

# UN/SCETDG/21/INF.46

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## 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

### Transport of Dangerous Goods

(Twenty-first session, 1-10 July 2002, agenda item 2)

## ADDITIONAL PROVISIONS FOR THE TRANSPORT OF GASES

### Proposed Agenda and Miscellaneous Issues for the Gases Working Group

#### Transmitted by the European Industrial Gases Association (EIGA)

#### Introduction

This paper proposes an agenda for the discussions of the Gases Working Group. It also sets out the following issues for resolution by the Working Group;

- Proposed changes to the packing provisions for non-Class 2 substances listed in P200 Table 3
- A query regarding holding time
- A proposal concerning bursting discs
- A proposal to add LC<sub>50</sub> values for mixtures and N.O.S. positions
- A proposal to eliminate the technical names from UN 1956 and UN 3163
- A query on the LC<sub>50</sub> value for UN 3057
- A query on the requirement to provide an earthing capability for receptacles carrying flammable gases
- Editorial corrections

#### Proposed Agenda

##### Base documents

ST/SG/AC.10/C.3/40, paras. 11-22

Report of the Sub-Committee (20th session)

ST/SG/AC.10/C.3/40/Add.1

Report of the Working Group on additional provisions for the transport of gases

1. Adoption of the agenda
2. ST/SG/AC.10/C.3/2002/7 (AEGPL) – Name and description of UN 2037
3. ST/SG/AC.10/C.3/2002/8 (AEGPL) – Inclusion of general requirements for gas cartridges (UN 2037)
4. ST/SG/AC.10/C.3/2002/9 (AEGPL) – UN LPG cylinders marking dispositions
5. Inclusion of standards for LPG in Chapter 6.2 – ref. ST/SG/AC.10/C.3/2002/36, Annex 1, item 7 and Annex 3
6. ST/SG/AC.10/C.3/2002/53 (EIGA) – Chapter 2.2
7. ST/SG/AC.10/C.3/2002/37 (Canada) – Approval system for periodic inspection and test of UN certified pressure receptacles, together with Inf. XX from the United Kingdom commenting on this Canadian proposal. (\*See note under Timing below.)
8. Remaining issues from ST/SG/AC.10/C.3/2002/36 (United States of America) – Gas cylinders
9. Work of NIST on filling ratios

10. Inf. paper from CGA
11. Inf. paper from ISO
12. Issues listed in this Inf. paper from EIGA (see below).
13. Any other business
14. Reading the Report of the Working Group to the Plenary Meeting.

This agenda is subject to Plenary decisions that all these items are within the Working Group's remit.

### **Timing**

The Working Group will commence its meeting at 2.00 p.m. on Monday 1<sup>st</sup> July. The daily hours of working will be 9.00 a.m. to 12.30 p.m. and 2.00 p.m. until 6.00 p.m.

**\*Note: Discussion of Item 7 will commence at 9.00 a.m. on Tuesday 2<sup>nd</sup> July.**

### **Issues for Discussion**

#### **1. Non-Class 2 Substances**

Table 3 simply lists the standard packing instructions pertaining to gases of equivalent toxicity, taking no account of any substance specific requirements. In practice, a chemical reaction between UN 1052 Hydrogen Fluoride, Anhydrous and the steel receptacle can lead to the generation of hydrogen which, if left unattended, will create pressure sufficient to rupture the receptacle. A pressure check is therefore recommended at a time intermediate to the periodic inspections to enable corrective action if the presence of pressure indicates that such a reaction is occurring.

The proposed amendment to P200 Table 3 adds an additional special packing instruction 'w' in the final column of the entry for UN 1052 Hydrogen Fluoride. The following text shall be inserted after paragraph 'v' in P200 (4).

w: Pressure receptacles shall satisfy the following conditions:

- (i) Midway between the 5 year periodic inspections and tests, an intermediate check (2.5 year check) shall be made to ensure that the pressure has not risen excessively due to potential hydrogen generation. The 2.5 year check may be performed within three months of the specified date.
- (ii) Wall thickness shall not be less than 3 mm.

#### **2. Holding Time**

The following is extracted from the Report of the 20<sup>th</sup> Meeting of UNSCOE (ST/SG/AC.10/C.3/40)

13. In response to a question from the expert from Norway, the representative of EIGA, the Chairman of the Working Group, said that provisions relating to holding time had not been provided for cryogenic receptacles, unlike the case of tanks, because transport for these receptacles was generally of very brief duration.

The Working Group is asked to consider whether it wishes to support the opinion given 'off the cuff' by EIGA, or whether provisions covering the holding time of closed cryogenic receptacles should be developed. The EIGA considered view is that cryogenic receptacles are normally not used for journeys of long duration and are normally filled under near-ambient pressure so that it is not necessary to label the holding time. Also, calculation for these small vessels is subject to substantial inaccuracies in actual conditions, filling temperature, sun protection shield, good or bad road, rail or transport conditions, warming up period of the cryogenic receptacle before filling, repaired damages etc.

### 3. Bursting Discs

The text currently in ST/SG/AC.10/C.3/40/Add.1, 6.2.1.3.6.4.2 states “Closed cryogenic receptacles, in addition, have a frangible disc in parallel with the spring loaded device to meet the requirements of 6.2.1.3.6.5.” This requires a frangible disc to be fitted whereas, in practice their fitting is required only for hydrogen and helium; sufficient discharge capacity is available through spring loaded PRDs for other gases. At the very least, this clause should have “may” inserted as the fourth word, but the working group may wish to add further words discouraging the fitting of bursting discs, such as “Closed cryogenic receptacles, ~~in addition have~~ may be equipped with a frangible disc in parallel with the spring loaded device only when it is essential to meeting the requirements of 6.2.1.3.6.5”.

### 4. Additional Information on LC<sub>50</sub>s for N.O.S. Positions and Mixtures

At the previous meeting of the Gases Working Group, Germany presented Inf. 31 containing the following proposal which was not discussed. It concerns the tables in the P200.

In Tables 1 and 2 should be added in the column "LC50 ml/m3 " for all toxic generic or N.O.S. entries the following phrase:

"equal to or less than 5000 ml/m3 (ppm)".

For UN 2600 "CARBON MONOXIDE AND HYDROGEN MIXTURE, COMPRESSED" should be added:

"between 3760 and 5000 ml/m3 (ppm)"

The Working Group is asked whether it wishes to adopt this suggestion.

### 5. Proposal to drop Special Provision 274 from the Proper Shipping Names UN 1956 and UN 3162

Provision 3.1.2.8.1.2 requires that for mixtures “to which special provision 274 has been allocated, not more than the two constituents which most predominantly contribute to the hazard or hazards need to be shown” after the proper shipping name. The specifying of gases which are constituents of Compressed gas N.O.S. or Liquefied gas N.O.S, however, adds nothing to the hazard communication. The gases which are constituents in such mixtures are non-toxic, non-flammable and non-oxidising. Their nature is to have no active chemical properties and all possess this in equal degree. The only hazards they present in transport is that they are under pressure and are all equally asphyxiating by diluting oxygen.

Specifying the gases in a mixture may indeed confuse the message of the Proper Shipping Name. For example, many mixtures carried as UN 1956 are calibration mixtures containing small quantities of flammable gas such as a mixture of 99% nitrogen containing 1% propane. This would have to be given the proper shipping name of Compressed Gas, N.O.S. (nitrogen, propane), which could easily be interpreted as being a flammable mixture.

Mixtures such as this are fully specified by the name Compressed or Liquefied Gas and the addition of the components adds nothing and even can confuse. The Special Provision 274 should be dropped from the entries UN 1956 Compressed Gas, N.O.S. and UN 3162 Liquefied Gas, N.O.S.

### 6. Query on the LC<sub>50</sub> value for UN 3057 Trifluoroacetyl chloride

In the 12<sup>th</sup> Revision of the Model Regulations UN 3057 is assigned an LC<sub>50</sub> of 10ppm in the P200. The 12<sup>th</sup> Revision, however, allows this substance to be carried in tanks. This suggests that other views on the toxicity value have been taken in the past. Indeed, it appears from information received by EIGA that data sheets recording an LC<sub>50</sub> of 5000 mg/m3 for this substance supported deliberations for the IMDG in 1995.

The relevant experts are asked to advise the Working Group on the correct value of LC<sub>50</sub> for this substance.

## 7. Query on the Requirement to Provide Receptacles with an Earthing Capability

At its last meeting, the Working Group decided to add the following requirement to all pressure receptacles.

- 6.2.1.1.6 Pressure receptacles intended for the transport of flammable gases shall be capable of being electrically earthed.

This would appear to prohibit composite cylinders being used with flammable gases; was that the intention?

## 8. Editorial Corrections

- a) Correct the cross-reference in 6.2.2.5.4.6 to read 6.2.2.5.4.3 instead of 6.2.2.5.4.2, as follows.  
“6.2.2.5.4.6 Following approval, changes to the information submitted under 6.2.2.5.4.2 3 relating to the initial approval shall be provided to the competent authority.”
  - b) Delete Special packing provision ‘k’ from the final column of the P200 Table 2 for the entry UN 3083 Perchloryl fluoride which has an LC<sub>50</sub> of 770 mg/m<sup>3</sup>. This special packing provision is restricted to substances with an LC<sub>50</sub> less than or equal to 200 mg/m<sup>3</sup>.
  - c) The columns in the P200 showing which pressure receptacles are permitted are given in a different order in Table 1 compared to Tables 2 and 3. The Working Group is asked to decide which order is preferred;
    - (i) Cylinders, tubes, pressure drums, bundles of cylinders, MEGCs or
    - (ii) Cylinders, pressure drums, bundles of cylinders, tubes, MEGCs.
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