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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

Twenty-seven session
Geneva, 4-8 July 2005
Item 3(a) of the agenda

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

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Geneva, 11-13 July 2005
Item 2(a) of the agenda

EXPLOSIVES, SELF-REACTIVE SUBSTANCES AND ORGANIC PEROXIDES

Amendments to the Manual of Tests and Criteria

Transmitted by the expert from France

1. Background

During the twenty-fifth session of the Sub-Committee of Experts on the Transport of Dangerous Goods, July 2004, the Koenen test used in different Test Series and in particular in Test Series 8 dealing with ammonium nitrate emulsions was discussed as regards as a better specification of the tube used in that test. See report document ST/SG/AC.10/C.3/50, para 32 and report of the working group on explosives, document UN/SCETDG/25/INF.102, para 22.

Further to the UN-SCETDG working group on ANEs which met in Madrid, Spain, 14-15 February 2005 - see report, document ST/SG/AC.10/C.3/2005/6 - France indicated that a proposal regarding a reference substance in the Koenen test for all relevant Test Series may be submitted for the July 2005 meetings of the Sub-Committees on TDG/GHS.

2. Proposal

It is proposed to introduce musc-xylene (UN 2956) as reference substance in Koenen test as given in Test Series 1, 2, 8 and E. The corresponding amendments to the test descriptions may be given if agreed at a later stage.

3. **Reasoning**

A better specification of the quality of steel tubes i.e. nature of the steel and dimensions especially wall thickness is of importance but relates only to the static inner pressure resistance. As it is more important to deal with the dynamic resistance at elevated temperatures during heating in the test. There is no simply way to specify this dynamic resistance except with a proper reference substance.

Musc-xylene (UN 2956) demonstrated in many occasions - first CERCHAR/INERIS results in 1975 confirmed by others - its very peculiar behaviour in the test with good reproducibility and repeatability, covering a large range of vent diameters. Contrary to other substances previously tested as candidates for reference substances : m-DNB, TNT.

So with the following musc-xylene specs, corresponding to different substances obtainable on the market
MP 113°C
purity ≥ 99%
isopropanol content ≤ 0.1%
dry state
the specified results for 3 orifine plates i.e. 1.0mm, 2.0mm and 8.0mm should be

1.0mm diameter: 3 explosions/3 runs
2.0mm diameter: 0 explosion/3 runs
8.0mm diameter: 3 explosions/3 runs.

Such results should be obtained before using a new batch of tubes in the test. This procedure has been experienced satisfactorily in France both in military and civilian - INERIS, industry - labs for almost ten years. See French Standard NF T 70506 December 1995.

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