
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-sixth session
Geneva, 29 November-7 December 2004
Item 2 of the agenda

TEXTS ADOPTED BY THE SUB-COMMITTEE AT ITS TWENTY-THIRD, TWENTY-FOURTH AND
TWENTY-FIFTH SESSIONS AND RELATED PROPOSALS

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

Transmitted by the expert from Germany

Introduction

The very aggressive gas fluorine is classified as toxic, oxidizing and corrosive. It has to be carried 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."

Reference is made to the discussion at the 23rd session of the Sub-Committee concerning the proposal from EIGA in document **ST/SG/AC.10/25/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.

The discussion of this proposal in 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 (document **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.]".

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

- In case of a leak the potential danger will not be increased by the limited manifolding. The content of fluorine shall 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).
- 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.
- The manifold of the bundle has been subjected to a pressure test programme which consists of a hydraulic proof test and a pneumatic leak test. Furthermore the fully assembled bundle has passed a drop test from a height of 1,2 m in a rotating manner without leaking. These tests which correspond practice in Germany for many years have been described in EN 13769:2003.
- 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.

Therefore the safety of the bundle will be maintained if limited manifolding will be allowed under the conditions specified in the draft.

A document from Germany (**ST/SG/AC.10/C.3/2004/15**) with the proposal to remove the square brackets in the text shown on top of this page has been discussed by the Working Group on Gases at the 25th session of the Sub-Committee. The Working Group expressed the need for some modifications of the text arising from remarks from Belgium – INF.58 – and representatives from the United States of America. The following proposal takes into account these remarks.

Proposal

Delete the square brackets in the proposed amendment of Special packing provision "n" in P200 and amend the wording 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 divided in assemblies (groups) of cylinders not exceeding 150 litres total water capacity. The gas contents of such assemblies shall be limited to 5 kg."

Transfer the second proposed sentence to Special packing provision "k" in P200 and insert it after the second para ending with "... purged and plugged."

"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."
