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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-fifth session, 5-14 July 2004
Item 2 of the provisional agenda

TRANSPORT OF GASES

Proposal to amend Packing Instruction P200, Special packing provision "n"

Transmitted by the expert from Germany

Introduction

1. The very aggressive gas fluorine is classified as toxic, oxidizing and corrosive. It has to be shipped under the proper shipping name "FLUORINE, COMPRESSED" and the UN number "UN 1045". Because of the dangerous properties of fluorine the amount of gas in one receptacle is limited to 5 kg according to Special packing provision "n" of Packing Instruction P200:

"A pressure receptacle shall contain not more than 5 kg of the gas."
2. Reference is made to the discussion at the twenty-third session of the Sub-Committee of Experts on the Transport of Dangerous Goods about the proposal from EIGA (document **ST/SG/AC.10/C.3/2003/4**, para. 1.2) to allow limited manifolding of cylinders (e.g. 3 cylinders to a group) resulting in a maximum total water capacity of the cylinder-group of 150 litres within a bundle.
3. The discussion of this proposal by the Working Group on gases is reported in document **UN/SCETDG/23/INF.37**, para. 6. As a result of the discussion in the plenary session (**ST/SG/AC.10/C.3/46, paras. 13 and 14 and ST/SG/AC.10/C.3/46, Annex 1**) the following draft amendment to Packing Instruction P200 was adopted:

Special provision "n": Amend to read as follows:

"Cylinders and individual cylinders in a bundle shall contain not more than 5 kg of the gas. [Bundles containing UN 1045 Fluorine, compressed, may be constructed with isolation valves on assemblies (groups) of cylinders not exceeding 150 litres total water capacity instead of valves on every cylinder. The gas contents of such assemblies shall be limited to 5 kg.]".

4. Such types of bundles are in use for the transport of fluorine and/or fluorine/nitrogen mixtures in Germany based on a national exemption since many years (14 years) without causing any problems or incidents throughout this period of time. The risk analysis for this exemption - made by the Federal Institute for Material Research and Testing (BAM) - took into consideration that:
 - (a) In case of a leak the potential danger will not be increased by the limited manifolding. The content of fluorine will be the same in both cases and is limited to a total mass of 5 kg regardless whether it is an individual cylinder or a group of cylinders (e.g. 3 x 1.6 kg);
 - (b) The total mass of fluorine in the bundle is the same as for the final mixture with nitrogen. This take into account that the final mixture cannot always be made at the same location, where fluorine is available;
 - (c) The risk for a potential leak is higher for the valve itself and its threaded connections, rather than for solid piping with welded or brazed joints of the manifold. Therefore the safety will be enhanced by reducing the number of valves and threaded connections within the bundle.
5. Therefore the safety of the bundle will be maintained if limited manifolding is allowed under the conditions specified in the draft.

Proposal

6. Delete the square brackets in the proposed amendment for Special packing provision "n" in P200.

"Cylinders and individual cylinders in a bundle shall contain not more than 5 kg of the gas. Bundles containing UN 1045 Fluorine, compressed, may be constructed with isolation valves on assemblies (groups) of cylinders not exceeding 150 litres total water capacity instead of valves on every cylinder. The gas contents of such assemblies shall be limited to 5 kg."
