

Economic Commission for Europe

Inland Transport Committee

Working Party on the Transport of Dangerous Goods

Joint Meeting of the RID Committee of Experts and the
Working Party on the Transport of Dangerous Goods

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Item 2 of the provisional agenda

Tanks

6 September 2017

Fiber Reinforced Plastic (FRP) tanks - tank coding

Transmitted by the Government of the Netherlands

Summary

Executive summary: Stating the tank code of a FRP tank can give rise to confusion. It can be questioned if FRP tanks were considered when requiring a marking of the tank code for ADR 2003.

Action to be taken: Position to be taken for a future amendment.

Introduction

1. The calculation pressure of fiber reinforced plastic tanks (FRP) for a particular substance is in many cases lower than the calculation pressure for metallic tanks. The tank code allocated to a substance in these cases does not match. For allocating substances allowed to be carried in the tank a listing of substances is to be given based on 6.9.4.4.3.
2. Marking the true tank code of the FRP tank may lead to confusion when selecting a FRP tank for loading or checking on the road because of the non matching tank codes.
3. The purpose of the system of tank coding is to find a suitable tank for a particular substance. As this system does not work for FRP tanks it is suggested not to mark the tank code on demountable FRP tanks, FRP tank-containers and not to give a tank code under item 9.1.3 of the ADR certificate for fixed tanks.

Background

4. According to 6.9.6 the marking of 6.8.2.5 applies to FRP tanks. In 6.8.2.5.2 marking of a tank code is required for demountable tanks and tank-containers. The tank code for fixed tanks needs to be stated on the ADR certificate of approval of chapter 9.1.3.
5. The calculation pressure in the second position of the tank code represents a specific safety level (thickness) for metallic tanks that is different for FRP tanks. As a consequence the tank code of substances suitable to be carried in a FRP tank may have a higher

(calculation) pressure than the FRP tank in which it is allowed to be carried. This may lead to confusion.

Example:

A popular substance to be carried in FRP tanks is UN 1791 hypochlorite solution with a tank code L4BV (+). Additional to this special provision TE11 is applicable concerning the prevention of building up of overpressure due to decomposition.

According to 4.4.1, UN 1791 may be carried in FRP tanks because:

- it is classified as Class 8 and substances of Classes 3, 5.1, 6.1, 6.2, 8 or 9 are allowed,;
- it is allowed to be carried in a tank (has a tank code);
- has a vapour pressure lower than 110 kPa (1.1 bar absolute) at 50 °C;
- the calculation pressure in part 2 of the tank code of the substance does not exceed 4 bar.

According to 6.9.2.8 the relevant calculation pressure for FRP tanks is specified in 6.8.2.1.14 (a) or (b).

A usual discharge pressure for FRP tanks is slightly above 2 bar, and according to 6.8.2.1.14(b) resulting in a calculation pressure of (2.04×1.3) 2.65 bar.

6.8.1.14 (a) and (b) shall have a “G” in the second part of the tank code, alternatively it seems logical to state the real pressure step for the FRP tank, such as 1.5 bar or 2.65 bar.

However stating LGxN, L1.5xN or L2.65xN it still is below the tank code of the substance of L4BV (+)*.

**Note: TE 11 allows for a pressure relief valve, hence the “N” in part 4 of the tank code.*

Based on 6.9.4.4.3 the approval shall include the substances, or groups of substances for which compatibility with the shell is provided. Before ADR 2003 marking of a tank code for these FRP tanks was not required.

Discussion

6. The Netherlands questions if it's reasonable and practical that a tank code should be given for FRP tanks?

7. However, if the Joint Meeting is of the opinion that a tank code shall be given it should be decided which tank code should be applied, that representing the actual characteristics of the tank or the tank code of the substance(s) allowed to be carried?
