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COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS

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WORK OF THE SUB-COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS

Packing instructions

Packaging requirements applicable to solids which may liquefy during transport

Transmitted by the Expert from Germany

Introduction

At the fifteenth session of the Sub-Committee of Experts on the Transport of Dangerous Goods, it was stated that certain packagings were not suitable for substances which may melt or liquefy during transport. It was also stated that no test requirements, as are described for liquids, are laid down for these liquefying solid substances (see document ST/SG/AC.10/C.3/30, paras. 41-48).

The expert from Germany suggested that, with regard to packagings with removable head (drums or jerricans) intended to contain solids which may liquefy during transport, tests should be prescribed similar to those required for liquids. He further suggested, that certain packagings, e g. packagings of codes 4A, 4B, 4H1 and 4H2, should not be used as individual packagings for the substances mentioned above.

The expert from the Netherlands went beyond this proposal saying that tests similar to those required for liquids should be required for all packagings used for the transport of solids which may liquefy.

Background

During the meeting of the informal Working Group on Packing Instructions, Frankfurt, 7 - 11 September 1998, it was agreed, that for safety reasons certain packaging materials such as flexible plastics, textile, fibreboard or wood shall not be used for packagings intended to contain solids which may liquefy during transport. Therefore drums 1D and 1G, boxes 4C1, 4C2, 4D, 4F, 4G and 4H1 as well as bags 5L1, 5L2, 5L3, 5H1, 5H2, 5H3, 5H4, 5M1 and 5M2 and the corresponding types of IBC were not permitted in the Packing Instructions for solids which may liquefy during transport.

But that still does not solve the problem for the permitted types of packagings for this group of substances. Still safety concerns remain. When a solid is liquefying during transport, in that liquid state, the danger potential and the risk during transport are the same as for a liquid with a similar behaviour at standard temperature and pressure.

Justification

Transport of solids in a liquefied state during transport is currently not carried out at the same level of transport safety as the transport of liquids, because the packagings and IBC are not subject to the same requirements for testing and approval.

If a solid is liquefying in a packaging during transport, the risk of leakage and spillage is similar to that of a liquid. To ensure safe transport under such normal conditions, packagings have to conform to sufficient requirements. Testing requirements are necessary to verify that these requirements are met.

For solids liquefying during transport having a high viscosity in the liquefied state, less stringent provisions may be applied.

Salvage packagings are already subject to tests with water and a leakproofness test, they have already proved to be suitable for solids liquefying during transport.

This offers several ways to use a suitable packaging for such kind of solids.

Proposal

A new general requirement should be included in the new section 4.1.3 for Packing Instructions to read:

“If a solid may liquefy during transport, P 001 shall be applied, even if P 002 is listed in column 6 of the dangerous goods list for the solid state. If the solid has a high viscosity (>200 mm^2/s) in the liquefied state, rigid packagings not meeting the testing requirements for liquids may also be used, if they are fitted with a hermetically sealed liner. Salvage packagings additionally marked with the letter "T" (e. g. 1A2T) may also be used.”

Additionally a new Special Packing Provision (SPP XX) should be added to the new section 4.1.3 for Packing Instructions to read:

“This substance may liquefy during transport, see paragraph 4.1.3.X.”

This SPP should be assigned to all substances which under normal conditions of transport may liquefy. If the proposal is adopted, the expert from Germany will provide a list of UN entries concerned.

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