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Item 2 of the provisional agenda

Tanks

Harmonization of inspection and approval procedures for tanks for the carriage of substances of Class 2 and tanks for the carriage of substances of Classes 3 to 9

Proposal transmitted by the International Union of Wagon Keepers (UIP)^{1,2}

Background

1. In informal document INF.6 of the RID/ADR/ADN Joint Meeting (Bern, 25 to 28 March 2008), UIP requested the harmonization of inspection and approval procedures for tanks for the carriage of gases of Class 2 and tanks for the carriage of substances of Classes 3 to 6 and Classes 8 and 9.
2. The approach laid out in the UIP informal document was:
 - To take account of the European approach in respect of tanks for substances of Classes 3 to 6 and Classes 8 and 9;
 - To clearly define responsibilities related to the inspection and approval of such tanks;

¹ In accordance with the programme of work of the Inland Transport Committee for 2010–2014 (ECE/TRANS/208, para. 106, ECE/TRANS/2010/8, programme activity 02.7 (c)).

² Circulated by the Intergovernmental Organisation for International Carriage by Rail (OTIF) under the symbol OTIF/RID/RC/2013/48.

- To avoid increasing the administrative and inspection formalities for the construction of tanks for the carriage of gases of Class 2 and of substances of Classes 3 to 6 and Classes 8 and 9;
 - To adapt the designation of authorized experts to the new European procedures.
3. With RID/ADR 2011, the procedures for the application and transposition of the Transportable Pressure Equipment Directive (TPED) were fully integrated into the Regulation and described in 1.8.6 and 1.8.7 on the inspection and approval of tanks and receptacles for substances of Class 2. However, chapter 6.8 was not fully revised.
4. UIP took up the matter again in informal document INF.30 of the Joint Meeting (Bern, 18 to 22 March 2013). The document was discussed in the Working Group on Tanks and met with approval. UIP was therefore asked to draw up a proposal on that basis for a subsequent session.
5. The wording of the annexed proposal:
- Regulates the harmonization of inspection and approval procedures for tanks;
 - Brings the parts of 1.8.7 on inspection and approval into line with those of 6.8.2.3 and 6.8.2.4;
 - Regulates the adaptation of the procedure for approval and monitoring of approved inspection bodies;
 - Defines the terminology and responsibilities of the inspection bodies;
 - Replaces the term “expert”.

Justification

6. The Working Group on Tanks considers that the TPED directive has been successfully transposed into RID/ADR and that the procedures under 1.8.6 and 1.8.7 have proved satisfactory.
7. The adaptation of the procedures for tanks of Classes 3 to 6 and Classes 8 and 9 is a logical consequence and will make it possible to harmonize the European approval procedures.
8. A clear definition of approval, monitoring and the responsibilities of the authorities, the inspection bodies and experts will make it possible to achieve a transparent European procedure.
9. Some technical problems are not obvious. The risk potential of tanks for gases of Class 2 is far higher than that of tanks for substances of other classes.
10. Duplication of inspection and certification by the manufacturers is avoided.

Annex

New text is marked in italics and deletions are marked in strikethrough.

1.8.6.8, penultimate paragraph

The inspection body shall additionally be accredited according to the standard EN ISO/IEC 17020:2004, as specified in 6.2.2.10, 6.2.3.6 *and 6.8.2.3* ~~and TA4 and TP9 of 6.8.4.~~

1.8.7 Procedures for conformity assessment and periodic inspection

NOTE: In this section, “relevant body” means a body assigned in 6.2.2.10 when certifying UN pressure receptacles, in 6.2.3.6 when approving non-UN pressure receptacles *and in 6.8.2.3 when approving tanks* ~~and in special provisions TA4 and TP9 of 6.8.4.~~

1.8.7.1 General provisions

1.8.7.1.1 The procedures in section 1.8.7 shall be applied according to 6.2.3.6 when approving non-UN pressure receptacles *and according to 6.8.2.3* ~~and according to TA4 and TP9 of 6.8.4~~ when approving tanks, battery-vehicles and MEGCs.

1.8.7.1.4 Where the applicant can demonstrate to the satisfaction of the competent authority or its delegated inspection body conformity with 1.8.7.6 the applicant may establish an in-house inspection service which may perform part or all of the inspections and tests when specified in 6.2.2.10, ~~or~~ 6.2.3.6 or 6.8.2.3.

1.8.7.2 Type approval

1.8.7.2.3 Where the type satisfies all applicable provisions, the competent authority, its delegate or the inspection body shall issue a type approval certificate to the applicant.

This certificate shall contain:

- (a) The name and address of the issuer;
- (b) The name and address of the manufacturer and of the applicant when the applicant is not the manufacturer;
- (c) A reference to the version of RID and standards used for the type examination;
- (d) Any requirements resulting from the examination;
- (e) The necessary data for identification of the type and variation, as defined by the relevant standard;
- (f) The reference to the type examination report(s); and
- (g) The maximum period of validity of the type approval.

For tanks, battery-wagons/battery-vehicles and MEGCs, the data indicated in 6.8.2.3.1 are also required.

A list of the relevant parts of the technical documentation shall be annexed to the certificate (see 1.8.7.7.1).

1.8.7.4 Initial inspection and tests

In addition to the requirements of the following paragraphs, tanks, battery-wagons/battery-vehicles and MEGCs must also comply with the requirements of 6.8.2.4.

1.8.7.5 Periodic inspection, intermediate inspection and exceptional checks

In addition to the requirements of the following paragraphs, tanks, battery-wagons/battery-vehicles and MEGCs must also comply with the requirements of 6.8.2.4.

1.8.7.8 Products manufactured, approved, inspected and tested according to standards

The requirements of 1.8.7.7 are considered to have been complied with if the following standards, as relevant, are applied:

<i>Applicable subsection and paragraph</i>	<i>References</i>	<i>Title of the document</i>
1.8.7.7.1 to 1.8.7.7.4	EN 12972:2007	Tanks for transport of dangerous goods— Testing, inspection and marking of metallic tanks

[**Justification:** Already provided in 6.8.2.6.2]

Chapter 3.2 *In Table A, column 13, delete special provisions TA4 and TT9.*

Chapter 4.3**4.3.2.1.5, footnote 2**

It may be necessary to consult the manufacturer of the substance and the competent authority, its delegate or the inspection body for guidance on the compatibility of the substance with the materials of the tank, battery-wagon or MEGC.

4.3.2.1.7 The tank record shall be retained by the owner or the operator who shall be able to provide this documentation at the request of the competent authority. The tank record shall be maintained throughout the life of the tank and retained for 15 months after the tank is taken out of service.

Should a change of owner or operator occur during the life of the tank, the tank record shall be transferred to the new owner or operator.

Copies of the tank record or all necessary documents shall be made available to ~~the expert~~ of the competent authority, its delegate or the inspection body for tests, inspections and checks on tanks in accordance with 6.8.2.4.5 or 6.8.3.4.16, on the occasion of periodic inspections or exceptional checks.

4.3.3.2.5 Table of gases and gas mixtures which may be carried in tank-wagons, battery-wagons, demountable tanks, tank-containers or MEGCs indicating the minimum test pressure for tanks and, as far as applicable, the filling ratio

In the case of gases and gas mixtures classified under n.o.s. entries, the values of the test pressure and the filling ratio shall be prescribed by ~~the expert approved by~~ the competent authority, its delegate or the inspection body.

When tanks for compressed or high pressure liquefied gases have been subjected to a test pressure lower than shown in the table, and the tanks are fitted with thermal insulation, a lower maximum load may be prescribed by ~~the expert approved by~~ the competent authority, its delegate or the inspection body, provided that the pressure reached in the tank by the substance at 55 °C does not exceed the test pressure stamped on the tank.

Chapter 6.8

6.8.2.1.2, text of RID, left column

The tank-wagons shall be capable of absorbing, under the maximum permissible load, the stresses which occur during carriage by rail. As regards these stresses, reference should be made to the tests prescribed by the competent authority, its delegate or the inspection body.¹

6.8.2.1.16, second paragraph

The values of Re and Rm to be used shall be specified minimum values according to material standards. If no material standard exists for the metal or alloy in question, the values of Re and Rm used shall be approved by the competent authority, its delegate or the inspection body ~~or by a body designated by that authority.~~

6.8.2.1.19 ADR, left column, first paragraph

Where protection of the tank against damage through lateral impact or overturning is provided according to 6.8.2.1.20, the competent authority, its delegate or the inspection body may allow the aforesaid minimum thicknesses to be reduced in proportion to the protection provided; however, the said thicknesses shall not be less than 3 mm in the case of mild steel,³ or than an equivalent thickness in the case of other materials, for shells not more than 1.80 m in diameter. For shells with a diameter exceeding 1.80 m the aforesaid minimum thickness shall be increased to 4 mm in the case of mild steel³ and to an equivalent thickness in the case of other metals.

6.8.2.1.19 RID/ADR, right column, first paragraph

Where protection of the tank against damage is provided according to 6.8.2.1.20, the competent authority, its delegate or the inspection body may allow the aforesaid minimum thicknesses to be reduced in proportion to the protection provided; however, the said thicknesses shall be not less than 3 mm in the case of mild steel,³ or than an equivalent thickness in the case of other materials, for shells not more than 1.80 m in diameter.⁴ For shells with a diameter⁴ exceeding 1.80 m this minimum thickness shall be increased to 4 mm in the case of mild steel³ and to an equivalent thickness in the case of other metals.

6.8.2.1.20 ADR, left column, first paragraph

For tanks built after 1 January 1990, there is protection against damage as referred to in 6.8.2.1.19 when the following measures or equivalent⁵ measures are adopted:

For tanks intended for the carriage of powdery or granular substances, the protection against damage shall satisfy the competent authority, its delegate or the inspection body.

6.8.2.1.23, first paragraph

The manufacturer's qualification for performing welding operations shall be one recognized by the competent authority, its delegate or the inspection body. Welding shall be performed by skilled welders using a welding process whose effectiveness (including any heat treatments required) has been demonstrated by test. Non-destructive tests shall be carried out by radiography or by ultrasound and must confirm that the quality of the welding is appropriate to the stresses.

6.8.2.2.2, final paragraph

All openings of tanks which are referred to in Column (12) of Table A of Chapter 3.2, by a tank code including letter "C" or "D" in its third part (see 4.3.3.1.1 and 4.3.4.1.1) shall be situated above the surface level of the liquid. These tanks shall have no pipes or pipe connections below the surface level of the liquid. The cleaning openings (fist-holes) are, however, permitted in the lower part of the shell for tanks referred to by a tank code including letter "C" in its third part. This opening shall be capable of being sealed by a flange so closed as to be leakproof and whose design shall be approved by the competent authority, its delegate or the inspection body ~~or by a body designated by that authority.~~

6.8.2.2.10, final paragraph

The arrangement of the bursting disc and safety valve shall be such as to satisfy the competent authority, its delegate or the inspection body. A pressure gauge or another suitable indicator shall be provided in the space between the bursting disc and the safety valve, to enable detection of any rupture, perforation or leakage of the disc which may disrupt the action of the safety valve.

6.8.2.3 Type approval

The conformity assessment and periodic inspection procedures in section 1.8.7 shall be performed by the relevant body according to the following table:

<i>Procedure</i>	<i>Relevant body</i>
<i>Type approval (1.8.7.2)</i>	<i>Xa</i>
<i>Supervision of manufacture (1.8.7.3)</i>	<i>Xa</i>
<i>Initial inspection and tests (1.8.7.4)</i>	<i>Xa</i>
<i>Supervision of manufacture and initial inspection and tests of valves and other service equipment (1.8.7.3 and 1.8.7.4)</i>	<i>Xa or IS</i>
<i>Periodic inspection (1.8.7.5)</i>	<i>Xa</i>

The competent authority, its delegate or the inspection body shall at the request of the applicant carry out a separate type approval of valves and other service equipment for which a standard is listed in the table in 6.8.2.6.1, in accordance with that standard. This separate type approval shall be taken into account when issuing the certificate for the tank, if the test results are presented and the valves and other service equipment are fit for the intended use.

[**Comment:** final paragraph of 6.8.2.3.1.]

Xa means the competent authority, its delegate or inspection body conforming to 1.8.6.2, 1.8.6.4, 1.8.6.5 and 1.8.6.8 and accredited according to EN ISO/IEC 17020:2004 type A.

IS means an in-house inspection service of the applicant under the surveillance of an inspection body conforming to 1.8.6.2, 1.8.6.4, 1.8.6.5 and 1.8.6.8 and accredited according to EN ISO/IEC 17020:2004 type A. The in-house inspection service shall be independent from design process, manufacturing operations, repair and maintenance.

- 6.8.2.3.1** ~~The competent authority or a body designated by that authority shall issue in respect of each new type of tank vehicle, demountable tank, tank container, tank swap body, battery vehicle or MEGC a certificate attesting that the type, including fastenings, which it has inspected is suitable for the purpose for which it is intended and meets the construction requirements of 6.8.2.1, the equipment requirements of 6.8.2.2 and the special conditions for the classes of substances carried.~~

[**Comment:** These requirements are already covered by 1.8.7.2.3.]

~~This certificate shall contain:~~

The type approval certificate issued by the competent authority, its delegate or the inspection body for tanks, battery-wagons/battery-vehicles and MEGCs shall also show:

- The results of the test;
- An approval number for the type:

<p>The approval number shall consist of the distinguishing sign³ of the State in whose territory the approval was granted and a registration number.</p>

- The tank code in accordance with 4.3.3.1.1 or 4.3.4.1.1;
- The alphanumerical codes of special provisions of construction (TC), equipment (TE) and type approval (TA) of 6.8.4 which are shown in column (13) of Table A of Chapter 3.2 for those substances for the carriage of which the tank has been approved;
- If required, the substances and/or group of substances for the carriage of which the tank has been approved. These shall be shown with their chemical name or the corresponding collective entry (see 2.1.1.2), together with their classification (class, classification code and packing group). With the exception of substances of Class 2 and those listed in 4.3.4.1.3, the listing of approved substances may be dispensed with. In such cases, groups of substances permitted on the basis of the tank code shown in the rationalized approach in 4.3.4.1.2 shall be accepted for carriage taking into account any relevant special provision.

The substances referred to in the certificate shall, in general, be compatible with the characteristics of the tank. A reservation shall be included in the certificate if

³ Distinguishing sign for motor vehicles in international traffic prescribed in the Vienna Convention on Road Traffic (1968).

it was not possible to investigate this compatibility exhaustively when the type approval was issued.

A copy of the certificate shall be attached to the tank record of each tank, battery-vehicle or MEGC constructed (see 4.3.2.1.7).

~~The competent authority, or a body designated by that authority, shall at the request of the applicant carry out a separate type approval of valves and other service equipment for which a standard is listed in the table in 6.8.2.6.1, in accordance with that standard. This separate type approval shall be taken into account when issuing the certificate for the tank, if the test results are presented and the valves and other service equipment are fit for the intended use.~~

6.8.2.3.3 *struck through as covered by 1.8.7.2.4*

6.8.2.3.4 *struck through as covered by 1.8.7.2.5*

6.8.2.4 Inspections and tests

6.8.2.4.1, footnote 12

In special cases and with the agreement of ~~the expert approved by~~ the competent authority, *its delegate or inspection body*, the hydraulic pressure test may be replaced by a pressure test using another liquid or gas, where such an operation does not present any danger.

6.8.2.4.2, final paragraph

In the case of tanks intended for the carriage of powdery or granular substances, and with the agreement of ~~the expert approved by~~ the competent authority, *its delegate or inspection body*, the periodic hydraulic pressure tests may be omitted and replaced by leakproofness tests in accordance with 6.8.2.4.3, at an effective internal pressure at least equal to the maximum working pressure.

6.8.2.4.5 ~~The tests, inspections and checks in accordance with 6.8.2.4.1 to 6.8.2.4.4 shall be carried out by the expert approved by the competent authority. Certificates shall be issued showing the results of the tests, inspections and checks in accordance with 6.8.2.4.1 to 6.8.2.4.4 these operations, even in the case of negative results. These certificates shall refer to the list of the substances permitted for carriage in this tank or to the tank code and the alphanumeric codes of special provisions in accordance with 6.8.2.3.~~

A copy of these certificates shall be attached to the tank record of each tank, battery-wagon or MEGC tested (see 4.3.2.1.7).

6.8.2.4.6 shall contain the following wording:

6.8.2.4.6 *The competent authority approved by an RID Contracting State or a Contracting Party to ADR, its delegate or inspection body is entitled to exercise the activities defined in 1.8.7.2, 1.8.7.3, 1.8.7.4 and 1.8.7.5 in all member States. The authority issuing the approval in conformity with 1.8.6 which conducted the initial examination and validation remains responsible for monitoring the regular activities of the authorized body.*

[**Comment:** Hitherto, 6.8.2.4.6 applied only to inspections of tank-wagons (not type approval certificates). This new paragraph gets rid of the principle of territoriality for all RID/ADR tanks.]

6.8.2.5.1, second subparagraph

- Stamp of ~~the expert~~ *the competent authority, its delegate or inspection body* who performed the tests;

6.8.3.2.26 Battery-wagons or MEGCs intended for the carriage of toxic gases shall not have safety valves, unless the safety valves are preceded by a bursting disc. In the latter case, the arrangement of the bursting disc and safety valve shall be satisfactory to the competent authority, *its delegate or inspection body*.

6.8.3.4 Inspections and tests

6.8.3.4.4 The capacity of each shell intended for the carriage of compressed gases filled by mass, liquefied gases or dissolved gases shall be determined, ~~under the supervision of an expert approved~~ by the competent authority, *its delegate or inspection body*, by weighing or volumetric measurement of the quantity of water which fills the shell; the measurement of shell capacity shall be accurate to within 1%. Determination by a calculation based on the dimensions of the shell is not permitted. The maximum filling masses allowed in accordance with packing instruction P200 or P203 in 4.1.4.1 as well as 4.3.3.2.2 and 4.3.3.2.3 shall be prescribed by ~~an approved expert~~ *the competent authority, its delegate or inspection body*.

6.8.3.4.6, right column, final paragraph

A leakproofness test or an intermediate inspection according to ~~6.8.2.4.3-1.8.7.5~~ may be performed, at the request of the competent authority, *its delegate or inspection body*, between any two successive periodic inspections.

6.8.3.4.7 In the case of vacuum-insulated tanks, the hydraulic-pressure test and the check of the internal condition may, with the consent of ~~the approved expert~~ *the competent authority, its delegate or inspection body*, be replaced by a leakproofness test and measurement of the vacuum.

6.8.3.4.8 If, at the time of periodic inspections, openings have been made in shells intended for the carriage of refrigerated liquefied gases, the method by which they are hermetically closed before the shells are returned to service shall be approved by ~~the approved expert~~ *the competent authority, its delegate or inspection body* and shall ensure the integrity of the shell.

6.8.3.4.11, footnote 17

In special cases and with the agreement of ~~the expert approved by~~ the competent authority, *its delegate or inspection body*, the hydraulic pressure test may be replaced by a pressure test using another liquid or gas, where such an operation does not present any danger.

6.8.3.4.12 Cylinders, tubes and pressure drums and cylinders as part of bundles of cylinders shall be tested according to packing instruction P200 or P203 in 4.1.4.1.

The test pressure of the manifold of the battery-wagon or MEGC shall be the same as that of the elements of the battery-wagon or MEGC. The pressure test of the manifold may be performed as a hydraulic test or by using another liquid or gas with the agreement of the competent authority, *its delegate or inspection body* ~~or its authorized body~~. By derogation from this requirement, the test pressure for the manifold of battery-wagon or MEGC shall not be less than 300 bar for UN No. 1001 acetylene, dissolved.

6.8.3.4.16 The tests, inspections and checks in accordance with 6.8.3.4.10 to 6.8.3.4.15 shall be carried out by ~~the expert approved by~~ the competent authority, *its*

delegate or inspection body. Certificates shall be issued showing the results of these operations, even in the case of negative results. These certificates shall refer to the list of the substances permitted for carriage in this battery-wagon or MEGC in accordance with 6.8.2.3.1.

A copy of these certificates shall be attached to the tank record of each tank, battery-wagon or MEGC tested (see 4.3.2.1.7).

6.8.3.5.10, eighth subparagraph

- Stamp of ~~the expert~~ *the competent authority, its delegate or inspection body* who performed the tests.

6.8.4

TA 2, first paragraph

This substance may be carried in tank-wagons or tank-containers under the conditions laid down by the competent authority, *its delegate or inspection body* of the country of origin, if, on the basis of the tests mentioned below, the competent authority, *its delegate or inspection body* is satisfied that such a transport operation can be carried out safely. If the country of origin is not an RID Contracting State, these conditions shall be recognized by the competent authority, *its delegate or inspection body* of the first RID Contracting State reached by the consignment.

TA4 *may be deleted.*

TT2 The condition of the lining of shells shall be inspected every year ~~by an expert approved~~ by the competent authority, *its delegate or inspection body* who shall inspect the inside of the shell.

TT7 Notwithstanding the requirements of 6.8.2.4.2, the periodic internal inspection may be replaced by a programme approved by the competent authority, *its delegate or inspection body*.

TT9 *may be deleted.*

6.8.5.2.2 Shells made of aluminium or aluminium alloy

The seams of shells shall meet the requirements laid down by the competent authority, *its delegate or inspection body*.
