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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

Forty-third session
Geneva, 24–28 June 2013
Item 5 (c) of the provisional agenda
Transport of gases: composite cylinders

Life of composite cylinders, proposal to modify notes 1 and 2 of 6.2.2.1.1

Transmitted by the European Industrial Gases Association (EIGA)[1]

Background

1. At the thirty-fifth session of the Sub-Committee in June 2009, ISO submitted document ST/SG/AC.10/C.3/2009/7 regarding the notes 1 and 2 of 6.2.2.1.1 which concern the life of UN composite cylinders. In response to this submission two informal documents were submitted, one from EIGA supporting the proposal and the second from the experts of the United States and Canada objecting to the proposal. After some debate it was agreed that EIGA would form an informal working group to consider the subject.

2. Since June 2009 a number of meetings have been held to try and arrive at an agreed text. The last meeting was held on 22 and 23 October 2012 in conjunction with the meeting of ISO/TC58, *Gas cylinders*. The meeting was chaired in the absence of the EIGA representative, by a representative of the Compressed Gas Association. There were representatives from the Competent Authority of the United States of America, Compressed Gas Association, European Industrial Gas Association, and European Cylinder Makers Association. Although experts from Canada and Germany were unable to attend, comments that they had submitted were considered. .At the meeting a new proposal was agreed concerning the life of composite cylinders.

[1] In accordance with the programme of work of the Sub-Committee for 2013-2014 approved by the Committee at its sixth session (refer to ST/SG/AC.10/C.3/84, para. 86 and ST/SG/AC.10/40, para. 14).

3. At the forty-second session of the Sub Committee a report of that meeting was detailed in informal paper 23, but it was not considered and this document is the formal proposal.

4. The major change to the Regulations in the following proposal is that composite cylinders with a limited life will be allowed. This requires consequential changes in marking and further specification of the procedure for the approval of continued service after 15 years. Additionally, a maximum period of five years between periodic inspections was agreed for all composite cylinders, but that maximum period may be extended to no more than that given in P200 by the decision of the competent authority of the country of use.

5. The participation in the meeting considered that the allowance of shorter life composite cylinders that are cheaper and lighter than the unlimited life designs will make such UN cylinders more attractive to users. The mandatory service life test programme will assure the safety of these cylinders. The service life test programme is a similar to the review at 15 years described in the existing Note 2, but the new text gives more details. New marking proposals enable the control of use of cylinders undergoing the service life test programme and ensure the design life of the cylinder is displayed.

6. The following related marking concepts were agreed by the informal working group:

(a) For all UN composite cylinders:

- Date of manufacture (already required for all UN cylinders).

(b) For UN composite cylinders with limited design life of 15 years:

- Design life.

(c) For UN composite cylinders with limited design life of greater than 15 years:

- Design life;
- Initial service life (15 years from date of manufacture) – marking to be covered permanently if passes service life test programme (per NOTE 2) – covering (i.e. obscuring) of this marking should be addressed in the service life test programme;
- Once the initial design type has passed the service life test programme requirements, the initial service life no longer needs to be marked for future production.

(d) For UN composite cylinders with non-limited design life:

- Initial service life (15 years from date of manufacture) – marking to be covered permanently if passes service life test programme (per NOTE 2) – covering of this marking should be addressed in the service life test programme;
- Once the initial design type has passed the service life test programme requirements, the initial service life no longer needs to be marked for future production.

Proposal

1. 6.2.2.1.1 Note 1

Amend NOTE 1 of 6.2.2.1.1 of the Model Regulations as follows (new text underlined):

NOTE 1: In the above referenced standards, composite cylinders shall be designed for ~~unlimited service life~~ a design life of not less than 15 years.

2. 6.2.2.1.1 Note 2

Replace NOTE 2 of 6.2.2.1.1 of the Model Regulations with the following:

NOTE 2: The service life of a composite cylinder shall not be extended beyond its initial approved design life. Regardless of the cylinder design life, composite cylinders shall not be filled after 15 years from the date of manufacture, unless the design has successfully passed a service life test programme. The programme shall be part of the initial design type approval and shall specify inspections and tests to demonstrate that cylinders manufactured accordingly remain safe to the end of their design life. The service life test programme and the results shall be approved by the competent authority that was responsible for the initial approval of the cylinder design.

3. Marking

- Insert at the end of 6.2.2.7.4:

  "(q) For composite cylinders having a limited design life, the letters "FINAL" followed by the design life shown as the year (four digits) followed by the month (two) digits separated by a slash (i.e. "/").

  (r) For composite cylinders having a limited design life greater than 15 years and for composite cylinders having non-limited design life, the letters "SERVICE" followed by the date 15 years from the date of manufacture (initial inspection) shown as the year (four digits) followed by the month (two) digits separated by a slash (i.e. "/").

  NOTE: Once the initial design type has passed the service life test programme requirements in accordance with 6.2.2.1.1 NOTE 2, future production no longer requires this initial service life mark."

- Insert at the end of the first indent of 6.2.2.7.5:

  "… except for the marks described in 6.2.2.7.4 (q) and (r) which shall be adjacent to the periodic inspection and test marks of 6.2.2.7.7.".

4. Test period

Revise (2) of P200 as follows:

(2) The following three tables cover compressed gases (Table 1), liquefied and dissolved gases (Table 2) and substances not in Class 2 (Table 3). They provide:

(a) The UN number, name and description, and classification of the substance;

(b) The LC50 for toxic substances;

(c) The types of pressure receptacles authorised for the substance, shown by the letter "X";

(d) The maximum test period for periodic inspection of the pressure receptacles.

NOTE: For pressure receptacles which make use of composite materials, the ***maximum test period*** ~~*periodic inspection frequencies*~~ *shall be* ***5 years. The test period may be extended to that specified in Tables 1 and 2 (i.e. up to 10 years), if approved*** ~~*as determined*~~ *by the competent authority* ~~*which approved the receptacles*~~ ***of the country of use****.*

(e) The minimum test pressure of the pressure receptacles;

(f) The maximum working pressure of the pressure receptacles for compressed gases (where no value is given, the working pressure shall not exceed two thirds of the test pressure) or the maximum filling ratio(s) dependent on the test pressure(s) for liquefied and dissolved gases;

(g) Special packing provisions that are specific to a substance.