

## **Economic Commission for Europe**

### **Inland Transport Committee**

#### **Working Party on the Transport of Dangerous Goods**

**Joint Meeting of the RID Committee of Experts and the**

**Working Party on the Transport of Dangerous Goods**

Geneva, 15–19 September 2014

Item 4 of the provisional agenda

**Interpretation of RID/ADR/ADN**

22 August 2014

### **Further information on ECE/TRANS/WP.15/AC.1/2014/17 Hydraulic pressure testing of pressure receptacles"**

**Transmitted by the International Organisation for Standardisation (ISO), The European Cylinder Makers Association (ECMA), The European Industrial Gases Association (EIGA), and the European Committee for Standardisation (CEN)**

#### **Introduction**

1. ISO, ECMA and EIGA submitted paper ST/SG/AC.10/C.3/2014/29 – Hydraulic pressure testing of pressure receptacles to the 45<sup>th</sup> session of the Sub-Committee of Experts on the Transport of Dangerous Goods proposing that the words concerning the hydraulic pressure testing in 6.2.1.5.1 (g) were changed. This proposal was adopted without amendment so that following the process of harmonisation with the UN Model Regulations, the RID/ADR of 2017 will read as follows.

“6.2.1.5.1 (g) A hydraulic pressure test. Pressure receptacles shall meet the acceptance criteria specified in the design and construction technical standard or technical code;”

2. This clarification of the UN text removes the confusion over the meaning of the ‘design specification’, so the request for an interpretation of this expression in paragraph 4 of the Joint Meeting paper 2014/17 is withdrawn.

3. Additionally, because the UN text now refers to the acceptance criteria in the standard or technical code, there is no need to specify in the regulations that the volumetric expansion test can only be used when relevant acceptance criteria are given in the standard. Also, in the interest of harmonisation we can withdraw the request for including acceptance criteria for the proof pressure test in the regulations, because the removal from the UN text of expansion of the pressure receptacle being the overriding acceptance criterion means that the proof pressure test can be evaluated as it always has been in European practice. Also, there have not been questions of interpretation of the acceptance criteria, despite the vagueness of some of the design and construction standards.

4. Nevertheless, there is still a need to confirm that there is not a preference in the regulations to use the volumetric expansion test and to respond to the issues raised in the paper INF.40 submitted to the spring 2014 session of Joint Meeting.

## **Volumetric expansion test**

5. During the informal discussions at the Spring 2014 session of the Joint Meeting and discussions at the 45<sup>th</sup> session of the UNSCE-TDG some questions were raised about the nature of the volumetric expansion test (VET) and its role in ISO standards. It was stated in INF. 40 that proof pressure test (PPT) and the VET are not equivalent. In RID/ADR only ISO standards allow the use of the VET and in these standards, the test pressures are identical and the effects sought (confirmation of the absence of leakage and deformation) are identical. Therefore the VET is used for exactly the same purpose as the PPT. It is true that the VET can cover pressure receptacle designs "... which are liable to be permanently deformed at the end of the test" as stated in INF. 40 but it is not used in this way in the standards referenced in RID/ADR because these designs are not liable to permanent deformation.

6. At the UNSCE-TDG meeting the Compressed Gas Association from North America commented that the VET gives more information than the PPT. This is true and in DOT standards which allow higher stresses at test pressure, the VET is used to confirm that the heat treatment has been successful, but in EN and ISO standards the material properties of the cylinder are checked by the batch tests and hardness test on every cylinder so there is no need to use the VET for this purpose.

7. In summary, EN standards (including the 1984 Cylinder Directives) and ISO standards have been written for use with the proof pressure test and the volumetric expansion test is included in ISO standards only for the convenience of those who are equipped to test by that method. The VET adds no extra value to the evaluation of the conformity of the product compared with the proof pressure test.

## **Interpretation**

8. The Joint Meeting is asked to confirm that:
- (a) it will adopt the new UN text for 6.2.1.5.1 (g) in the 2017 editions of RID/ADR and that this text represents a correct interpretation of the text in the 2013 and 2015 editions: and
  - (b) the regulations do not require the use of the volumetric expansion test although it may be used as an alternative to the proof pressure test when its use is specified in the standards referenced in 6.2.2 and 6.2.4.
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