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**ECONOMIC COMMISSION FOR EUROPE  
INLAND TRANSPORT COMMITTEE**

Joint Meeting of the RID Safety Committee and the  
Working Party on the Transport of Dangerous Goods  
(Geneva, 23-27 March 2009)  
Agenda item 6 (b)

**TRANSPORT OF AMMONIA SOLUTION**

Transmitted by the Government of Portugal

**1. Introduction**

Transport of ammonia solution (UN 2672) in rigid and composite plastics IBC's, have been object of several multilateral agreements since the year 2000 when agreement M98 was signed, followed by agreement M138 signed in the year 2003 and afterwards by agreement M193, presently in force and valid till 31.01.2013 (hitherto signed by United Kingdom and Czech Republic).

Concerning the commercial concentrations of ammonia solution the tendency is in general that it has a concentration up to 25% (there are exceptions). This is consequence of Directive 2003/105/CE from December the 16.th. (Seveso Directive II), which established a frame to the dangerous goods for environment. However the ammonia solution is dangerous for environment mainly for concentrations above 25%, obliging a readjustment of the commercial concentrations due to general demands of European clients.

**2. Problem:**

We believe that above 20% of concentration the transport of ammonia solution does not respect 4.1.4.2 (packaging instructions concerning the use of IBC's).

Portugal decided not to sign multilateral agreement M193 for finding that the derogation included in this agreement is excessive. The values of the vapour pressure of ammonia solution are very high for levels of concentration above 25% according to what is illustrated in the following table, and that's why we think IBC's used for transporting ammonia solution must be object of strict pressure tests.

**Table of pressure vapour as function of the concentration of ammonia**

| Concentration (%) → | 25      | 26      | 35      | Pressure according 4.1.4.2. |
|---------------------|---------|---------|---------|-----------------------------|
| Temperature (°C) ↓  |         |         |         |                             |
| 50                  | 165 kPa | 175 kPa | 345 kPa | 110 kPa                     |
| 55                  | 190 kPa | 210 kPa | 400 kPa | 130 kPa                     |

### **3. Draft proposal:**

In terms of this proposal we have a two-part solution:

#### Part 1:

To create a new special provision in chapter 3.3 of ADR as follows:

“Ammonia solutions may be transported in rigid or composite plastics IBCs of the type 31H1, 31H2 e 31HZ1, in the condition those IBC’s have successfully passed, without leakage or permanent deformation, the hydrostatic test specified in 6.1.5.5.4 at a pressure that it is not less than 1.5 times the vapour pressure (manometric pressure) of the contents at 55°C”.

A similar provision was adopted by Code of Federal Regulations - Title 49: Transportation, 72.102, from USA.

#### Part 2:

To create two entries in table A of chapter 3.2 for ammonia solutions with different concentrations: up to 25% of ammonia and above 25% of ammonia. These two entries are in conformity with former Council Directive 67/548/EEC (Classification, packaging and labelling of dangerous substances) and subsequent amendments and Commission Directive 1999/45/EC (Classification, packaging and labelling of dangerous preparations) and subsequent amendments.

Bellow 25% of ammonia the special provision as proposed should apply and above 25% of ammonia concentration we should not consider any derogation in the matter of testing IBC’s

### **4. Justification:**

The goal of this proposal is above all, to allow the transport of ammonia solution in security and practical conditions for consignees that do not have large capacity for loading ammonia solution and also, to assure a high standard of security, bearing in mind that the most critical aspect is to ensure that IBC’s shall withstand without loss of contents, the internal pressure due to high values of vapour pressure of the ammonia solution, mainly for concentrations above 25%.

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