

**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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Transport of Dangerous Goods**

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Item 10 (d) of the provisional agenda

**Issues relating to the Globally Harmonized System  
of Classification and Labelling of Chemicals:  
use of the Manual of Tests and Criteria in the  
context of the GHS**

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

**Thirty-fourth session**

Geneva, 6-8 December 2017

Item 2 (a) of the provisional agenda

**Classification criteria and related hazard  
communication:  
work of the Sub-Committee of Experts on the  
Transport of Dangerous Goods (TDG) on matters of  
interest to the GHS Sub-Committee**

**Use of the Manual of Tests and Criteria in the context of the  
GHS: Sections 1 and 10**

**Transmitted by the Sporting Arms & Ammunition Manufacturers'  
Institute (SAAMI)**

**Introduction**

1. At the fiftieth session of the Sub-Committee of Experts on the Transport of Dangerous Goods the explosives working group reviewed proposals for finalization of amendments to the Manual of Tests & Criteria in the context of recognizing the use of the Manual by the GHS. The USA and Canada submitted an informal proposal<sup>1</sup> to postpone this work pending the completion of the parallel project to revise GHS Chapter 2.1 for the classification of explosives. In some cases there could be unintended consequences from removing references to “transport” from the Manual, as the classification may be dependent on the transport configuration, i.e. both the package and the surrounding environment.

2. The explosives working group reviewed the proposed changes, and determined that there was no detriment to adopting the changes to remove references to transport in Test Series 1 & 2, which are intended to determine the explosive potential of a substance. Similarly, the proposed changes to Test Series 3 on substances (not in packaging or articles), were adapted with some other changes, and the proposals for Test Series 5, 7 & 8 were also agreed. However, it was agreed to retain the transport context for Test Series 4 & 6, i.e. those test series which depend on the transport configuration, and the proposals to remove references to transport were not adopted. Thus the concerns of the USA and Canada were resolved while allowing the work to progress.

3. The approach for Test Series 4 & 6 remains based on transport and has not been made generic to all sectors, unlike other parts of the Manual. Revisions to the remaining parts of the Manual were agreed at the 51<sup>st</sup> session, other than the general introduction in Section 1 and the explosives introduction in Section 10. The explosives working group is now returning to the final tasks of revising Sections 1 and 10<sup>2</sup>. Currently these sections are still proposed to be modified to remove references to transport. At the last session, participants were invited to bring forward proposals to modify sections 1 and 10 in this

<sup>1</sup> UN/SCETDG/50/INF.17-UN/SCEGHS/32/INF.14

<sup>2</sup> UN/SCETDG/52/INF.3 - UN/SCEGHS/34/INF.3 (Section 1) and Add.1 of that document (Section 10)

regard as desired. SAAMI is responding with this proposal for consequential amendments in the introductory sections to reflect the decisions made to retain references to “transport” in Test Series 4 & 6. These are summarized in the report of the explosives working group UN/SCETDG/50/INF.59 (please note there was a typographical error in this paper showing it as coming from the 49<sup>th</sup> session). The decisions included, for example:

- (a) Retain “too dangerous for transport” and do not use “unstable” for Series 4
- (b) Retain “In general, the package as used for transport should be tested” in Series 4.
- (c) Do not use “shall be classified as an unstable explosive” and retain “too dangerous for transport” for Series 4
- (d) Retain “Tests from Series 6 should be applied ... in the form in which they are offered for transport”, and do not use “ ... in the form in which they are offered for classification” in 16.3.1.
- (e) Other instances of retaining “transport” or “carried” are in 16.4.1.3.1, 16.5.1.3, 16.6.1.3.1 and 16.7.1.3.1.

4. It may be worthwhile for the explosives working group to discuss the meaning of the terms “Class 1” and “the Class of Explosives”. This has been thought of in terms of differentiating two different classes in TDG from GHS. This is incorrect, because GHS encompasses transport, and Class 1 for transport is a subset of the GHS class of explosives, rather than a separate entity. The class of explosives includes Class 1, Divisions 1.1 – 1.6, and “unstable explosives”, i.e. those which fail Test Series 3 or 4 and are forbidden from transport. If this can be made explicit in the text it may eliminate editorial problems when trying to separate generic versus sector-specific test series in areas that combine both in text or flow charts. References could be left as “Class 1” when necessary to indicate that the transport configuration is important, and still be within the greater multi-sector context of GHS. The changes to Figure 10.2 provide an example of where this might be of assistance. Otherwise a systematic review of every instance of “the class of explosives” may be required.

5. Some editorial changes are also suggested to the additions to Section 1.

6. Due to the extensive changes being made, SAAMI’s proposals are shown as edits to the main proposals, and not as edits to the current Revision 6 of the Manual. The main proposals include other unrelated changes made since the publication of Revision 6. We have striven to show our final intent for the text by highlighting our own edits, with or without highlighting the edits of INF.3 as appropriate, to make our proposals stand out. This still being less than effective, our edits are in blue and edits of INF.3 are in green.

## Proposal

7. In Section 1, Table of Contents, remove “OF CLASS 1” in the title of Part 1, which appears to be an oversight. However, we propose to retain the existing Revision 6 description of Test Series 4 which continues to reflect the text in the Test Series, as the proposed changes were rejected in December 2016, and modify the description of Test Series 6 in the same vein. There are two uses of Test Series 6 - to assign a division of Class 1 which relates only to the transport sector, or exclude from the class of explosives which relates to all sectors:

PART I: CLASSIFICATION PROCEDURES, TEST METHODS AND CRITERIA RELATING TO EXPLOSIVES ~~OF CLASS 1~~ (note – this should have been green and in INF.3)

14.TEST SERIES 4 (To determine if an article, packaged article or packaged substance is too dangerous for transport ~~classified as an unstable explosive~~)

16. TEST SERIES 6 (To assign a substance or article to Division 1.1, 1.2, 1.3 or 1.4 of Class 1 or exclude it from ~~Class 1~~ the class of explosives)

8. Add a new section 1.1.9 at the end of section 1.1 in INF.3:

1.1.9 The text and references throughout the manual strive to be sector-neutral, but sometimes must be sector-specific. For example, Section IV is used for transport equipment, and Section V is used when the transport sector should be unaffected. Also, there may be some sector-specificity within a section, for example Test Series 4 and 6 are suitable only for use on packages as presented for transport. These test methods used to assign divisions to explosives are based not only on intrinsic properties but also on the packaging and environment. Explosives transport classifications to the Division level frequently apply only to a defined configuration, with the quantity and confinement (packaging) as prepared for transport. Sectors other than transport safely build upon explosives transport classifications, by applying additional controls, e.g. quantity-distances (QD), to ensure the classification accurately communicates the hazard.

9. Amend new proposed paragraph 1.2.3.1 with native English language changes (first and fifth lines), followed by substantive changes to the treatment of articles. The term “article” is not defined in TDG or GHS. There is a difficulty that TDG and GHS (or more precisely, implementations of GHS) have different uses of this term, and this causes complications throughout the entire Manual text which is now desired to cover both GHS and TDG. With regard to the term “articles”, GHS addresses more dangerous goods articles than just explosives; for example, aerosols have a class of their own in GHS. Some states, for example the USA, generally regulate dangerous goods articles, e.g. a lithium battery, in their implementation of GHS; an “article” is not subject to the US requirements, but dangerous goods articles are not “articles” (see GHS 1.3.2.1.1 and follow the reference into the OSHA regulation<sup>3</sup>, which generally excludes dangerous goods as articles because they are hazardous). OSHA’s use of “article” began in 1983 and pre-dates the GHS. Other states may not regulate dangerous goods articles in their implementations of GHS. The GHS itself takes no overarching position, except to agree with OSHA that non-hazardous objects are not subject to GHS, which aligns with other implementations that go farther and do not apply to dangerous goods articles. The GHS must encompass all implementations; the proposed text seems to favor one implementation over another, and since it is only explanatory and not substantive, it can simply be deleted:

1.2.3.1 Since the GHS addresses ~~also other~~ sectors ~~other than~~ in addition to transport (e.g. storage, supply and use), it includes hazards not considered relevant to transport, such as several non-acute health hazards. Due to the differences in scope between the GHS and the Model Regulations, not all hazards addressed in the GHS have their counterparts in the Model Regulations, and vice versa. For instance there is ~~not a~~ no specific hazard class in the GHS for radioactive material (Class 7 in transport), and some of the dangerous goods classified for transport in Class 9 ~~are either not addressed by the GHS at all (e.g. many articles) or~~ are covered by other GHS hazard classes (e.g.: environmentally hazardous substances of Class 9, ~~which~~ may fall under the GHS hazard class Hazardous to the aquatic environment). ~~Furthermore, with the exception of explosive articles, the GHS does not cover articles (see 1.3.2.1.1 of the GHS).~~

10. In Section 10, Contents of Part I, retain the existing Revision 6 description of subsection 10.4, as it was decided in December 2016 to retain transport-specific wording for Test Series 6, and understanding that Class 1 is a sub-set of the class of explosives:

<sup>3</sup> “Article means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), **and does not pose a physical hazard or health risk to employees.**” (emphasis added)

10.4: PROCEDURE FOR ASSIGNMENT TO A DIVISION OF CLASS 1 THE CLASS OF EXPLOSIVES

11. Amend 10.1.2 to state explicitly that Class 1 for transport is a subset of the GHS class of explosives, and that any reference to Class 1 is a reference to the class of explosives:

10.1.2 The GHS class of explosives includes explosives in all sectors. Class 1 is a subset of this class, and includes explosives classified as presented for transport. The class of explosives also includes the category of unstable explosives, which is defined as those explosives which are forbidden from transport. Goods of Class 1 Explosives, other than unstable explosives, are assigned to one of six divisions for transport, depending on the type of hazard they present (see Chapter 2.1, paragraph 2.1.1.4 of the Model Regulations and Chapter 2.1, paragraph 2.1.2 of the GHS), and, for some regulatory purposes (e.g. transport), to one of the thirteen compatibility groups which that identify the kinds of explosives substances and articles that are deemed to be compatible. The general scheme for classifying a substance or article which is to be considered for inclusion in the class of explosives Class 1 is illustrated in Figure 10.1. The assessment is in two stages. In the first stage, the potential of a substance or article to explode should be is ascertained and its stability and sensitivity, both chemically and physically, shown to be acceptable are also determined. In order to promote uniform assessments by competent authorities, it is recommended that, using the flow chart in Figure 10.2, data from suitable tests is analyzed systematically with respect to the appropriate test criteria. If the substance or article is provisionally accepted into the class of explosives Class 1, it is then necessary to ...

12. Add a new section 10.1.3 after existing 10.1.2, and update numbers of following paragraphs:

10.1.3 Test Series 4 and 6 are used specifically for the transport sector to determine the suitability and classification for transport. Class 1 is unique in that the type of packaging frequently has a decisive effect on the hazard and therefore on the assignment to a particular division (see the Model Regulations, Chapter 2.1, Note 4). Class 1 transport classifications are accurate for the transport configuration, where the packaging is retained as tested, the quantity is limited to the capacity of a conveyance and the surrounding confinement (e.g. truck or freight container, as opposed to a rigid structure) is not likely to change the results found in testing.

13. In section 10.2.1, retain the current final sentence “The classification procedure should be undertaken before a new product is offered for transport”.

14. In Figure 10.2, retain the existing Revision 6 text in the title of the flowchart and in boxes 16, 17 and 18, as numbered in Revision 6 of the Manual.

15. In paragraph 10.3.2.5, retain the existing Revision 6 text:

10.3.2.5 Series 4 tests are intended to answer the question "Is the article, packaged article or packaged substance ~~an unstable explosive too dangerous for transport?~~" (box 16, Figure 10.2) ...

16. Since section 10.4 is related to assignment to division of Class 1 (transport classification), some of the changes proposed in 10.4.1.1 should be modified in accordance with decisions taken in December 2016:

10.4.1.1 Goods of Class 1 Unless classified as unstable, explosives are assigned to one of six divisions, depending on the type of hazard they present (see paragraph 2.1.1.4 of the Model Regulations and 2.1.2 of the GHS). The assignment procedure (Figures 10.3 and 10.5) applies to all substances and/or articles that are candidates for this class Class 1 except those declared from the outset to be in Division 1.1. A substance or article is should be assigned to the division which corresponds to the results of the tests to which it the substance or article, as offered for transport, , as offered for transport, has been subjected. ...