

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

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

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Item 2 (h) of the provisional agenda

Explosives and related matters:

miscellaneous

**Sub-Committee of Experts on the Globally Harmonized
System of Classification and Labelling of Chemicals**

Forty-fourth session

Geneva, 10-12 July 2023

Item 2 (k) of the provisional agenda

**Work on the Globally Harmonized System of
Classification and Labelling of Chemicals: other
matters**

**Comments and proposals related to document
ST/SG/AC.10/C.3/2023/17–ST/SG/AC.10/C.4/2023/3**

**Transmitted by the Sporting Arms & Ammunition Manufacturers’
Institute**

Introduction

1. In document ST/SG/AC.10/C.3/2023/17–ST/SG/AC.10/C.4/2023/3, AEISG returns to their comments from the last biennium to optimize the classification logic for desensitized explosives in the GHS and TDG. In this document SAAMI comments on the AEISG proposals and submits proposals related to recognition of the GHS burning rate test in the TDG classification logic and the 300 J/g cut-off for desensitized explosives.

2. This informal document addresses cross-sectoral issues within the GHS and TDG. As a basis for discussion, it is our opinion that:

- (a) the norm is that the sub-committees seek for TDG and GHS to be harmonized and aligned when possible. However, TDG and GHS are not always aligned, nor would this always be desirable, given their differing objectives. In cases where additional alignment is desirable, it is helpful to acknowledge this underlying approach, and make proposals to achieve the desired outcome.
- (b) Chapter 2.17 in the GHS addressing the class of desensitized explosives parallels the classification of desensitized explosives in TDG class 3 and division 4.1, but is not a direct corollary. The categories within GHS chapter 2.17, which the burning rate test is used to determine, do not exist in TDG.
- (c) when the GHS burning rate test was proposed for adoption as a basis of the new chapter 2.17, it was not determined that alignment with TDG would be beneficial. Conversely, a new Part V of the Manual of Tests and Criteria (MTC) was created to house the burning rate test and keep it separate from transport, and other non-transport tests that might be created later. Accordingly, the burning rate test does not appear in the classification procedures of Part 1 for explosives.
- (d) it is our opinion that, when applicable, MTC Part 1 is a prerequisite to the classification of a desensitized explosive. The classification system is designed to appropriately capture substances and mixtures in the most correct classification. Exceptions to this must be carefully evaluated. Note that MTC

Part 1 tests are not applicable to nitrocellulose and other desensitised explosives assigned to a UN entry outside of Class 1 as a policy decision.

- (e) for efficiency, it might be possible to waive the test series 6(c) bonfire in those cases where the GHS burning rate test is performed, if proper consideration is given and a solution is agreed upon. SAAMI makes a proposal in this paper for this.

3. The discussion headers below with quotations are taken from the AEISG working document. Other discussions which also pertain to the subject come from SAAMI.

“Inconsistent classification of explosives”

4. We agree with AEISG’s proposals to amend MTC Section 51 so that a failure of the burning rate test does not pre-determine the outcome of the explosives classification logic. Substances and mixtures failing the burning rate test become candidates for the explosives classification procedure, but there might be instances where the final classification is other than explosive. For example, we find no reference in explosives classification logic to a corrected burning rate of 1200 kg/min. We see no harm in applying the MTC Part 1 classification logic and relying on its outcome. This is required anyway to determine whether an explosive is forbidden for transport and to determine a division and compatibility group.

5. For consistency, the new reference proposed for paragraph 51.4.4.3 in the MTC should be amended to “(see chapter 2.1 of the GHS)”. We suggest amending “...is not included in the class of desensitised explosives ...” to read “... is not classified as a desensitised explosive ...”.

“Exclusion of nitrocellulose mixtures from sensitivity testing”

6. TDG and GHS are aligned so that certain nitrocellulose configurations are subjected to Test Series 3 when classed as an explosive, while certain others are not subjected to Test Series 3 when classified as a desensitised explosive. We do not support the proposal to delete the note to paragraph 2.17.2.3 in the GHS and impose these tests on nitrocellulose which has been assigned a UN entry in Division 4.1. This would create a divergence between GHS and TDG, where alignment already occurs.

7. It should be noted that dangerous goods outside of Class 1 may not meet all the requirements of MTC Part 1. As a matter of policy, explosives classification tests in the Model Regulations and the MTC do not apply to UN number assignments outside of Class 1. This is based, for example, on public interest and historical safety records, and whether chemicals justify the additional resources required for the management of explosives. This approach encompasses the flammable solid UN entries for desensitised explosives with specific proper shipping names (e.g., not N.O.S.), which are not subject to MTC Part 1.

8. For this reason, during the work on MTC Appendix 10, nitrocellulose was assigned two differently worded special provisions, one for Class 1 and the other for Division 4.1. The special provisions are identical, except that for Class 1 entries, special provision (SP) 393 waives test 3c with an additional sentence not present in SP 394. This is not necessary for Division 4.1, where test series 3 does not apply.

“Application of the burning rate test”

9. Paragraph 51.4.1.2 in section 51 of the MTC addresses the applicability of the burning rate test. It currently waives the test where other tests or information are available, and precludes Division 1.1 explosives from testing.

10. We agree with AEISG in principle that a reference to Division 1.1 is over-specific. However, since the text is causing an interpretation issue, we recommend deleting it completely as being superfluous:

(a) Not only Division 1.1, but all subsets of explosives and desensitized explosives are mutually excluded from a combined classification by the GHS in paragraphs 2.1.1.2.2 (b), 2.17.1.1 and 2.17.2.2 (Note 4).

(b) The reference here to mass explosion is already covered by the MTC in 51.2.2 (b) which excludes substances and mixtures which exhibit a mass explosion hazard in test series 6(a) and 6(b). Under the GHS, if that data does not exist, it could still be inferred to fail these tests if a substance or mixture is known to have that characteristic in other testing.

11. We propose striking 51.4.1.2 (b) and appending (a) to the main paragraph.

Waiving test series 6(c)

12. SAAMI requests that the explosives working group consider what actions would be required to waive test series 6(c) when the burning rate test is performed. The burning rate test is arguably a more severe test, with a larger sample quantity, but the criteria of test 6(c) test are absent.

13. It is likely that the GHS burning rate test could substitute for the 6(c) test, as the main classification criteria of interest for substances are flame ball size and burn time, which can be measured visually looking at a video. The GHS test already has a more detailed approach to thermal flux.

14. Some adjustments to the criteria, i.e. the one metre flame limit and the minimum burn time, might be necessary to account for sample sizes up to five times the size of the sample in test 6(c).

Aligning TDG with the GHS 300 J/g cut-off

15. SAAMI requests that the explosives working group consider what factors would need to be considered to align TDG with the GHS de minimis value of 300 J/g, below which a substance or mixture would be neither an explosive nor a desensitised explosive.
