



**WORKING PAPER**

**DANGEROUS GOODS PANEL (DGP)  
MEETING OF THE WORKING GROUP OF THE WHOLE**

**Montréal, 15 to 19 April 2013**

- 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 2015-2016 Edition**  
**2.4 : Part 4 — Packing Instructions**

**SMALL QUANTITIES OF PEROXYACETIC ACID**

(Presented by the Dangerous Goods Advisory Council)

**SUMMARY**

This paper proposes a new special provision to allow venting of small quantities of oxygen in specialized peroxyacetic acid packagings consistent with exemptions issued by national authorities. If the working group agrees a consequential change is also proposed for Special Provision A75.

Action by the DGP is in paragraphs 2.

**1. INTRODUCTION**

1.1 **Peroxyacetic acid** (Organic peroxide type E, liquid < 37% peroxyacetic acid and < 7.5% hydrogen peroxide, (UN 3107)) is permitted for air transport. In this concentration, this product is commonly used as a sterilant for health care purposes and there is a need to transport this material by air worldwide for use in sterilizing medical equipment using custom packagings. The hydrogen peroxide component slowly releases oxygen. The product manufacturer recommends the use of a vented package.

1.2 For this medical device application, a hydrophobic membrane built into the closure controls the pressure in the inner packaging while preventing the release of liquid contents. For the devices in question, the average release rate is 0.1 ml of oxygen per hour per inner packaging and 20 such inner packagings are normally transported per outer packaging. The 2 ml of oxygen that is released from the outer packaging per hour is considered inconsequential from a safety perspective. Since venting is prohibited under 4;1.1.12 and 4;7.1.2 an exemption is required in order to transport these devices by air. The package has been tested in a vacuum chamber simulating loss of aircraft pressure and was shown to not allow liquid leakage in all possible orientations. Nevertheless the specific requirement in 4;1.1.6 is not met since, by design, the vent assures pressure equalization and precludes a pressure differential. In

this instance the vented package designed to prevent liquid leakage is deemed safer than a like package that does not offer pressure relief.

1.3 The appropriate national authorities of four States have issued exemptions to permit these small packages of peroxyacetic acid to be transported in small plastic containers meeting the following:

- the liquid is contained in an inner cup constructed of either polypropylene or polyethylene and may contain up to a total volume of 69 ml of peroxyacetic acid solution. The inner cup is sealed with a cover that has a hydrophobic membrane which permits the gradual venting of oxygen while preventing the release of the peroxyacetic acid.
- the inner cup is placed in an outer cup constructed of polystyrene, polyethylene or polypropylene which contains powdered buffers. The outer cup is sealed with a polypropylene lid with a small cross-cut opening to support oxygen venting. Each cup is packed in a small fibreboard container;
- up to 20 cups may be packaged in a UN4G box;
- the gross weight of the completed package may not exceed 8 kg.
- the outer package must bear Division 5.2 and Class 8 labels and orientation arrows, a cargo aircraft only and a keep away from heat handling labels.

## 2. ACTION BY THE DGP

2.1 DGAC recommends that the Technical Instructions be revised to eliminate the need for the exemptions already issued and the need for additional exemptions to permit transport in other States.

2.2 On this basis the working group is invited to consider adoption of a new special provision against UN 3107 to read as follows:

AXXX Inner packagings filled with peroxyacetic acid, type E, stabilized with not more than 37% peroxyacetic acid and not more than 7.5% hydrogen peroxide may be transported in inner packagings fitted with a vent provided the following conditions are met:

a) only inner plastic packagings are permitted, each containing not more than 70 ml of liquid;

b) each inner packaging is vented by means of a hydrophobic membrane;

c) each inner packaging is enclosed in an intermediate rigid plastic packaging with a small opening to permit release of gas and containing a buffer that neutralizes the contents of the inner packaging in the event of leakage. Each intermediate packaging must be packed in a fibreboard packagings and packed in a 4G outer packaging; and

d) each outer packaging must not contain more than 1.4 L of liquid.

The requirements of 4:1.1.6, 4:1.1.12 and 4:7.1.2 do not apply; and

Transport in accordance with this special provision must be noted on the dangerous goods document transport document.

*Note.— Relevant approvals by some national authorities require the outer packagings to bear applicable hazard labels and the orientation, cargo aircraft only and keep away from heat handling labels. Hazard labels, orientation arrows and the keep away from heat labels are required without the need to so state. The CAO label seems unnecessarily restrictive in that up to 10 L per package is otherwise permitted on passenger aircraft. While not opposed to these additional restrictions, they appear to be redundant or unnecessarily restrictive. On this basis they were not included in the proposal.*

2.3 DGAC notes that Special Provision A75 was amended in the 2013-14 Edition of the Technical Instructions to permit limited venting. Subparagraph e) is also relevant in the case of A75 packagings. If the working group agrees to the proposal above, it is proposed to also add the following at the end of A75:

A75 Articles such as sterilization devices, when containing less than 30 mL per inner packaging with not more than 150 mL per outer packaging, may be transported on passenger and cargo aircraft in accordance with the provisions in 3;5, irrespective of the value in column 9 and the indication of “forbidden” in columns 10 to 13 of the Dangerous Goods List (Table 3-1), provided such packagings were first subjected to comparative fire testing. Comparative fire testing between a package as prepared for transport (including the substance to be transported) and an identical package filled with water must show that the maximum temperature measured inside the packages during testing does not differ by more than 200°C. Packagings may include a vent to permit the slow escape of gas (i.e. not more than 0.1 mL/hour per 30 mL inner packaging at 20°C) produced from gradual decomposition. The requirements of 4:1.1.6, 4:1.1.12 and 4:7.1.2 do not apply.

— END —