

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 2 (h) of the provisional agenda

Explosives and related matters: miscellaneous

Polymerizing substances and Self Acceleration Polymerization Temperature (SAPT)

**Submitted by European Chemical Industry Council (Cefic) and
Dangerous Goods Advisory Council (DGAC)**

Introduction

1. During the eighth session of the Carriage of Containers and Cargo (CCC-8) committee of IMO, document CCC/8/6/11, as submitted by Morocco, Saudi Arabia, Liberia, Qatar, Singapore, United Arab Emirates, BIMCO, ICS, International Group of P&I Associations, ITF, IVODGA, and WSC was discussed.

2. In this document reference was made to (quote):

“The MSC Flaminia incident¹ identified a number of issues regarding additional information concerning special transport conditions and operational controls required for safe transport. A particular concern pertains to controls implemented to ensure stabilization for an inhibited polymerizing substance”.

3. In the document it was proposed to include a new section in the IMDG code reading:

5.4.1.4.3.8 Stabilized Substances: If the goods to be transported contain the word "STABILIZED" in the proper shipping name and are assigned SP 386, the SADT/SAPT shall be indicated as "SADT/SAPT xx°C" together with the anticipated duration of the effectiveness of inhibitors. Additionally, any special transport conditions or operational controls required for the safe transport shall be included on the dangerous goods transport document.

CCC-8 deferred the document to E&T-38 (March 2023).

Discussion

4. The concern was raised in CCC/8/6/11 (see paragraph 2) regarding stabilized substances/stabilized polymerizing substances and their inhibition, which resulted in the proposal to require the mentioning of the SAPT value and the anticipated duration of the effectiveness of the inhibitor in the transport documents.

5. In discussion with experts from all stakeholders, including authorities and expert groups like IGUS-EOS, it became clear that the determination of an exact SAPT via the test methods as described in the UN Manual of Tests and Criteria, test series H, is not straight forward or not even possible as described in this test manual. This in contrast with SADT

¹ The investigation report by the German Federal Bureau of Maritime Casualty Investigation is available by clicking here: [255/12 INVESTIGATION REPORT 255/12](#)

determinations where there is a straight forward decomposition reaction without the influence of inhibition/inhibition effectiveness.

6. Due to the relative short period of introducing polymerizing substances in the UN Model regulations and all modal regulations, all the “ins” and “outs” of determining an SAPT by the traditional test series H methods was not fully studied. It appeared that several technical aspects need to be discussed regarding the UN test series H related to the SAPT determination or even alternative methods to guarantee safe transport in all modes of transport of stabilized and polymerizing substances.

7. Aspects proposed for discussion regarding the SAPT determination are (list is not comprehensive):

- feasibility of determining an absolute SAPT for stabilized polymerizing substances
- inhibitor depletion and temperature dependence related to transport times
- applicability of individual test of series H (H1-H4)
- test conditions (atmosphere, degree filling etc.)
- inhibitor depletion related to test times in test series H, (e.g. 7 days versus transport times)
- SAPT determination versus determination of safe transport times (SP386)

Proposal

8. The submitters of this information paper propose to continue discussions on UN test methods and technical discussions on SAPT within the Explosives Working Group of the Sub-Committee of the Transport of Dangerous Goods.
