International Civil Aviation Organization

DGP/20-WP/38
12/8/05

WORKING PAPER

DANGEROUS GOODS PANEL (DGP)

TWENTIETH MEETING

Montréal, 24 October to 4 November 2005

Agenda Item 2: Development of recommendations for amendments to the Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284) for incorporation in the 2007-2008 Edition

ETHYLENE OXIDE UN 1040

(Presented by R. Richard)

1. INTRODUCTION

1.1 ... During WG/04 a proposal to forbid a number of toxic gases on passenger and cargo aircraft was approved on the basis of DGP-WG/04-WP/30. Upon further review it has been noted that special provision A131 applies to ethylene oxide, UN 1040. A131 was added to the TI to address the transport of sterilization devices containing ethylene oxide. The proposal in DGP-WG/04-WP/30 did not intend to forbid the transport of sterilization devices containing ethylene oxide that meet the conditions of A131 aboard cargo aircraft. This paper proposes to amend A131 to address this matter.

1.2 Based on further review it was also noted that P200 includes a provision for ethylene oxide in paragraph (e). This paragraph should be deleted.

2. PROPOSAL

2.1 Amend A131 as follows:

A131 Sterilization devices, when containing less than 30 mL per inner packaging with not more than 300 mL per outer packaging, may be transported aboard cargo aircraft in accordance with the provisions of 1;2.4, irrespective of 1;2.4.2.2 and the indication of "Forbidden" in the cargo aircraft column of the Dangerous Goods List (Table 3-1). In addition, after filling, each inner packaging must be determined to be leak-tight by placing the inner packaging in a hot water bath at a temperature, and for a period of time, sufficient to ensure that an internal pressure equal to the vapour pressure of ethylene oxide at 55°C is achieved. Any inner packaging showing evidence of leakage, distortion or other defect under this test may not be transported under the

terms of this special provision. In addition to the packaging required by 1;2.4, inner packagings must be placed in a sealed plastics bag compatible with ethylene oxide and capable of containing the contents in the event of breakage or leakage of the inner packaging. Glass inner packagings must be placed within a protective shield capable of preventing the glass from puncturing the plastics bag in the event of damage to the packaging (e.g. crushing).

2.2 Delete paragraph (e) in P200.

~~e) UN 1040 **Ethylene oxide** may also be packed in hermetically sealed glass ampoules (IP.8) or metal inner packagings (IP.3 and IP.3A) suitably cushioned in fibreboard, wooden or metal boxes meeting the Packing Group I performance level. The maximum quantity permitted in any glass inner packaging is 30 g, and the maximum quantity permitted in any metal inner packaging is 200 g. After filling, each inner packaging must be determined to be leak-tight by placing the inner packaging in a hot water bath at a temperature, and for a period of time, sufficient to ensure that an internal pressure equal to the vapour pressure of ethylene oxide at 55°C is achieved. The total quantity in any outer packaging must not exceed 2.5 kg. When cylinders are used, they must be of the seamless or welded steel types that are equipped with suitable pressure relief devices. Each cylinder must be tested for leakage with an inert gas before each refilling and must be insulated with three coats of heat retardant paint or in any equally efficient manner. The maximum net quantity per cylinder must not exceed 25 kg~~.

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