International Civil Aviation Organization

WORKING PAPER

DGP-WG/05-WP/53
15/4/05

DANGEROUS GOODS PANEL (DGP)

MEETING OF THE WORKING GROUP OF THE WHOLE

Montreal, 18 to 22 April 2005

Agenda Item 2: Development of recommendations for amendments to the *Technical Instructions* for incorporation in the 2007/2008 edition
2.4: Part 4 — Packing Instructions
2.6: Part 6 — Packaging Nomenclature, Marking, Requirements and Tests

PLASTIC AEROSOLS

(Presented by G.A. Leach)

1. BACKGROUND

1.1 There have been provisions in the UN Model Regulations, RID/ADR and the IMDG Code for the transport of plastic aerosols. This type of receptacle was developed more than 20 years ago but a number of problems meant that it was never taken up on a large commercial scale. Recently there has been renewed commercial interest and a prototype is currently being sold in North America. The company wish to export to Europe and other parts of the world and need a facility to move by air and at present this is only possible under a competent authority approval.

1.2 The aerosol is only being developed for use with non flammable and non toxic gases and the contents will not be a dangerous substance (mainly soaps and foodstuffs).

1.3 It is proposed that this type of aerosol receptacle is incorporated into Part 6 3.2.7; it is also proposed that suitable text is included in a Packing Instruction, although at this time, in view of ongoing changes in this area (alternative method to the hot water bath test, possible issues with the current definition of an IP7B) the actual Packing Instruction in which the text should be included has not been proposed; based on commets received it is anticipated that a further paper will be presented at DGP 20 which would address this.

2. PROPOSAL 1

Note.— For information, the proposed text is based on a British Standard, BS 5597:1991 and existing text for IP.7 B.

2.1 It is proposed to add the following text as a new Part 6; 3.2.7.3:

3.2.7.3 *Receptacles (aerosols) IP.7C*

3.2.7.3.1 *Materials and construction.* The receptacle must be of polyethylene terephthalate (PET), polyethylene napthalate (PEN), polyamide (Nylon), or a blend containing some combination of PET, PEN, ethyl vinyl alcohol (EVOR) and Nylon. Thermoplastic processes ensuring uniformity of the completed container shall be applied. No used material other than production residues or regrind from the same manufacturing process may be used. The packaging shall be adequately resistant to ageing and to degradation caused either by the substance contained or by ultra-violet radiation. Maximum capacity must not exceed 500 ml.

3.2.7.3.2 Performance tests required:

— drop test
— hydraulic pressure test
— bursting test
— leakage test

3.2.7.3.3 *Drop test.* Method of testing: To ensure that creep does not affect the ability of the receptacle type to retain the contents the receptacles shall be dropped as follows: Three groups of twenty-five filled receptacles shall be dropped from 1.8m on to a rigid, non-resilient, flat and horizontal surface. One group must be conditioned at 38EC for 26 weeks, the second group for 100 hours at 50EC and the third group for 18 hours at 55EC, prior to the drop test.

Criteria for passing the test successfully: the receptacle must not break or leak.

3.2.7.3.4 *Hydraulic pressure test.* Number of samples: six receptacles. Method of testing: Receptacles must resist a test pressure equal to at least 1 200 kPa.

Criteria for passing the test successfully: the receptacle must not show major distortions, leaks or similar faults, but a slight symmetrical distortion of the base, or one affecting the profile of the top end shall be allowed, provided that the receptacle passes the bursting test.

3.2.7.3.5 *Bursting test.* Number of samples: six. These may be the same receptacles used in the hydraulic pressure test.

Method of testing and pressures applied: a hydraulic pressure at least 20 per cent higher than the test pressure as mentioned in 3.2.7.3.4 must be applied

3.2.7.3.6 *Leakage test*. Every aerosol. A leakage test in accordance with Part 6-5.4.2.2 or 5.4.3 approved by the competent authority shall be used.

3. **PROPOSAL 2**

3.1 Add the following text in a location to be decided:

PACKING INSTRUCTION

The general packing requirements of Part 4 Chapter 1 must be met.
Aerosol receptacles manufactured of plastics material not exceeding 500 mL are acceptable providing all the following conditions are met:

a) the receptacle must be constructed in accordance with the provisions of Part 6, 3.2.7.3;
b) the maximum allowable pressure in the filled receptacle shall not exceed 900 kPa at 50EC;
c) each aerosol is subject to a leak test in accordance with Part 6, 5.4.2.2 or 5.4.3 and approved by the competent authority;
d) the valves must be protected by a cap or other suitable means during transport;
e) aerosols must be tightly packed, so as to prevent movement in wooden boxes (4C1, 4C2), plywood boxes (4D), reconstituted wood boxes (4F), fibreboard boxes (4G) or plastic boxes (4H1, 4H2) of Packing Group II.

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The requirements of Part 3, Chapter 4 must be met.

Single packagings are not permitted.

COMBINATION PACKAGINGS:

INNER:

Aerosol receptacles manufactured of plastics material not exceeding 500 mL are acceptable providing all the following conditions are met:

a) the receptacle must be constructed in accordance with the provisions of Part 6, 3.2.7.3;
b) the maximum allowable pressure in the filled receptacle shall not exceed 900 kPa at 50EC;
c) each aerosol is subject to a leak test in accordance with Part 6, 5.4.2.2 or 5.4.3 and approved by the competent authority;
d) the valves must be protected by a cap or other suitable means during transport;
e) aerosols must be tightly packed, so as to prevent movement in one of the following boxes:

OUTER:

Boxes
Fibreboard
Plastic
Plywood
Reconstituted wood
Wooden

— END —