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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

Thirty-fifth session
Geneva, 22-26 June 2009
Item 5 of the provisional agenda

MISCELLANEOUS PROPOSALS OF AMENDMENTS TO THE MODEL REGULATIONS ON THE TRANSPORT OF DANGEROUS GOODS

Chapter 4.2, Tank instruction T50, UN 3220 - Adjustment of the filling ratio

Transmitted by the expert from Germany[1]

Introduction

1. The provisions of packing instruction P200 in Chapter 4.1 have been harmonised with those of Chapter 4.2, Tank instruction T50, for liquefied gases as regards test pressures and filling ratios among other things.

2. When comparing the tables for liquefied gases in the packing and tank instructions, an informal working group discovered inconsistencies that should be eliminated for safety reasons.

3. In the table of gases in tank instruction T50, the following maximum allowable working pressures (MAWP) are assigned to the tanks for the gas UN 3220 Pentafluoroethane (Refrigerant gas R 125) depending on the vapour pressure at the relevant reference temperatures (see 6.7.3.1):

[1] In accordance with the programme of work of the Sub-Committee for 2009-2010 approved by the Committee at its fourth session (refer to ST/SG/AC.10/C.3/68, para. 118(d) and ST/SG/AC.10/36, para. 14).

(a)	Small tanks	34.4 bar, Reference temperature 65 °C
(b)	Bare tanks	30.8 bar, Reference temperature 60 °C
(c)	Tanks with sunshield	27.5 bar, Reference temperature 55 °C
(d)	Tanks with insulation	24.5 bar, Reference temperature 50 °C

4. The test pressure of these tanks is derived by multiplying the design pressure by the factor 1.3. The test pressures are assigned a maximum allowable filling density (filling ratio) of 0.95 kg/l. This filling ratio is too high and should, taking account of the reference temperatures, be reduced to 0.87 kg/l to ensure the requirements of 4.2.2.7.2 are met.

5. The value of the filling ratio corresponds with the pressures provided for the gas in Chapter 4.1, Table 2 of packing instruction P200 and in Chapter 4.3. If applied to T50 tanks, the following pressures would have to be assigned based on this filling ratio:

(a)	Small tanks	48.9 bar
(b)	Bare tanks	38.3 bar
(c)	Tanks with sunshield	28.0 bar
(d)	Tanks with insulation	24.4 bar

6. In view of the fact that a test pressure of at least 50 bar would be indicated for bare tanks in this case, the informal working group favoured the first alternative, i.e. reducing the filling ratio to 0.87 kg/l.

Proposal:

7. In Chapter 4.2, Tank instruction T50, replace the entry "0.95" by "0.87" in the last column for UN 3220 Pentafluoroethane (Refrigerant Gas R 125).