

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

23 May 2014

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

Forty-fifth session

Geneva, 23 June – 2 July 2014

Item 4 (c) of the provisional agenda

Listing, classification and packing: miscellaneous

Classification under UN 2211 and UN 3314

Transmitted by the European Chemical Industry Council (CEFIC)

Introduction

1. As earlier has been demonstrated in proposal ST/SG/AC.10/C.3/2011/30 concerning Polymeric beads, expandable and Plastics moulding compounds, evolving flammable vapours, there is a big difference in respect of different materials ability to give off flammable vapours. Due to these differences it was suggested to implement a new method that could determine if there was a risk for formation of flammable atmospheres in the container or not.
2. Several suggestions were received from a number of delegates on the proposal and CEFIC made some modifications and submitted informal document INF.32 (40th session) for amending SP207.
3. Further comments were received, and based on these comments CEFIC hereby proposes this amended proposal.
4. As suggested during the sub-committee meeting December 2011, it is proposed to introduce in the Manual of Tests and Criteria, a test method for the determination of a formation of a flammable atmosphere rather than having the test description included in a Special Provision.

Justification

5. The proposed test method is applicable for the two substances to which SP207 is assigned (UN 2211 and UN 3314).
6. To justify the suggested temperature in the Test method we refer to:
 - Validation of the UN criteria for the uncooled sea transport of liquid organic peroxides: Full-scale test and modeling, Journal of Loss Prevention in the Process Industries 21 (2008) 635–641, M. Steensma, P. Schuurman and W.A. Mak
 - The temperature curve (Appendix 1) of last year for Shipment from China to Europe, temperature sensor on pallet close to the doors

- The temperature readings, as given in the Appendix 2 that were recorded during transports from Sweden to; Japan, Australia, Brazil, US and Mexico. The sensor was placed on the top of the fiber drums, close to the ceiling of the container.
 - Study by BAM, referred to in informal document INF.30 (32nd session), presented during UNSCETDG meeting in December 2007
7. All these investigations show that the temperature of the bulk material of cargo never exceeds +50°C. Therefore, CEFIC is of the opinion that a test with the temperature continuously being held at 50°C for 2 weeks represents a worst case transport condition.

Proposal

Proposal 1

8. CEFIC propose the following test method to be implemented into the “Manual of Tests and Criteria”:
9. Insert in the manual of tests and criteria a new section 38.4 as follows:

38.4 Substances evolving flammable vapour

38.4.1 Purpose

This section of the Manual presents the test procedure to determine whether during handling, transport and storage substances evolving flammable vapours of Class 9 (See UN 2211 and 3314), are able to evolve a dangerous concentration of flammable vapours in closed containers resulting in the formation of a flammable atmosphere and, as a consequence, have to be classified or not.

38.4.2 Scope

The scope of the test method is to determine whether polymeric beads and moulding compounds, with encapsulated blowing agent, fulfilling the description of UN 2211 and 3314, need not to be classified under these two UN numbers.

This test should only be performed when de-classification of a substance is considered.

38.4.3 Classification procedure for Substances liable to evolve flammable vapours

Polymeric beads and moulding compounds, with encapsulated blowing agent shall be tested according to the procedures below to determine whether classification under UN 2211 or 3314 is needed.

38.4.4 Test U 1: Test method for Substances liable to evolve flammable vapours

38.4.4.1 Introduction

The ability to evolve flammable vapours is determined by placing the substance in a hermetically closed glass bottle, at a specified temperature for a prescribed period of time, and then, determine the identity and concentration of flammable vapours.

38.4.4.2 Apparatus and materials

A serum flask equipped with rubber septa with a volume of 50 ml to allow for enough samples to be analyzed. A heating cabinet for storage of samples at prescribed time and temperature. A gas chromatographic (GC) apparatus and accompanying equipment, for analysis of flammable vapour concentration in the gas-phase.

38.4.4.3 Procedure

The substance in its commercial form should be put in a serum flask of 50 ml, with a degree of filling of 50% volume ratio and sealed with rubber septa. The sealed flask is put into a heating cabinet at 50°C for 14 days. After 14 days remove the flask from the heating cabinet and allow cooling. Analyze the gas phase twice on the GC and calculate the average concentration of the flammable vapour. The test should be performed at three samples on the same substance.

38.4.4.3 Test criteria and method of assessing results

Substances need not be classified as Polymeric beads, expandable or Plastics moulding compounds, evolving flammable vapours if the concentration of the flammable vapours is less or equal than 50% of the Lower Explosive Limit (LEL) of the flammable vapour in all of the three samples.

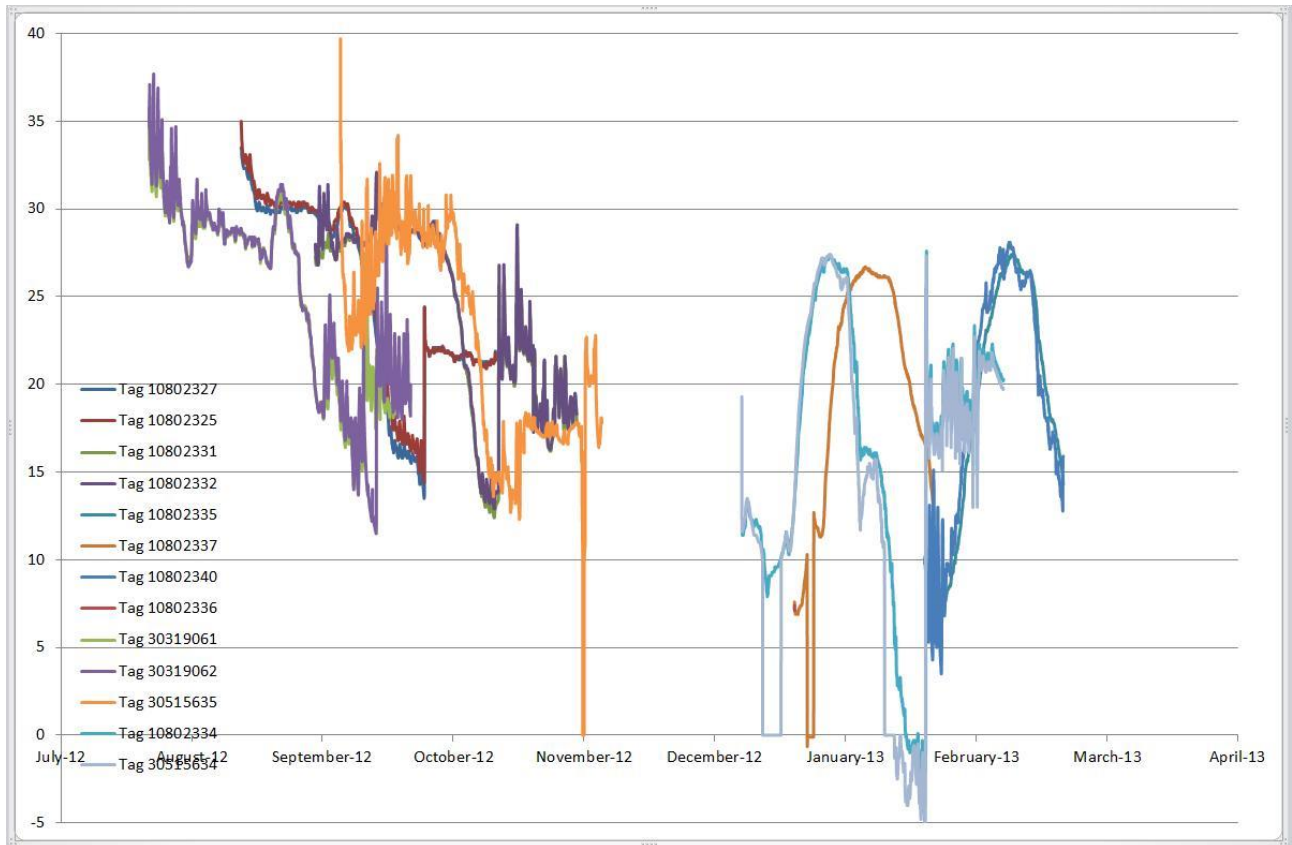
Proposal 2

10. CEFIC proposes to add the following sentence to special provision SP207, which is already assigned to UN numbers UN 2211 and UN 3314:

When it can be demonstrated that no flammable vapour, resulting in a flammable atmosphere, are evolved according to test U1: Test method for Substances liable to evolve flammable vapours, of the UN manual of Tests and Criteria, Polymeric beads, expandable or Plastics moulding compounds need not be classified under this UN number.

Appendix 1

Temperature curve of last year for Shipment from China to Europe, temperature sensor on pallet close to the doors



Appendix 2

The temperature readings during transports from Sweden to; Japan, Australia, Brazil, US and Mexico.

The sensor was placed on the top of the fiber drums, close to the ceiling of the container

Temperature in containers to different destinations

