
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

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Item 10 (b) of the provisional agenda

Issues relating to the Globally Harmonized System

of Classification and Labelling of Chemicals: testing of oxidizing substances

Tests for oxidizing liquids (UN Test O.2) and oxidizing solids (UN Tests O.1 and O.3) Consequential amendments of cellulose replacement to test descriptions Additional information to document ST/SG/AC.10/C.3/2017/28

Transmitted by the expert from France

Introduction

1. The purpose of this informal document is to provide the Sub-Committee with additional information in support of the document ST/SG/AC.10/C.3/2017/28 on the consequential amendments of cellulose replacement to tests descriptions for oxidizing liquids (UN Test O.2) and oxidizing solids (UN Tests O.1 and O.3).

Cellulose replacement

2. During the biennium 2015-2016 a Round Robin Testing (RRT) exercise led by INERIS, France was organized with two major steps focusing on the replacement of the cellulose i.e. Whatman CF11 type used in UN Test O.2 and in UN Test O.3 which is no longer available.

It was concluded by proposals from France which were adopted and the description of replacement cellulose(s) was introduced in the corresponding tests descriptions – see ST/SG/AC.10/44/Add.2, section 34.

3. During this RRT exercise consequential amendments were deemed necessary as the replacement of cellulose may introduce slight variations in tests results.

Consequential amendments

4. A preliminary overview has been made of such consequential amendments. The items to be considered are listed hereafter and proposed ways to proceed are suggested.

Test UN O.2 – Reference substances

5. The reference substance for allocating to PGII [in 1/1 mixture with cellulose] i.e. 40% aqueous sodium chlorate solution seems from the RRT results not sufficiently discriminatory from reference substance for allocation to PGIII [in 1/1 mixture with cellulose] i.e. 65% aqueous nitric acid.

6. France is considering to identify if such a difficulty is solely based on the above reference substances and if so to assess diluted aqueous solutions of perchloric acid, in the range of 30-40%, for a possible replacement of the 40% aqueous sodium chlorate solution as reference substance for PGII.

Test UN O.3 – Reference oxidizer

7. UN O.3 test results may be influenced by several factors including the specifications of reference oxidizer, namely its concentration.

8. The reference oxidizer i.e. calcium peroxide with a concentration of $75\% \pm 0.5\%$ is originating from different sources i.e. suppliers in Europe or in other parts of the world which may not respect the whole specifications given in the test description.

During the RRT exercise it appeared that such a situation might introduce discrepancies in test results due in addition to the fact that such a reference oxidizer is not able to sustain along the time that concentration i.e. "natural" loss in calcium peroxide concentration.

9. France is considering to introduce the need for checking the concentration of calcium peroxide before testing.

Test UN O.3 – Coefficient of correlation and standard deviation of test results

10. From the full RRT results – see UN/SCETDG/49/INF.47, annex 2 – it appears that the required values of coefficient of correlation R^2 i.e. at least 0.95 and standard deviation i.e. not exceeding 10% are not easily attainable.

11. France is considering to move to at least 0.90 for R^2 and to not exceeding 20% for standard deviation respectively.

Test UN O.3 – Inert metal wire as ignition source

12. During the RRT exercise, various types of metal wire were used – see UN/SCETDG/49/INF.47, annex 2, para 2.5.1.1 -. Up to 50% of participants i.e. 6 participants observed more or less frequent breakages of the wire during the runs.

13. France is considering to explore more in details the possible reasons for such breakages and to propose if need be to adapt the corresponding description i.e. specifications of the actual wire.

14. The same may hold for metal wire description in UN Test O.1.

Further step

15. France suggests to collect all additional comments within this frame and to prepare a working document for the next session giving all proposed amendments to tests descriptions, including criteria if necessary.

