

DANGEROUS GOODS PANEL

Frankfurt, 16 to 20 September 2002

Agenda Item 2: Development of recommendations for amendments to the Technical Instructions for incorporation in the 2005/2006 edition

UN 1873, PERCHLORIC ACID - PACKING INSTRUCTION 501

(Presented by J. Code)

1. BACKGROUND

1.1 In Special Provision PP28 to Packing Instructions P502 of the 12th Edition of the “United Nations Recommendations on the Transport of Dangerous Goods, Model Regulations”, inner packagings and inner receptacles for Perchloric Acid (UN1873) in combination packaging are restricted to glass. The ICAO Dangerous Goods Panel adopted this restriction in Packing Instruction 501 of the 2001/2002 Edition of the ICAO Technical Instructions and continued to support it in the 2003/2004 Edition.

1.2 The justification for this amendment was that **Perchloric Acid**, packaged in *glass/earthenware* inner packaging, requires the use of metal or rigid plastic receptacles and absorbent material. However, when it is packaged in *plastic bottles* the same requirements do not apply. It was deduced “that the apparent omission must have been due to the fact that plastic inner packaging were never intended to be authorized for Perchloric acid as it is commonly stored only in glass receptacles due to compatibility problems with metal and plastic containers.”

1.3 Such restrictions preclude the ability of industry to use fluoropolymers and some vinyl bottles for inner packaging. This ruling has affected manufacturers and distributors of Perchloric Acid in North America and Europe.

2. COMPARISON OF INNER PACKAGING

2.1 IP1 Glass and earthenware

2.1.1 Glass and earthenware were the standard material for inner packaging before the advent of plastics. Due to the fragility of glass, IP1 requires, in PPR13 of Packing Instruction 501, that inner packaging be “packed with absorbent material in tightly closed metal or rigid plastic receptacles before packing in outer packaging.” This has been a sensible, historic requirement as glass and earthenware inner packaging can break unpredictably along flaws in the structure of the glass itself – due to poor annealing – or from shock loads.

2.2 IP2 Plastic

2.2.1 Fluoropolymers, plastics that are prohibited for use with Perchloric Acid by Packing by Instruction 501, have proven to be non-reactive with the product and safe for all modes of transportation. Tests of these plastics have demonstrated durability and their chemical resistance makes them highly suitable for ultrapure solutions.

3. PROPOSAL

3.1 Amend Packing Instruction 501 under the heading 'Plastic IP.2 (L)' adjacent to the entry for UN 1873 by replacing the word 'No' with the number '1'.

3.2 Create a new 'Particular packing requirement' number to appear adjacent to the entry for UN 1873 of Packing Instruction 501 that states:

'Plastics that are to be used for this product must be compatible fluoropolymers, such as Teflon@.'

3.3 The Panel should consider referring this issue to the UN Sub-committee of Experts on the Transport of Dangerous Goods for their further consideration.

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