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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**

Bern, 17–21 March 2014

Item 5 (b) of the provisional agenda

Proposals for amendments to RID/ADR/ADN:**New proposals****Proposals for modifications to the special provisions for
carriage of UN No. 1131, CARBON DISULPHIDE, and
related issues**

Transmitted by the Government of the Russian Federation^{1, 2}

Introduction

1. When transporting UN No. 1131, CARBON DISULPHIDE, in portable tanks, demountable tanks, tank containers, tank swap bodies and metallic tanks, the terms of transport include requirements that have not to date been harmonized. There are also significant differences in the requirements of the technical standards in force in the Russian Federation and the countries of Eastern and Western Europe.

2. Carbon disulphide is a flammable, poisonous, clear, colourless liquid. It has a flashpoint of minus 43°C and a boiling point of 46.2°C. Carbon disulphide vapour and air form an explosive mixture, as they have the widest range of explosive concentration limits (1.25% to 50% by volume). Density is 1.2927 t/m³. The threshold limit value of carbon disulphide vapour in the air in workplaces is 10 mg/m³.

¹ In accordance with the programme of work of the Inland Transport Committee for 2012–2016 (ECE/TRANS/224, para. 94, ECE/TRANS/2012/12, programme activity 02.7 (A, 1 (c))).

² Circulated by the Intergovernmental Organisation for International Carriage by Rail (OTIF) under the symbol OTIF/RID/RC/2014/16.



3. According to the 2013 version of Chapter 4.2 of RID/ADR/Annex 2 to SMGS, the following requirements shall apply to the transport of UN No. 1131, CARBON DISULPHIDE, in a portable tank:

Column (10) of Table A of Chapter 3.2. Portable tank and/or container instructions: T14

When a specific portable tank instruction is specified in column (10) in Table A of Chapter 3.2 for specific dangerous goods other portable tanks which require a higher minimum test pressure, greater tank wall thickness and more stringent bottom-opening and pressure-relief device arrangements may be used. The following guidelines apply in order to determine the type of portable tanks which may be used for carriage of specific substances:

Portable tank instruction prescribed	Portable tank instructions permitted
T14	T19, T20, T22

Portable tank instructions specify the requirements applicable to a portable tank when used for the carriage of specific substances. Portable tank instructions (T14, T19, T20, T22) specify the minimum test pressure, minimum tank wall thickness (in mm of reference steel), requirements for pressure-relief devices and bottom openings below liquid level.

Portable tank instructions				
These instructions apply to liquid and solid substances of Classes 3 to 9. The general provisions of section 4.2.1 and the requirements of section 6.7.2 shall be met.				
Portable tank instruction	Minimum test pressure (bar)	Minimum wall thickness of a tank made of reference steel (mm) (see subsect. 6.7.2.4)	Pressure-relief device (see subsect. 6.7.2.8)	Bottom opening below liquid level (See para. 6.7.2.6 ^d)
T14	6	6 mm	See para. 6.7.2.8.3	Not allowed
T19	10	6 mm	See para. 6.7.2.8.3	Not allowed
T20	10	8 mm	See para. 6.7.2.8.3	Not allowed
T22	10	10 mm	See para. 6.7.2.8.3	Not allowed

a) When this column indicates “Not allowed”, bottom openings below liquid level are not permitted when the substance to be carried is a liquid (see para. 6.7.2.6.1).

Column (11) of Table A of Chapter 3.2. Special provisions for portable tanks: TP2

TP2	The degree of filling prescribed in 4.2.1.9.3, shall not be exceeded: $\frac{95}{1 + \alpha (t_r - t_f)}$
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Column (11) of Table A of Chapter 3.2. Special provisions for portable tanks: TP7

TP7	Air shall be eliminated from the vapour space of a tank by means of nitrogen or another inert gas.
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There are no other special requirements for the carriage of UN No. 1131, CARBON DISULPHIDE, in portable tanks.

4. According to Chapter 4.3 of RID/ADR/Annex 2 to SMGS, when transporting UN No. 1131, CARBON DISULPHIDE, in portable tanks, demountable tanks, tank containers, tank swap bodies and metallic tanks, the following requirements shall apply:

Column (12), Tank, RID/ADR/Annex 2 to SMGS. Tank code: L10CH

Serial number Tank code element	Description	Tank code and assignment
1	Tank types	L = Tank for substances in the liquid state (liquids or solids handed over for carriage in the molten state)
2	Calculation pressure	10 = Minimum calculation pressure (in bar) (see para. 6.8.2.1.14)
3	Bottom openings (see para. 6.8.2.2.2)	C = Tank with filling and discharge openings at the top and only cleaning openings below the liquid level
4	Safety devices	H = Hermetically closed tank (see sect. 1.2.1)

Column (13), Tank, RID/ADR/Annex 2 to SMGS. Special provisions:

TU14	The protective caps of the closures of the tanks shall be locked.
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Column (13), Tank, RID/ADR/Annex 2 to SMGS. Special provisions:

TU15	Tanks shall not be used for the carriage of foodstuffs, other articles of consumption or animal feeds.
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Column (13), Tank, RID/ADR/Annex 2 to SMGS. Special provisions:

	For tank wagons, portable tanks and battery wagons	For tank containers, swap bodies, tanks and MEGCs
TU38	Procedure following activation of energy absorption elements When absorption elements have undergone plastic deformation in accordance with special provision TE22 (see sect. 6.8.4), a tank wagon or battery wagon shall, after undergoing an inspection, be	(Reserved)

	<p>sent to a repair workshop immediately.</p> <p>If a loaded tank wagon or loaded battery wagon is capable of absorbing the shocks that might occur in normal conditions of transport (e.g., after a defective energy absorbing device is replaced by one in good working order or after damaged absorption elements have been temporarily blocked off), the tank wagon or battery wagon may be sent to the unloading station and then to a repair workshop.</p> <p>A marking indicating that the absorbing elements are defective shall be made on an accessible place of the tank wagon or battery wagon.</p>	
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Column (13), Tank, RID/ADR/Annex 2 to SMGS. Special provisions:

TE21	The closures shall be provided with lockable caps.
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Column (13), Tank, RID/ADR/Annex 2 to SMGS. Special provisions:

	For tank wagons, portable tanks and battery wagons	For tank containers, swap bodies, tanks and MEGCs
TE22	<p>Each end of tank wagons for the carriage of substances in the liquid state and gases or battery wagons shall be capable of taking any dynamic stress and absorb energy by means of elastic or plastic deformation of structural components of the tank wagon (e.g., with the use of crash elements). The energy absorption shall be determined in relation to a collision on a strait track.</p> <p>Energy absorption by means of plastic deformation shall only occur in conditions other than those encountered during the normal operation of the railway (impact speed higher than 12 km/h or axial force more than 1 500 kN).</p> <p>The effect of the dynamic load (energy absorption) on the ends of the wagon shall not lead to the application of any force to the tank which could cause its plastic deformation.</p> <p>The requirements of this special provision are deemed to be met if crashworthy buffers that conform to Part 7 of EN 15551:2009 (Railway transport. <i>Freight wagons. Buffers – Railway applications – Freight wagons – Buffers</i>) are used and the wagon body satisfies Chapter 6.3 and subsection 8.2.5.3 of standard EN 12663-</p>	(Reserved)

	<p>2:2010 (Railway transport. Requirements for leakproof bodies of railway rolling stock, Part 2 Freight wagons – <i>Railway applications – Structural requirements of railway vehicle bodies – Part 2: Freight wagons</i>).</p> <p>Note 1: <i>The criteria for assessing the design and testing methods shall be determined by the requirements of the competent body.</i></p>	
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5. In the Russian Federation the carriage of UN No. 1131, CARBON DISULPHIDE, in tank wagons, portable tanks and tank containers is carried out in accordance with the requirements of GOST 19213-73 State standard, entitled “CARBON DISULPHIDE, SYNTHETIC, TECHNICAL-GRADE” at an overpressure of inert gas (e.g., nitrogen) of between 0.01 and 0.03 MPa. The degree of filling for tanks by volume is not more than 90%. After carbon is discharged the tank is to be filled with inert gas (e.g., nitrogen) at an overpressure of between 0.01 and 0.03 MPa.

Proposal

6. To prevent the occurrence of accidents caused by the lack of a protective layer of inert gas for the carriage of UN No. 1131, CARBON DISULPHIDE, carried out at considerable distances under various temperature controls and to harmonize the requirements applied in diverse regulatory systems for the carriage of dangerous goods, the Ministry of Transport of the Russian Federation proposes:

(a) To harmonize the requirements for UN No. 1131, CARBON DISULPHIDE, in portable tanks, tank wagons, demountable tanks, tank containers and tank swap bodies with metallic tanks;

(b) To include the following special provision in column (13), Tank, RID/ADR/Annex 2 to SMGS:

TU22	Tanks shall be filled to no more than 90% of their capacity; for liquids, a space of 5% shall remain empty when the liquid is at an average temperature of 50°C.
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(c) To include the following special provision in column (13), Tank, RID/ADR/Annex 2 to SMGS:

TU51	<p>The substance shall be under a layer of inert gas (e.g., nitrogen) at a pressure of 10 to 30 kPa (0.1–0.3 bar gauge).</p> <p>When handed over for carriage, uncleaned empty tanks shall be filled with inert gas (e.g., nitrogen) at a pressure of 10 to 30 kPa (0.1–0.3 bar gauge).</p>
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(d) To request the Sub-Committee of Experts on the Transport of Dangerous Goods to amend the requirements of the special provisions for portable tanks for carriage of UN No. 1131, CARBON DISULPHIDE, as follows:

TP2, TP7	Delete
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TP41	Assign a new special provision, as follows: “Tanks shall be filled to no more than 90% of their capacity; for liquids, a space of 5% shall remain empty when the liquid is at an average temperature of 50°C.”
TP42	<p>Assign a new special provision, as follows: “The substance shall be under a layer of inert gas (e.g., nitrogen) at a pressure of 10 to 30 kPa (0.1–0.3 bar gauge).</p> <p>When handed over for carriage, uncleaned empty tanks shall be filled with inert gas (e.g., nitrogen) at a pressure of 10 to 30 kPa (0.1–0.3 bar gauge).</p> <p>The protective caps of the closures of the tanks shall be locked.</p> <p>Tanks shall not be used for the carriage of foodstuffs, other articles of consumption or animal feeds.”</p>

Justification

7. These amendments would increase the safety of transport operations and harmonize the requirements for carriage of UN No. 1131, CARBON DISULPHIDE, in countries with various regulatory frameworks for the transport of dangerous goods.

Enforceability

8. No difficulty in enforcement is envisaged.
