for these physical hazards in the GHS.

The Joint Working Group is invited to shortly discuss whether the criteria for these types of gases are relevant in general e.g. for storage and whether they should be added to the proposal for the GHS to permit a Harmonisation of their Labelling.

Document: -

Criteria for explosives have been included in the proposal of the Joint Working Group. However the sub divisions and compatibility groups have only been mentioned.

Within the discussions on Harmonisation of Labelling this lead to views that only one symbol (label) – showing the exploding bomb – should represent all hazards of explosivity. This may lead to difficulties in maintaining the simplified labelling for sub divisions 1.4, 1.5 and 1.6 (showing the sub division and compatibility group on the orange background label) and 1.4S as simple marking without orange background label.

Furthermore questions may arise how to label desensitised, phlegmatised and wetted explosives, where currently in the UN RTDG the flammable solids label (flame symbol with red stripes) is assigned, which is not the case in many systems for explosives. This may lead to problems for storage and worker safety because the flammable solid label (symbol) does not show the explosive properties which may return when the substances are handled or stored.

The ILO Working Group on harmonisation of hazard communication agreed, that a symbol should mean the same throughout the GHS and should not be used differently from one system to another.

The Joint Working Group may shortly discuss these issues and consider appropriate action.

Report

Document: ST/SG/AC.10/C.3/28/Add.3

The Joint Working Group may wish to request the secretariat to reproduce this Document with the additions made e.g. for criteria for flammability of aerosols to have an updated version of the final report and a complete proposal for the GHS.
