

## Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals

17 May 2016

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

#### Forty-ninth session

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Item 6 (c) of the provisional agenda

#### Miscellaneous proposals for amendments to the Model Regulations on the Transport of Dangerous Goods: packagings

### **Comments on ST/SG/AC.10/C.3/2016/11; Water temperature during internal pressure (hydraulic) test with plastics packagings, composite packagings (plastics receptacles), plastics IBCs and composite IBCs (plastic inner receptacles)**

#### **Transmitted by the International Confederation of Intermediate Bulk Containers Association (ICIBCA) and the International Confederation of Plastics Packagings (ICPP)**

1. ICIBCA and ICPP appreciate the opportunity to comment on ST/SG/AC.10/C.3/2016/11 from the expert from Germany. Both organizations have previously commented on related papers, ST/SG/AC.1/C.3/2015/15 and informal document INF.13 (48th session).
2. We recognize that the strength of all materials used in the manufacture of packagings suitable for dangerous goods transport decreases with increasing temperature. However, we question whether there is a compelling safety basis for the proposal in ST/SG/AC.10/C.3/2016/11.
3. ICIBCA and ICPP note the following with respect to the proposal:
  - (a) *Incident data.* We have reviewed Incident Statistics available on the U.S. Pipeline and Hazardous Materials Safety Administration website at <http://www.phmsa.dot.gov/hazmat/library/data-stats/incidents>. In our review we were unable to identify plastic packagings that failed in the “body” due to pressure under the normal conditions of transport.
  - (b) *Swedish research.* We have reviewed the Swedish report entitled, “Packages for liquids - Internal Pressure Test” that was referenced in Informal document INF.13 (48<sup>th</sup> session). In that report, we note that the UN certified jerricans all survived pressures in excess of the required test pressure (100 kPa as shown in the UN markings), including when tests were carried out with a water temperature of 55°C.
  - (c) *German study.* The test results reported by Germany were carried out at a pressure of 3 bar (300 kPa). This pressure is in excess of the 250 kPa pressure to which jerrican design types must be subjected to qualify for packing group I certification. This pressure far exceeds the maximum 100 kPa pressure to which

IBCs for liquids are subjected. There was no evidence indicating plastics packagings failed at required test pressures.

(d) Representativeness. Both the Swedish and German studies were restricted to a limited number of jerrican designs. It has to be questioned whether testing on jerricans is representative of plastic packagings in general. For example, how does testing on rectilinearly shaped jerricans correspond to cylindrically shaped packagings such as drums?

(e) Most common failure mode in conducting the internal pressure test. Test laboratory experience shows that, in conducting the internal pressure tests on dangerous goods packagings, failure of the plastics packaging material is rare. When a failure during the internal pressure test occurs, it is normally at the closure (e.g., a leak past the gasket).

4. **Energy impact of the proposed requirement to test at room temperature.** The proposal in ST/SG/AC.10/C.3/2016/11, would require packagings to be **“filled with water at room temperature.”** In this respect, we note that normal room temperature is approximately 22°C. Room temperature rarely corresponds to the temperature of water drawn from the tap, particularly during the winter time. As such, adoption of the proposed requirement would have the consequence of generally requiring water used in testing to be heated to correspond to the temperature of the room where testing is being conducted. Considering that testing for quality control purposes - which may be done multiple times per day - must closely correspond to required design type testing parameters, considerable energy will need to be expended as a consequence of this change, particularly in the case of large volume packagings (i.e., IBCs). United Nations policies on energy conservation and climate change suggest that governmental actions which require increased energy usage (e.g., requiring an increased water temperature for the internal pressure test) should only be taken if there is a well-defined justification.

5. **Testing complication.** Room temperature itself may vary complicating compliance with a room temperature test requirement.

#### **Alternative proposal**

6. As an alternative, ICIBCA and ICPP recommend that the temperature of water used in conducting the internal pressure test be measured and recorded as part of the test report. In this manner, should questions concerning consistency of test results arise, variations in water temperatures can be considered.

7. On this basis, we recommend revising item 8 of 6.1.5.7 by adding the sentence:

*“For plastics packagings subject to the internal pressure test. in 6.1.5.5, the temperature of the water used.”*

and also item 8 of 6.5.6.14.1 by adding the sentence:

*“For rigid plastics and composite IBCs subject to the hydraulic pressure test in 6.5.6.8, the temperature of the water used.”*