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

4 June 2015

Sub-Committee of Experts on the Transport of Dangerous Goods

Forty-seventh session

Geneva, 22 – 26 June 2015
Item 2(b) of the provisional agenda
Explosives and related matters: Review of test series 6

Manual of Tests and Criteria

Recommendations for improvement of the Series 6 Tests

Transmitted by the Institute of Makers of Explosives (IME)

Introduction

1. At the forty-fifth session, in document ST/SG/AC.10/C.3/2014/4, IME presented findings from a review of Test Series 6. The findings resulted in some proposals for short term fixes that were, for the most part, adopted by the sub-committee and will be included in the forthcoming 6th Rev. of the Manual of Tests and Criteria (MTC). Additionally, IME identified other issues that would require a longer term review before they could be addressed. Herein, IME takes the opportunity to remind the sub-committee and its working group on explosives (EWG) of these longer term issues so that appropriate work plans can be established.

2. In "**Long-term issues identified at the 45th session**" below, IME reviews, and in some instances comments on, the long term issues and reviews that were recommended by IME in ST/SG/AC.10/C.3/2014/4. IME comments are shown below in *italics*.

Long-term issues identified at 45th session

3. Retention of the transport nature of TS6 and how best to ensure this retention in the future.

> *IME comment: This will most likely be part of the task of the working group as it reviews introduction of GHS context into the MTC.*

4. Development, as needed, of new tests for purposes other than transport classification and placement of those tests in a new part to the Test Manual containing classification procedures, test methods and criteria relating to the GHS.

> *IME comment: This will most likely be part of the task of the working group as it reviews introduction of GHS context into the MTC.*

5. Whether notes should be prepared and included in the Test Manual describing how and why the series 6 tests were developed.

6. Whether some guidance should be provided, in reference to the 6(a), (b), and (d) tests, to the applicability of those tests regardless of whether the products can function in the transport packaging.

7. Commencement of a review by the EWG of the 6(a) test to include:

(i) a review of the definition of "mass explosion" in Appendix B of the Model Regulations is needed to ensure that it is still appropriate and clear in its meaning;

(ii) a revision of Appendix 1 of the Manual to specify broader criteria for detonators that can be used as a "standard detonator" pending a more detailed study on more appropriate criteria.

(iii) a detailed study as described in para. 7.ii) above.

IME comment: Germany has reviewed the European version of the standard detonator and proposes some changes in ST/SG/AC.10/C.3/2015/26. Additionally, IME has begun an internal study of the USA version of the standard detonator and expects to report its recommendations at the 48th session.

(iv) a review of sections 16.4.1.4 and 16.4.1.5 to:

(1) ensure that the criteria provided do not conflict with the definition of "mass explosion" provided in Appendix B of the Model Regulations;

(2) clarify that the examples in section 16.4.1.5 are provided for illustration purposes and that they are not to be construed as iron-clad acceptance criteria; and

IME comment: IME believes that this has been adequately addressed by a proposal from SAAMI that was approved at the 45th session (see ST/SG/AC.10/C.3/90, para. 26).

(3) develop additional examples that better illustrate pass/fail for articles such as detonators, shaped charges, detonating cord, air bag inflators/actuators, small arms ammunition, and the like.

8. Commencement of a review by the EWG of sections 16.5.1.8 and 16.5.1.9 to:

(i) ensure that the criteria provided do not conflict with, or lead one away from, the stated purpose of the test, that is to determine if there is package-to-package propagation;

(ii) clarify that the examples in section 16.5.1.9 are provided for illustration purposes and that they are not to be construed as iron-clad acceptance criteria; and

IME comment: IME believes that this has been adequately addressed by a proposal from SAAMI that was approved at the 45th session (see ST/SG/AC.10/C.3/90, para. 26).

(iii) develop additional examples that better illustrate pass/fail for articles such as detonators, shaped charges, detonating cord, air bag inflators/actuators, small arms ammunition, and the like.

9. Commencement of a review by the EWG of the 6(c) test to include:

(i) witness panel specifications, with the goal of providing some guidance regarding acceptable alternatives;

(ii) fuel sources, to determine if other methods are available that will serve the purpose, be readily available, and more environmentally friendly;

(iii) the structure of the procedure to improve its readability and comprehension;

(iv) development of definitions for terms used in assessment standards such as "fireball", "jet of flame", "fiery projection", and "metallic projections"; and

(v) a review of the graph and data in Figure 16.6.1.1.

10. Commencement of a review by the EWG of the 6(d) test to include:

(i) a review of the meaning of the term "denting" and development of appropriate guidance;

(ii) guidance regarding the instances in which the entire packaging is destroyed in the test yet the majority of explosives contained within the package did not detonate;

> *IME comment: It appears that the indicators of mass explosion described in section 16.4.1.4 are leading some to conclude that any occurrence of any one of them is a failure. IME believes this is not necessarily true and that (a) - (d) of section 16.4.1.4 are offered to assist in evaluating whether a mass explosion has occurred. For example, if there is damage to the witness plate, yet the package contained 50 items of which 48 were recovered unexploded, clearly, mass explosion has not occurred. However there is a perception that the damaged witness plate is automatically a failure of the 6(a) test and requires assignment to Division 1.1, even though a mass explosion obviously did not occur.*

(iii) development of some examples that better illustrate pass/fail for articles such as detonators, shaped charges, detonating cord, air bag inflators/actuators, small arms ammunition, and the like;

(iv) clarification that examples are provided for illustration purposes and are not to be construed as iron-clad acceptance criteria.

> *IME comment: IME believes that this has been adequately addressed by a proposal from SAAMI that was approved at the 45th session (see ST/SG/AC.10/C.3/90, para. 26).*

Consideration

11. The sub-committee and its working group on explosives are invited to consider the issues identified above, to determine if additional work is desirable and, if so, to develop appropriate work plans to complete the work.