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Working Party on the Transport of Dangerous Goods

Geneva, 11-15 September 2006
Agenda item 5

PROPOSALS FOR AMENDMENTS TO RID/ADR/ADN*

Carriage of liquid or solid substances in pressure receptacles

Proposal submitted by the Government of Germany

* Circulated by the Central Office for International Carriage by Rail (OCTI) under the symbol OCTI/RID/GT-III/2006/30.

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SUMMARY

Executive summary: As of 1 January 2007, new requirements for the carriage of liquid or solid substances in pressure receptacles (new subsection 4.1.3.6) will be introduced in RID/ADR/ADN. Among others, the substances listed in subsection 4.1.4.4 are excluded from those requirements. The present document is aimed at introducing the necessary provisions of 4.1.4.4 in the new system.

Action to be taken: Amendments to the relevant packing instructions for certain substances and deletion of subsection 4.1.4.4.

Relevant documents: TRANS/WP.15/AC.1/2005/42/Add.1-OCTI/RID/GT-III/2005/42/Add.1, INF.16 (CEFIC) of the Joint Meeting of September 2005, TRANS/WP.15/AC.1/100-OCTI/RID/GT-III/2005-B, para. 53.

1. The non-restructured RID/ADR/ADN had already required the use of pressure receptacles for the carriage of liquid or solid substances other than those of class 2.

2. Those requirements were moved to subsection 4.1.4.4 of the restructured RID/ADR/ADN by introducing special requirements applicable to the use of pressure receptacles for substances other than those of class 2.

3. With the amendments to the thirteenth edition of the United Nations Recommendations, similar provisions were introduced into the United Nations Model Regulations, but they still differed from those of RID/ADR/ADN.

4. The ad hoc working group on the harmonization of RID/ADR/ADN with the fourteenth edition of the United Nations Recommendations discussed the provisions on the carriage of liquid or solid substances in pressure receptacles at its meeting in May 2005. The outcome of those deliberations was presented in document TRANS/WP.15/AC.1/2005/42/Add.1-OCTI/RID/GT-III/2005/42/Add.1.

5. At the meeting of the ad hoc working group, the CEFIC representative undertook to draw up a document for the Joint Meeting highlighting the differences between the existing requirements of subsection 4.1.4.4 and the new provisions to be taken up under subsection 4.1.3.6. This was issued as informal document INF.16.

6. INF.16 also contained a proposal to delete subsection 4.1.4.4, which was not adopted (see the report of the Joint Meeting, TRANS/WP.15/AC.1/100-OCTI/RID/GT-III/2005-B, para. 53).

7. As this decision was taken by a slight majority, the chair of the Joint Meeting asked that another document be submitted on the subject so as to ensure closer harmonization with the United Nations Model Regulations.

8. The delegation of Germany said that it was prepared to draw up a proposal for a forthcoming session in order to provide clarification.

9. All the United Nations Nos. in question are listed in the annex in the order of their packing instructions.

Proposals

10. Amendments to packing instruction P401:

Particular requirement PR2, applicable to the use of pressure receptacles for substances other than those of class 2, calls for periodic tests to be carried out on pressure receptacles every five years. The provisions of subsection 4.1.3.6 extend the period to 10 years. For corrosive substances, the time between periodic tests should not be extended. The following new special packing provision, specific to RID/ADR/ADN should therefore be added to the packing instruction for United Nations Nos. 1183, 1242, 1295 and 2988:

"RR xa For United Nations Nos. 1183, 1242, 1295 and 2988, the pressure receptacles shall be subjected to the tests every five years at a pressure of not less than 0.6 MPa (6 bar) in accordance with subsection 4.1.3.6."

11. Amendments to packing instruction P402:

Particular requirement PR1, applicable to the use of pressure receptacles for substances other than those of class 2, calls for a test pressure of not less than 10 bars for pressure receptacles. Since that is the generally required test pressure for gas receptacles, a reduction to 6 bars does not seem justified. The following new special packing provision, specific to RID/ADR/ADN, should therefore be added to the packing instruction for United Nations Nos. 1389, 1391, 1411, 1421, 1928, 3129, 3130 and 3148:

"RR xb For United Nations Nos. 1389, 1391, 1411, 1421, 1928, 3129, 3130 and 3148, the pressure receptacles shall be subjected to an initial test and to periodic tests at a pressure of not less than 1 MPa (10 bar) in accordance with subsection 4.1.3.6."

12. Amendments to packing instruction P402:

Particular requirement PR1, applicable to the use of pressure receptacles for substances other than those of class 2, calls for periodic tests to be carried out on pressure receptacles every five years. The provisions of subsection 4.1.3.6 extend the period to 10 years. For corrosive substances, the time between periodic tests should not be extended. The following new special packing provision, specific to RID/ADR/ADN, should therefore be added to the packing instruction for United Nations No. 3129:

"RR xc For United Nations No. 3129, the pressure receptacles shall be subjected to the tests every five years at a pressure of not less than 1 MPa (10 bar) in accordance with subsection 4.1.3.6."

13. Amendments to packing instruction P601:

Particular requirement PR3, applicable to the use of pressure receptacles for substances other than those of class 2, calls for periodic tests to be carried out on pressure receptacles every five years. The provisions of subsection 4.1.3.6 extend the period to 10 years. For corrosive substances, the time between periodic tests should not be extended. The following new special packing provision, specific to RID/ADR/ADN, should therefore be added to the packing instruction for United Nations No. 1251:

"RR xd For United Nations No. 1251, the pressure receptacles shall be subjected to the tests every five years at a pressure of not less than 1 MPa (10 bar) in accordance with subsection 4.1.3.6."

14. Amendments to packing instruction P601:

Particular requirement PR6, applicable to the use of pressure receptacles for substances other than those of class 2, sets out particular requirements for bromine in respect of the materials to be used for pressure receptacles and their closing devices. Since the substance in question is highly corrosive, from the technical safety point of view, it is unacceptable to extend the time between periodic tests. The following new special packing provision, specific to RID/ADR/ADN, should therefore be added to the packing instruction for United Nations No. 1744:

"RR xe For United Nations No. 1744 containing less than 0.005% water, or between 0.005% and 0.2% water, provided that in the latter case measures are taken to prevent corrosion of the lining of the receptacles, the pressure receptacles shall be subjected to the tests every five years at a pressure of not less than 1 MPa (10 bar) in accordance with subsection 4.1.3.6. The receptacles shall be made of steel and shall be equipped with a leakproof lining made of lead or of some other material affording equivalent protection and with a hermetic closure; receptacles made of monel alloy or nickel, or with a nickel lining, shall also be permitted. The closures shall be sited in the upper part of the receptacles so as to avoid permanent contact with the liquid phase."

15. Amendments to packing instruction P601:

Particular requirement PR7, applicable to the use of pressure receptacles for substances other than those of class 2, stipulates that precise instructions exist on the packaging for United Nations No. 1614. The United Nations Recommendations mention only packing instruction P099. In order to continue applying the current packing requirements, the whole of particular requirement PR7 should be added to the packing instruction as PR xf, a new special packing provision, specific to RID/ADR/ADN.

16. Amendments to packing instruction P601:

As a consequence of the above amendments, special packing provision RR3 specific to RID/ADR/ADN should be deleted.

17. As a consequence of the above amendments, the phrase “and in 4.1.4.4” should be deleted from the last sentence of paragraph 4.1.3.6.1, the text in brackets “(see also the Table in 4.1.4.4)” should be deleted from the introductory sentences in packing instructions P400, P401 and P402 and subsection 4.1.4.1 itself should be deleted.

Justification

Safety implications: It is no longer necessary to limit the capacity of pressure receptacles used for solid or liquid substances to 450 litres, for example, as experience has shown that larger receptacles can be used.

According to the most recent information, increasing the degree of filling will not entail an added technical safety risk.

The extension of the time between periodic tests corresponds with current practice and is only questionable or unacceptable in the case of corrosive substances.

Reducing the inert gas gauge pressure during carriage from 0.5 bar to less than half (0.2 bar) will run no technical safety risk, as it is possible that the pressure in question will not be maintained during carriage, when the inert gas dissolves in the substance carried. In this case, it is the elimination of the air in the liquid phase that is important.

Feasibility: Since the new requirements for the carriage of dangerous solid and liquid substances in pressure receptacles will be introduced in RID/ADR/ADN as of 1 January 2007 and the subsection’s requirements will remain unchanged, adoption of these amendments will ensure better harmonization with the United Nations Model Regulations.

Practical implementation: The high level of interest shown by industrial concerns in this subject demonstrates that a solution must be found to the problem of carrying substances other than those of class 2 in pressure receptacles.

Annex

Packing instruction P400 (On 1 January 2007, the entries highlighted in yellow (or in gray, on a black-and-white printout) will be deleted. The substances in question must thereafter be carried in accordance with the conditions of United Nations No. 3394.)

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)
1366	DIETHYLZINC	4.2	SW	I	4.2+ 4.3	320	LQ0	P400 PR1
1370	DIMETHYLZINC	4.2	SW	I	4.2+ 4.3	320	LQ0	P400 PR1
2445	LITHIUM ALKYLS, LIQUID	4.2	SW	I	4.2+ 4.3	274 320	LQ0	P400 PR1
2845	PYROPHORIC LIQUID, ORGANIC, N.O.S.	4.2	S1	I	4.2	274	LQ0	P400 PR1
2870	ALUMINIUM BOROHYDRIDE	4.2	SW	I	4.2+ 4.3		LQ0	P400 PR1
3051	ALUMINIUM ALKYLS	4.2	SW	I	4.2+ 4.3	274 320	LQ0	P400 PR1
3052	ALUMINIUM ALKYL HALIDES, LIQUID	4.2	SW	I	4.2+ 4.3	274 320	LQ0	P400 PR1
3053	MAGNESIUM ALKYLS	4.2	SW	I	4.2+ 4.3	274 320	LQ0	P400 PR1
3076	ALUMINIUM ALKYL HYDRIDES	4.2	SW	I	4.2+ 4.3	274 320	LQ0	P400 PR1
3194	PYROPHORIC LIQUID, INORGANIC, N.O.S.	4.2	S3	I	4.2	274	LQ0	P400 PR1
3254	TRIBUTYLPHOSPHANE	4.2	S1	I	4.2		LQ0	P400 PR1
3394	ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE	4.2	SW	I	4.2+ 4.3	274	LQ0	P400 PR1

Packing instruction P401

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)
1183	ETHYLDICHLOROSILANE	4.3	WFC	I	4.3+3+8		LQ0	P401 PR2
1242	METHYLDICHLOROSILANE	4.3	WFC	I	4.3+3+8		LQ0	P401 PR2
1295	TRICHLORSILANE	4.3	WFC	I	4.3+3+8		LQ0	P401 PR2
2988	CHLOROSILANES, WATER-REACTIVE, FLAMMABLE, CORROSIVE, N.O.S.	4.3	WFC	I	4.3+3+8	274 549	LQ0	P401 PR2

Packing instruction P402

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)
1389	ALKALI METAL AMALGAM, LIQUID	4.3	W1	I	4.3	182 274	LQ0	P402 PR1
1391	ALKALI METAL DISPERSION or ALKALINE EARTH METAL DISPERSION with a flash-point above 60° C	4.3	W1	I	4.3	182 183 274 506	LQ0	P402 PR1
1391	ALKALI METAL DISPERSION or ALKALINE EARTH METAL DISPERSION with a flash-point not greater than 60° C	4.3	W1	I	4.3+3	182 183 274 506	LQ0	P402 PR1

Packing instruction P402 (*continued*)

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)
1411	LITHIUM ALUMINIUM HYDRIDE, ETHEREAL	4.3	WF1	I	4.3+3		LQ0	P402 PR1
1421	ALKALI METAL ALLOY, LIQUID, N.O.S.	4.3	W1	I	4.3	182 274	LQ0	P402 PR1
1928	METHYL MAGNESIUM BROMIDE IN ETHYL ETHER	4.3	WF1	I	4.3+3		LQ0	P402 PR1
3129	WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.	4.3	WC1	I	4.3+8	274	LQ0	P402 PR1
3129	WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.	4.3	WC1	II	4.3+8	274	LQ10	P402 IBC01 PR1
3130	WATER-REACTIVE LIQUID, TOXIC, N.O.S.	4.3	WT1	I	4.3+ 6.1	274	LQ0	P402 PR1
3130	WATER-REACTIVE LIQUID, TOXIC, N.O.S.	4.3	WT1	II	4.3+ 6.1	274	LQ10	P402 IBC01 PR1
3148	WATER-REACTIVE LIQUID, N.O.S.	4.3	W1	I	4.3	274	LQ0	P402 PR1
3148	WATER-REACTIVE LIQUID, N.O.S.	4.3	W1	II	4.3	274	LQ10	P402 IBC01 PR1

Packing instruction P601

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)
1380	PENTABORANE	4.2	ST3	I	4.2+ 6.1		LQ0	P601 PR1

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)
1092	ACROLEIN, STABILIZED	6.1	TF1	I	6.1+3		LQ0	P601 PR3
1251	METHYL VINYL KETONE, STABILIZED	6.1	TFC	I	6.1+3+8		LQ0	P601 PR3
1259	NICKEL CARBONYL	6.1	TF1	I	6.1+3		LQ0	P601 PR3
1613	HYDROCYANIC ACID, AQUEOUS SOLUTION (HYDROGEN CYANIDE, AQUEOUS SOLUTION) with not more than 20% hydrogen cyanide	6.1	TF1	I	6.1+3	48	LQ0	P601 PR3
1994	IRON PENTACARBONYL	6.1	TF1	I	6.1+3		LQ0	P601 PR3
3294	HYDROGEN CYANIDE, SOLUTION IN ALCOHOL with not more than 45% hydrogen cyanide	6.1	TF1	I	6.1+3	610	LQ0	P601 PR3

Packing instruction P601 (*continued*)

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)
1185	ETHYLENEIMINE, STABILIZED	6.1	TF1	I	6.1+3		LQ0	P601 PR4

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)
2480	METHYL ISOCYANATE	6.1	TF1	I	6.1+3		LQ0	P601 PR5
2481	ETHYL ISOCYANATE	3	FT1	I	3+6.1		LQ0	P601 PR5

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)
1744	BROMINE or BROMINE SOLUTION	8	CTI	I	8+6.1		LQU	P601 PR6

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)
1614	HYDROGEN CYANIDE, STABILIZED, containing less than 3% water and absorbed in a porous inert material	6.1	TF1	I	6.1+3	603	LQ0	P099 P601 PR7

Packing instruction P602

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)
1605	ETHYLENE DIBROMIDE	6.1	T1	I	6.1		LQ0	P602 PR3