

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

29 November 2019

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

**Fifty-sixth session**

Geneva, 4-10 December 2019

Item 10 (a) of the provisional agenda

**Issues relating to the Globally Harmonized System  
of Classification and Labelling of Chemicals:  
testing of oxidizing substances**

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

**Thirty-eighth session**

Geneva, 11-13 December 2019

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**

**Tests for oxidizing liquids and oxidizing solids  
Improvement regarding consideration for particle size,  
friable or coated materials: additional information on  
document  
ST/SG/AC.10/C.3/2019/68–ST/SG/AC.10/C.4/2019/11**

**Transmitted by the expert from France**

## **Introduction**

1. The purpose of this informal document is to provide the sub-committees with additional information in support of document ST/SG/AC.10/C.3/2019/68-ST/SG/AC.10/C.4/2019/11 on tests for oxidizing liquids and oxidizing solids, improvement regarding consideration for particle size, friable or coated materials.

## **Information**

2. France wishes to inform the sub-committees on the progress of work related to the tests for oxidizing liquids and oxidizing solids.

3. A Round Robin Test (RRT) with the focus on several aspects of the UN Tests on oxidizing solids was launched at the end of 2018. This RRT comprises 3 main test series.

4. The test series 1 consists in the determination of oxidizing potentials for both, UN Test O.1 and O.3 reference mixtures by a) individual time take (stop watch) and b) burning rate (gravimetry) for each burning trial. The aims of this test series are to compare the oxidizing potentials of reference mixtures for both tests, O.1 and O.3 for classification means and to check of back-up suppliers for UN Test O.3 reference solid oxidizer (calcium peroxide) in a global perspective versus the initial provider identified.

5. The test series 2 and 3 consist in the determination of oxidizing potentials of coated and uncoated test sample (sodium percarbonate) on one hand and of granulated, but uncoated test sample (sodium nitrate) on the other hand. The purpose is to assess if the following note: “in the case of a substance coated to reduce or suppress its oxidizing properties with a significant content (>10% by mass) of particles less than 500 µm, two sets of tests should be conducted: tests conducted with the substance as presented and tests conducted with particles less than 500 µm that were obtained from sieving the substance as presented. The substance should not be ground before sieving or testing. The final classification should be based on the test results with the most stringent classification” would be valid and valuable as better defining the approach to test coated substances.
  6. Fourteen testing laboratories from industry or competent authorities are engaged in carrying out the different testing which will enable a good bench marking of the relevant test method. Ten laboratories already have provided their results to the organizer and the four have confirmed their willingness to complete their task by the end of the year.
  7. At this stage no detailed results are available. However, the following tendencies are observed:
    - (a) Potassium bromate better as its reputation for both UN Tests O.1 and O.3 protocols, but toxic and therefore need to be handled and disposed with care,
    - (b) No severe deviations of oxidizing potential of test samples in original state vs. their sieved-out fines (< 500µm),
    - (c) Milling procedure and therefore particle size distribution of test samples matters,
    - (d) Indication of some limitations in the discriminatory power between medium and strong oxidizing potentials according to UN Test O.3. This point comes already under close scrutiny to be confirmed by the pool of experts as this was not observed by using former cellulose WHATMAN CF11 or calcium peroxide references.
  8. In addition to the RRT activity, works continue to identify a proper way to define the friability aspect of a substance in reference to paragraphs 34.4.1.2.6 and 34.4.3.2.3 of the Manual of Tests and Criteria.
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