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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

Thirty-third session
Geneva, 30 June-9 July (a.m) 2008
Item 7 of the provisional agenda

**MISCELLANEOUS PROPOSALS OF AMENDMENTS TO THE MODEL REGULATIONS
ON THE TRANSPORT OF DANGEROUS GOODS**

References to ISO standards – Ultrasonic Examination

Transmitted by the International Organization for Standardization (ISO)*

Introduction

1. At its thirty second session the Sub-Committee considered document ST/SG/AC.10/C.3/2007/49 submitted by ISO and EIGA. The proposal to delete the requirement for competent authority approval for ultrasonic examination when used in place of the hydraulic pressure test was adopted in square brackets for further consideration. As a reminder, the text adopted as reported in the annex I of the report (ST/SG/AC.10/C.3/64) is reproduced in the next paragraph.

* In accordance with the programme of work of the Sub-Committee for 2007-2008 approved by the Committee at its third session (refer to ST/SG/AC.10/C.3/60, para. 100 and ST/SG/AC.10/34, para. 14) (Provisions for the transport of dangerous goods in open cryogenic receptacles)

2. [In Note 2, delete ", ultrasonic examination".]
[Add a new Note 3 to read as follows:

"NOTE 3: The hydraulic pressure test may be replaced by ultrasonic examination carried out in accordance with ISO 10461:2005+A1:2006 for seamless aluminium alloy cylinders and in accordance with ISO 6406:2005 for seamless steel cylinders and tubes. Note that ultrasonic examination may also be used to check the internal conditions (see 6.2.1.6.1 (b))."]

3. ISO/TC58/SC4 is the committee responsible for writing standards ISO 6406:2005 and ISO 10461:2005 which are referenced in 6.2.2.4 of the Model Regulations. At its plenary meeting in February 2008 the ISO experts considered the reaction of the UN Sub-Committee of Experts at its thirty-second session and agreed to provide the following information to contribute to the discussion.

4. This document attempts to demonstrate that in the case of ultrasonic examination (UE) there is enough evidence to support using UE as an alternative to the hydraulic pressure test and internal visual inspection without the agreement of the competent authority. The provision requiring the agreement of the Competent Authority for acoustic emission remains unaltered.

Technical justification

5. The technical justification for the proposal is as follows:
- (a) UE is widely used and required in several engineering disciplines, such as pipeline technology, pressure vessel construction and inspection. Also, ISO gas cylinder manufacturing standards e.g. ISO 9809 -1, 2 and 3 require mandatory UE.
 - (b) UE has been in use as an alternative to the hydraulic pressure test for periodic inspection in many countries, and in some for as long as 20 years.
 - (c) The 2005 versions of the standards ISO 6406:2005 and ISO 10461:2005 were adopted in the 15th Revised edition of the UN Recommendations replacing the 1992 versions which did not include UE as an alternative to the hydraulic pressure test.
 - (d) Due to this absence of requirements for UE in the 1992 standards, Competent Authority approval was required.
 - (e) However, the method of using UE for inspection of seamless cylinders is now fully described in ISO 6406:2005 and ISO 10461:2005.
 - (f) These standards were developed with the involvement of experts including inspection bodies and competent authorities.

- (g) Detection criteria for the UE are explicitly defined and are based on the use of calibration cylinders containing internal and external notches and minimum wall thickness requirements.
- (h) UE provides information regarding a potential future failure.
- (i) The standards specify operator training requirements. Level 1 and Level II are the grades for operating and calibrating respectively. Furthermore, the standard requires that “The testing organization shall retain a Level III operator (company employee or a third party) to oversee the entire ultrasonic examination programme.” (Levels I, II and III are specified in the normative reference ISO 9712.)
- (j) The inspection bodies are appointed by competent authorities, and the techniques used are specified in the approved quality system, (see 6.2.2.6). The inspection body is subject to initial and periodic audits, so the tools to ensure the competence of execution of UE exist within the Regulations without the need for separate approval.
- (k) The competent authorities in Europe have delegated approval of UE as an alternative to the hydraulic pressure test for many years. The 2007 edition of RID/ADR requires the “*agreement of the testing and certifying body approved by the competent authority of the country of approval*” (see RID/ADR 6.2.1.6.1 Note 2).

6. Hence ISO/TC58/SC4 strongly recommends that the square brackets be removed from Notes 2 and 3 in paragraph 6.2.1.6.1 (d).
