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**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-first session, 1-10 July 2002,
agenda item 2)

ADDITIONAL PROVISIONS FOR THE TRANSPORT OF GASES

Inclusion of general requirements for gas cartridges (UN 2037)

Transmitted by the European Liquefied Petroleum Gas Association (AEGPL)

Justification

At the last meeting of the Working Group on the Transport of Gases in December 2001, AEGPL proposed the inclusion of general requirements for small, non-refillable receptacles containing gas which are missing in the 12th revised edition of the UN Recommendations on the Transport of Dangerous Goods, Model regulations. AEGPL was advised to make a proposal to the Plenary Session as this matter was found out of the scope of the mandate of the Working Group on the Transport of Gases.

UN 2037 gas cartridges are non-refillable pressure receptacles containing for the most of them mixtures of commercial butane and propane.

The safe transport of gas cartridges needs therefore to be considered in the UN model regulations.

Proposal

It is proposed to replace the current paragraph 6.2.4 by the following one (eventually completing it by dispositions for aerosols):

"6.2.4 General requirements for small receptacles containing gas (gas cartridges)

6.2.4.1 *Design and construction*

6.2.4.1.1 Small receptacles containing gas (gas cartridges) (UN No.2037), shall be made of metal. This requirement shall not apply to small receptacles containing gas (gas cartridges) with a maximum capacity of 100 ml for UN No. 1011 butane.

Receptacles having an outside diameter of 40 mm or more shall have a concave bottom.

6.2.4.1.2 The capacity of receptacles shall not exceed 1000 ml.

6.2.4.1.3 Each model of receptacles shall, before being put into service, satisfy a hydraulic pressure test carried out in conformity with 6.2.4.2.

6.2.4.1.4 The valves of UN No. 2037 small receptacles containing gas (gas cartridges) shall ensure that the receptacles are so closed as to be leakproof and shall be protected against accidental opening. Valves and dispersal devices which close only by the action of the internal pressure are not to be accepted.

6.2.4.2 *Initial testing*

6.2.4.2.1 The internal pressure to be applied (test pressure) shall be 1.5 times the internal pressure at 50 °C, with a minimum pressure of 1 MPa (10 bar).

6.2.4.2.2 The hydraulic pressure tests shall be carried out on at least five empty receptacles of each model:

- (a) until the prescribed test pressure is reached, by which time no leakage or visible permanent deformation shall have occurred; and
- (b) until leakage or bursting occurs; the dished end, if any, shall yield first and the receptacle shall not leak or burst until a pressure 1.2 times the test pressure has been reached or passed.

Introduction of Packing Instruction P204 for small cartridges:

P204	PACKING INSTRUCTION	P204
This packing instruction applies to UN 2037 receptacles, small, containing gas (gas cartridges)		
<p>(1) The special packing provisions of 4.1.6 shall be met when applicable.</p> <p>(2) Receptacles shall be so closed and leakproof as to prevent escape of the gases.</p> <p>(3) For UN 2037 receptacles, small, containing gas (gas cartridges):</p> <p style="padding-left: 40px;">(a) the internal pressure at 50 °C shall exceed neither two-thirds of the test pressure nor 1.32 MPa (13.2 bar);</p> <p style="padding-left: 40px;">(b) they shall be so filled that at 50 °C the liquid phase does not exceed 95 % of their capacity;</p> <p style="padding-left: 40px;">(c) they shall satisfy a tightness (leakproofness) test in a hot-water bath:</p> <p style="padding-left: 80px;">- The temperature of the bath and the duration of the test shall be such that the internal pressure of each receptacle reaches at least 90% of the internal pressure that would be reached at 55 °C;</p> <p style="padding-left: 80px;">- No leakage or permanent deformation shall occur.</p> <p>(4) All compressed and liquefied gases, except the pyrophoric gases and very toxic gases (gases with an LC50 lower than 200 ppm), shall be accepted as filling gases for UN 2037 gas cartridges.</p> <p>(5) Gas cartridges shall be placed in wooden boxes or strong fibreboard or metal boxes.</p> <p>(6) A package shall not weigh more than 50 Kg if fibreboard boxes are used or more than 75Kg, if other packagings are used.</p> <p>(7) In the case of carriage by full load, gas cartridges may also be packed as follows: the articles shall be grouped together in units on trays and held in position with an appropriate plastics cover, these units shall be stacked and suitably secured on pallets.</p>		