

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

9 June 2016

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

#### **Forty-ninth session**

Geneva, 27 June – 6 July 2016

Item 3 of the provisional agenda

**Listing, classification and packing**

## **Exemptions for polymerizing substances**

### **Transmitted by the European Chemical Industry Council (CEFIC)**

#### **Introduction**

1. In the last biennium, the Sub-Committee of experts on the Transport of Dangerous Goods had decided to introduce polymerizing substances in Division 4.1.
2. The definition of section 2.4.2.5.1 describes polymerizing substances as “substances which, without stabilization, are liable to undergo a strongly exothermic reaction resulting in the formation of larger molecules or resulting in the formation of polymers under conditions normally encountered in transport.”
3. However, the text does not contain any provisions about exemptions.
4. Industry believes it would be helpful to introduce some criteria for exemptions in analogy to self-reactive substances of Division 4.1 and organic peroxides of Division 5.2.
5. Members of the Sub-Committee are requested to review this paper and to forward any comments to the CEFIC delegation who intends to submit a formal proposal in this matter for the December session.

#### **Proposal**

6. In the Model Regulations, insert a new section 2.4.2.5.3 to read: “Any substance shall be exempted from classification as a polymerizing substance of Division 4.1 provided that upon initiation of the polymerization from a temperature 5 K above the SAPT of the relevant package
  - (a) The temperature inside the package does not exceed 150 °C; and
  - (b) The temperature on the surface of the package does not exceed 100 °C, and
  - (c) There is no effect outside the package.

The assessment shall be based on evidence obtained either by experiment in a 1:1 scale on the package size used for transport or by a model derived from experimental kinetic data in consideration of the heat loss of the package.”

## Justification

7. For self-reactive substances of Division 4.1, the following provisions apply according to 2.4.2.3.3.2 (g): “Any substance which, in laboratory testing, neither detonates in the cavitated state nor deflagrates at all and shows no effect when heated under confinement nor any explosive power shall be exempted from classification as a self-reactive substance ... provided that the formulation is thermally stable ... and any diluent meets the requirements of 2.4.2.3.5 ...”.

8. Similar wording can be found in 2.5.3.3.2 (g) for organic peroxides of Division 5.2.

9. Polymerizing substances do not detonate nor do they deflagrate. They have no explosive power and show no effects when heated under confinement. Their only hazard is a thermal runaway reaction and a possible pressure-buildup.

10. Therefore, the remaining applicable criteria are a tolerable temperature rise and the integrity of the package.

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