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Working Party on the Transport of Dangerous Goods

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Working Party on the Transport of Dangerous Goods

Bern, 22-26 March 2010
Item 2 of the provisional agenda

TANKS

Definition of maximum working pressure in 1.2.1

Transmitted by the Government of the Netherlands^{1, 2}

Summary

Executive summary: Amendments to the definition of maximum working pressure in 1.2.1.

Action to be taken: To amend the current text in 1.2.1 of RID/ADR.

Relevant documents: -

¹ In accordance with the programme of work of the Inland Transport Committee for 2006-2010 (ECE/TRANS/166/Add.1, programme activity 02.7 (c)).

² Circulated by the Intergovernmental Organisation for International Carriage by Rail (OTIF) under the symbol OTIF/RID/RC/2010/38.

Introduction

1. The maximum working pressure is the pressure measured in the ullage space above the substance, under the conditions reproduced in the definition in 1.2.1.
2. The wording of some of the conditions in the definition of maximum working pressure can be interpreted that the pressure in the deepest part of the tank should be taken, which is slightly higher than the pressure in the upper part of the tank, due to the pressure by the weight of the substance carried.
3. Additionally a correction is proposed in the first paragraph after the indents in the definition. To compare a pressure expressed in gauge pressure with a pressure expressed in absolute pressure the atmospheric pressure should be deducted from the absolute pressure which is missing in the definition of maximum working pressure.

Proposal

4. The amendments to the definition of maximum working pressure in 1.2.1 are presented below in *bold italics*.

*"Maximum working pressure (gauge pressure)" means the highest of the following three pressures **measured at the top of the tank while in operating position**:*

- (a) The highest effective pressure allowed in the tank during filling (maximum filling pressure allowed);
- (b) The highest effective pressure allowed in the tank during discharge (maximum discharge pressure allowed); and
- (c) The effective gauge pressure to which the tank is subjected by its contents (including such extraneous gases as it may contain) at the maximum working temperature.

Unless the special requirements prescribed in Chapter 4.3 provide otherwise, the numerical value of this working pressure (gauge pressure) shall not be lower than the vapour pressure (absolute pressure) **minus 1 bar** of the filling substance at 50 °C.

... (*Remainder unchanged*)".

Justification

5. In Chapter 6.8 the maximum working pressure is used to determine test pressure for compartments of compartmented tanks. Although the pressure by the weight of the substances carried is relatively low, it is substantial if taken into account in the maximum working pressure for tanks of 6.8.2.1.14 (a). To help harmonization in tank design the definition needs to be unambiguous.

Safety Implications: Safety not affected.

Feasibility: No problems expected.

Enforceability: Unambiguous provisions will improve enforceability.
