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INLAND TRANSPORT COMMITTEE

Working Party on the Transport of Dangerous Goods

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

REPORT OF THE SESSION*/ held in Bern from 28 May to 1 June 2001

Addendum 2

Draft amendments to Chapter 4.1 of the restructured RID/ADR

Texts adopted by the Joint Meeting

***** Circulated by the Central Office for International Carriage by Rail (OCTI) under the symbol OCTI/RID/GT-III/2001-A/Add.2.

4.1.4.1 P200 Replace the existing P200 with the following:

P200	**PACKING INSTRUCTION**	**P200**

Type of packagings: Cylinders, tubes, pressure drums and bundles of cylinders

Cylinders, tubes, pressure drums and bundles of cylinders are authorised provided the special packing provisions of **4.1.6** and the provisions listed below under (1) to (9) are met.

General

(1) Pressure receptacles shall be so closed and leakproof as to prevent escape of the gases;

(2) Pressure receptacles containing toxic substances with an LC_{50} less than or equal to 200 ml/m^3 (ppm) as specified in the table shall not be equipped with any pressure relief device;

(3) The following three tables cover compressed gases (Table 1), liquefied and dissolved gases (Table 2) and substances not in Class 2 (Table 3). They provide:

(a) the UN number, name and description, and the classification code of the substance;

(b) the LC_{50} for toxic substances;

(c) the types of pressure receptacles authorised for the substance, shown by the letter "X";

(d) the maximum test period for periodic inspection of the pressure receptacles;

(e) the minimum test pressure of the pressure receptacles;

(f) the maximum working pressure of the pressure receptacles for compressed gases or the maximum filling ratio(s) for liquefied and dissolved gases;

(g) special packing provisions that are specific to a substance.

Test pressure and filling ratios

(4) The minimum test pressure required for is 1 MPa (10 bar);

(5) In no case shall pressure receptacles be filled in excess of the limit permitted in the following requirements:

(a) For compressed gases, the working pressure shall be not more than two thirds of the test pressure of the pressure receptacles. Restrictions to this upper limit on working pressure are imposed by special packing provision "o". In no case shall the internal pressure at 65 °C exceed the test pressure.

(b) For high pressure liquefied gases, the filling ratio shall be such that the settled pressure at 65 °C does not exceed the test pressure of the pressure receptacles.

The use of test pressures and filling ratios other than those in the table is permitted provided that the above criterion is met, except where special packing provision "o" applies.

For high pressure liquefied gases for which data is not provided in the table, the maximum filling ratio (FR) shall be determined as follows:

$$FR = 8.5 \times 10^{-4} \times d_g \times P_h$$

where FR = maximum filling ratio
d_g = gas density (at 15 °C, 1 bar)(in kg/m^3)
P_h = minimum test pressure (in bar).

P200 **PACKING INSTRUCTION (cont'd)** **P200**

If the density of the gas is unknown, the maximum filling ratio shall be determined as follows:

$$FR = \frac{P_h \times MM \times 10^{-3}}{R \times 338}$$

where FR = maximum filling ratio
P_h = minimum test pressure (in bar)
MM = molecular mass (in g/mol)
R = 8.31451 x 10^{-2} bar.l.mol^{-1}.K^{-1} (gas constant).

For gas mixtures, the average molecular mass is to be taken, taking into account the volumetric concentrations of the various components.

(c) For low pressure liquefied gases, the maximum mass of contents per litre of water capacity shall equal 0.95 times the density of the liquid phase at 50 °C; in addition, the liquid phase shall not fill the pressure receptacle at any temperature up to 60 °C. The test pressure of the pressure receptacle shall be at least equal to the vapour pressure (absolute) of the liquid at 65 °C, minus 100 kPa (1 bar).

For low pressure liquefied gases for which filling data is not provided in the table, the maximum filling ratio shall be determined as follows:

$$FR = (0.0032 \times BP - 0.24) \times d_1$$

where FR = maximum filling ratio
BP = boiling point (in Kelvin)
d_1 = density of the liquid at boiling point (in kg/l).

(d) For UN No. 1001 acetylene, dissolved, and UN 3374 acetylene, solvent free, see (9), special packing provision "p".

(6) Other test pressure and filling ratio may be used provided they satisfy the general requirements outlined in paragraphs (4) and (5) above;

Periodic inspections

(7) Refillable pressure receptacles shall be subjected to periodic inspections in accordance with the requirements of 6.2.1.6.

(8) If special requirements for certain substances do not appear in the tables below, periodic inspections shall be carried out:

(a) Every 5 years in the case of receptacles intended for the carriage of gases of classification codes 1T, 1TF, 1TO, 1TC, 1TFC, 1TOC, 2T, 2TO, 2TF, 2TC, 2TFC, 2TOC, 4A, 4F and 4C;

(b) Every 5 years in the case of receptacles intended for the carriage of substances from other classes;

(c) Every 10 years in the case of receptacles intended for the carriage of gases of classification codes 1A, 1O, 1F, 2A, 2O and 2F.

By derogation from this paragraph, the periodic inspection of pressure receptacles which make use of composite materials (composite receptacles) shall be carried out at intervals determined by the competent authority of the Member State of COTIF/ Contracting Party to ADR which has approved the technical code for the design and construction.

P200	PACKING INSTRUCTION (cont'd)	P200

Special packing provisions

(9) Keys for the column "Special packing provisions":

Material compatibility (for gases see ISO 11114-1:1997 and ISO 11114-2:2000)

a: Aluminium alloy pressure receptacles are not authorized.

b: Copper valves shall not be used.

c: Metal parts in contact with the contents shall not contain more than 65% copper.

d: When steel pressure receptacles are used, only those resistant to hydrogen embrittlement shall be authorized.

Requirements for toxic substances with an LC_{50} less than or equal to 200 ml/m^3 (ppm)

k: Valve outlets shall be fitted with gas tight plugs or caps which shall be made of material not liable to attack by the contents of the receptacle.

Each cylinder within a bundle shall be fitted with an individual valve that shall be closed during carriage. After filling, the manifold shall be evacuated, purged and plugged.

Pressure receptacles shall not be fitted with a pressure relief device.

Cylinders and individual cylinders in a bundle shall be limited to a maximum water capacity of 85 litres.

Each valve shall have a taper threaded connection directly to the pressure receptacle and be capable of withstanding the test pressure of the pressure receptacle.

Each valve shall either be of the packless type with non-perforated diaphragm, or be of a type which prevents leakage through or past the packing**.**

Carriage in capsules is not allowed.

Each pressure receptacle shall be tested for leakage after filling.

Gas specific provisions

l: UN No. 1040 ethylene oxide may also be packed in hermetically sealed glass or metal inner packagings suitably cushioned in fibreboard, wooden or metal boxes meeting the packing group I performance level. The maximum quantity permitted in any glass inner packaging is 30 g, and the maximum quantity permitted in any metal inner packaging is 200 g. After filling, each inner packaging shall be determined to be leak-tight by placing the inner packaging in a hot water bath at a temperature, and for a period of time, sufficient to ensure that an internal pressure equal to the vapour pressure of ethylene oxide at 55 °C is achieved. The total quantity in any outer packaging shall not exceed 2.5 kg.

m: Pressure receptacles shall be filled to a working pressure not exceeding 5 bar.

n: A pressure receptacle shall contain not more than 5 kg of the gas.

o: In no case shall the working pressure or filling ratio shown in the tables be exceeded.

P200	PACKING INSTRUCTION (cont'd)	P200

p: For UN No. 1001 acetylene, dissolved, and UN No. 3374 acetylene, solvent free: cylinders shall be filled with a homogeneous monolithic porous mass; the working pressure and the quantity of acetylene shall not exceed the values prescribed in the approval or in ISO 3807-1:2000 or ISO 3807-2:2000, as applicable.

For UN No. 1001 acetylene, dissolved: cylinders shall contain a quantity of acetone or suitable solvent as specified in the approval (see ISO 3807-1:2000 or ISO 3807-2:2000, as applicable)*;* cylinders fitted with pressure relief devices or manifolded together shall be carried vertically.

Alternatively, for UN No. 1001 acetylene, dissolved: cylinders which are not UN certified pressure receptacles may be filled with a non monolithic porous mass; the working pressure, the quantity of acetylene and the quantity of solvent shall not exceed the values prescribed in the approval. The maximum test period for periodic inspection of the cylinders shall not exceed five years.

A test pressure of 52 bar shall be applied only to cylinders conforming to ISO 3807-2:2000.

q: The valves of pressure receptacles for pyrophoric gases or flammable mixtures of gases containing more than 1% of pyrophoric compounds shall be fitted with gas-tight plugs or caps which shall be made of material not liable to attack by the contents of the pressure receptacle. When these pressure receptacles are manifolded in a bundle, each of the pressure receptacles shall be fitted with an individual valve that shall be closed during carriage, and the manifold outlet valve shall be fitted with a gas-tight plug or cap. Carriage in capsules is not allowed.

r: Allowed for carriage in capsules under the following conditions:

(a) The mass of gas shall not exceed 150 g per capsule;

(b) The capsules shall be free from faults liable to impair the strength;

(c) The leakproofness of the closure shall be ensured by an additional device (cap, crown, seal, binding, etc.) capable of preventing any leakage of the closure during carriage;

(d) The capsules shall be placed in an outer packaging of sufficient strength. A package shall not weigh more than 75 kg.

s: Aluminium alloy pressure receptacles shall be:

- Equipped only with brass or stainless steel valves; and
- Cleaned for hydrocarbons contamination and not contaminated with oil. UN certified pressure receptacles shall be cleaned in accordance with ISO 11621:1997.

t: [ADR only] Other criteria may be used for filling of welded steel cylinders intended for the carriage of substances of UN No. 1965:

(a) with the agreement of the competent authorities of the countries where the transport is carried out; and

(b) in compliance with the provisions of a national code or standard recognised by the competent authorities or standard EN 1439:1996 "Transportable refillable steel cylinders for liquefied petroleum Gases (LPG) - Procedures for checking before, during and after refilling".

P200 **PACKING INSTRUCTION (cont'd)** **P200**

When the criteria for filling are different from those in P200(5), the transport document shall include the statement "Carriage in accordance with packing instruction P200, special packing provision t" and the indication of the reference temperature used for the calculation of the filling ratio.

Periodic inspection

u: The interval between periodic tests may be extended to 10 years for aluminium alloy pressure receptacles. This derogation may only be applied to UN certified pressure receptacles when the alloy of the pressure receptacle has been subjected to stress corrosion testing as specified in ISO 7866:1999.

v: The interval between inspections for steel cylinders may be extended to 15 years:

(a) with the agreement of the competent authority (authorities) of the country (countries) where the periodic inspection and the carriage take place; and

(b) in accordance with the requirements of a technical code or a standard recognised by the competent authority, or standard EN 1440:1996 "Transportable refillable welded cylinders for liquefied petroleum gas (LPG) - Periodic requalification".

Requirements for N.O.S. entries and for mixtures

z: The construction materials of the pressure receptacles and their accessories shall be compatible with the contents and shall not react to form harmful or dangerous compounds therewith.

The test pressure and filling ratio shall be calculated in accordance with the relevant requirements of (5).

Toxic substances with an LC_{50} less than or equal to 200 ml/m^3 shall not be carried in tubes, pressure drums or MEGCs and shall meet the requirements of special packing provision "k".

For pressure receptacles containing pyrophoric gases or flammable mixtures of gases containing more than 1% pyrophoric compounds, the requirements of special packing provision "q" shall be met.

The necessary steps shall be taken to prevent dangerous reactions (i.e. polymerisation or decomposition) during carriage. If necessary, stabilisation or addition of an inhibitor shall be required.

Mixtures containing UN No. 1911 diborane, shall be filled to a pressure such that, if complete decomposition of the diborane occurs, two thirds of the test pressure of the pressure receptacle shall not be exceeded.

(10) The applicable requirements of this packing instruction are considered to have been complied with if the following standards, as relevant, are applied:

Applicable requirements	Reference	Title of document
(9) (p)	EN1801: 1998	Transportable gas cylinders - Filling conditions for single acetylene cylinders (including list of permissible porous masses)
(9) (p)	EN 12755: 2000	Transportable gas cylinders - Filling conditions for acetylene bundles

P200	PACKING INSTRUCTION (cont'd)										P200
Table 1: COMPRESSED GASES											
UN No.	**Name and description**	**Classification code**	**LC_{50} ml/m^3**	**Cylinders**	**Tubes**	**Pressure drums**	**Bundles of cylinders**	**Test period, years [a]**	**Test pressure, bar [b]**	**Working pressure, bar [b]**	**Special packing provisions**
1002	AIR, COMPRESSED	1A		X	X	X	X	10			
1006	ARGON, COMPRESSED	1A		X	X	X	X	10			
1014	CARBON DIOXIDE AND OXYGEN MIXTURE, COMPRESSED	1O		X	X	X	X	10			
1016	CARBON MONOXIDE, COMPRESSED	1TF	3760	X	X	X	X	5			u
1023	COAL GAS, COMPRESSED	1TF		X	X	X	X	5			
1045	FLUORINE, COMPRESSED	1TOC	185	X			X	5	200	30	a, k, n, o
1046	HELIUM, COMPRESSED	1A		X	X	X	X	10			
1049	HYDROGEN, COMPRESSED	1F		X	X	X	X	10			d
1056	KRYPTON, COMPRESSED	1A		X	X	X	X	10			
1065	NEON, COMPRESSED	1A		X	X	X	X	10			
1066	NITROGEN, COMPRESSED	1A		X	X	X	X	10			
1071	OIL GAS, COMPRESSED	1TF		X	X	X	X	5			
1072	OXYGEN, COMPRESSED	1O		X	X	X	X	10			s
1612	HEXAETHYL TETRAPHOSPHATE AND COMPRESSED GAS MIXTURE	1T		X	X	X	X	5			z
1660	NITRIC OXIDE, COMPRESSED	1TOC	115	X			X	5	200	50	k, o
1953	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.	1TF		X	X	X	X	5			z
1954	COMPRESSED GAS, FLAMMABLE, N.O.S	1F		X	X	X	X	10			z
1955	COMPRESSED GAS, TOXIC, N.O.S.	1T		X	X	X	X	5			z
1956	COMPRESSED GAS, N.O.S.	1A		X	X	X	X	10			z
1957	DEUTERIUM, COMPRESSED	1F		X	X	X	X	10			d
1964	HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S.	1F		X	X	X	X	10			z
1971	METHANE, COMPRESSED or NATURAL GAS, COMPRESSED with high methane content	1F		X	X	X	X	10			
1979	RARE GASES MIXTURE, COMPRESSED	1A		X	X	X	X	10			

P200	PACKING INSTRUCTION (cont'd)										P200
Table 1: COMPRESSED GASES											
UN No.	**Name and description**	**Classification code**	**LC_{50} ml/m^3**	**Cylinders**	**Tubes**	**Pressure drums**	**Bundles of cylinders**	**Test period, years [a]**	**Test pressure, bar [b]**	**Working pressure, bar [b]**	**Special packing provisions**
1980	RARE GASES AND OXYGEN MIXTURE, COMPRESSED	1A		X	X	X	X	10			
1981	RARE GASES AND NITROGEN MIXTURE, COMPRESSED	1A		X	X	X	X	10			
2034	HYDROGEN AND METHANE MIXTURE, COMPRESSED	1F		X	X	X	X	10			d
2190	OXYGEN DIFLUORIDE, COMPRESSED	1TOC	2.6	X			X	5	200	30	a, k, n, o
2600	CARBON MONOXIDE AND HYDROGEN MIXTURE, COMPRESSED	1TF		X	X	X	X	5			d, u
3156	COMPRESSED GAS, OXIDIZING, N.O.S.	1O		X	X	X	X	10			z
3303	COMPRESSED GAS, TOXIC, OXIDIZING, N.O.S.	1TO		X	X	X	X	5			z
3304	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.	1TC		X	X	X	X	5			z
3305	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	1TFC		X	X	X	X	5			z
3306	COMPRESSED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	1TOC		X	X	X	X	5			z

[a] *Not applicable for receptacles made of composite materials.*

[b] *Where the entries are blank, the working pressure shall not exceed two thirds of the test pressure.*

P200	PACKING INSTRUCTION (cont'd)										P200
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	**Name and description**	**Classification code**	**LC_{50} ml/m³**	**Cylinders**	**Pressure drums**	**Bundles of cylinders**	**Tubes**	**Test period, years [a]**	**Test pressure, bar**	**Filling ratio**	**Special packing provisions**
1001	ACETYLENE, DISSOLVED	4F		X		X		10	60		c, p
1005	AMMONIA, ANHYDROUS	2TC	4000	X	X	X	X	5	33	0.53	b, r
1008	BORON TRIFLUORIDE	2TC	387*	X	X	X	X	5	225 300	0.715 0.86	
1009	BROMOTRIFLUORO-METHANE (REFRIGERANT GAS R 13B1)	2A		X	X	X	X	10	42 120 250	1.13 1.44 1.60	r r r
1010	1,2-BUTADIENE, STABILIZED or	2F		X	X	X	X	10	10	0.59	r
1010	1,3-BUTADIENE, STABILIZED or	2F		X	X	X	X	10	10	0.55	r
1010	MIXTURES OF 1,3-BUTADIENE AND HYDROCARBONS, STABILIZED	2F		X	X	X	X	10	10	0.50	r, z
1011	BUTANE	2F		X	X	X	X	10	10	0.51	r, v
1012	BUTYLENES MIXTURES or	2F		X	X	X	X	10	10	0.50	r, z
1012	1-BUTYLENE or	2F		X	X	X	X	10	10	0.53	
1012	CIS-2-BUTYLENE or	2F		X	X	X	X	10	10	0.55	
1012	TRANS-2 BUTYLENE	2F		X	X	X	X	10	10	0.54	
1013	CARBON DIOXIDE	2A		X	X	X	X	10	190 250	0.66 0.75	r r
1015	CARBON DIOXIDE AND NITROUS OXIDE MIXTURE	2A		X	X	X	X	10	250	0.75	r
1017	CHLORINE	2TC	293	X	X	X	X	5	22	1.25	a, r
1018	CHLORODIFLUORO-METHANE (REFRIGERANT GAS R 22)	2A		X	X	X	X	10	29	1.03	r
1020	CHLOROPENTAFLUORO-ETHANE (REFRIGERANT GAS R 115)	2A		X	X	X	X	10	25	1.08	r
1021	1-CHLORO-1,2,2,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 124)	2A		X	X	X	X	10	12	1.20	r
1022	CHLOROTRIFLUORO-METHANE (REFRIGERANT GAS R 13)	2A		X	X	X	X	10	100 120 190 250	0.83 0.90 1.04 1.10	r r r r

* *This LC_{50} value is under review.*

P200	PACKING INSTRUCTION (cont'd)										P200
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	**Name and description**	**Classification code**	**LC_{50} ml/m³**	**Cylinders**	**Pressure drums**	**Bundles of cylinders**	**Tubes**	**Test period, years [a]**	**Test pressure, bar**	**Filling ratio**	**Special packing provisions**
1026	CYANOGEN	2TF	350	X	X	X	X	5	100	0.70	r, u
1027	CYCLOPROPANE	2F		X	X	X	X	10	20	0.53	r
1028	DICHLORODIFLUORO-METHANE (REFRIGERANT GAS R 12)	2A		X	X	X	X	10	18	1.15	r
1029	DICHLOROFLUORO-METHANE (REFRIGERANT GAS R 21)	2A		X	X	X	X	10	10	1.23	r
1030	1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)	2A		X	X	X	X	10	18	0.79	r
1032	DIMETHYLAMINE, ANHYDROUS	2F		X	X	X	X	10	10	0.59	b, r
1033	DIMETHYL ETHER	2F		X	X	X	X	10	18	0.58	r
1035	ETHANE	2F		X	X	X	X	10	95 120 300	0.25 0.29 0.39	r r r
1036	ETHYLAMINE	2F		X	X	X	X	10	10	0.61	b, r
1037	ETHYL CHLORIDE	2F		X	X	X	X	10	10	0.80	a, r
1039	ETHYL METHYL ETHER	2F		X	X	X	X	10	10	0.64	r
1040	ETHYLENE OXIDE, or ETHYLENE OXIDE WITH NITROGEN up to a total pressure of 1MPa (10 bar) at 50 °C	2TF	2900 *	X	X	X	X	5	15	0.78	l, r
1041	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 9% ethylene oxide but not more than 87%	2F		X	X	X	X	10	190 250	0.66 0.75	r r
1043	FERTILIZER AMMONIATING SOLUTION with free ammonia	2A		X	X	X		5			b, z
		[RID] CARRIAGE PROHIBITED									

P200	PACKING INSTRUCTION (cont'd)										P200
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	**Name and description**	**Classification code**	**LC_{50} ml/m³**	**Cylinders**	**Pressure drums**	**Bundles of cylinders**	**Tubes**	**Test period, years [a]**	**Test pressure, bar**	**Filling ratio**	**Special packing provisions**
1048	HYDROGEN BROMIDE, ANHYDROUS	2TC	2860	X	X	X	X	5	60	1.54	a, d, r
1050	HYDROGEN CHLORIDE, ANHYDROUS	2TC	2810*	X	X	X	X	5	100 120 150 200	0.30 0.56 0.67 0.74	a, d, r a, d, r a, d, r a, d, r
1053	HYDROGEN SULPHIDE	2TF	712	X	X	X	X	5	55	0.67	d, r, u
1055	ISOBUTYLENE	2F		X	X	X	X	10	10	0.52	r
1058	LIQUEFIED GASES, non-flammable, charged with nitrogen, carbon dioxide or air	2A		X	X	X	X	10	Test pressure = 1.5 x working pressure		r
1060	METHYLACETYLENE AND PROPADIENE MIXTURE, STABILIZED	2F		X	X	X	X	10			c, r, z
	Propadiene with 1% to 4% methylacetylene			X	X	X	X	10	22	0.52	c, r
	Mixture P1			X	X	X	X	10	30	0.49	c, r
	Mixture P2			X	X	X	X	10	24	0.47	c, r
1061	METHYLAMINE, ANHYDROUS	2F		X	X	X	X	10	13	0.58	b, r
1062	METHYL BROMIDE	2T	850	X	X	X	X	5	10	1.51	a
1063	METHYL CHLORIDE (REFRIGERANT GAS R 40)	2F		X	X	X	X	10	17	0.81	a, r
1064	METHYL MERCAPTAN	2TF	1350	X	X	X	X	5	10	0.78	d, r, u
1067	DINITROGEN TETROXIDE (NITROGEN DIOXIDE)	2TOC	115	X		X		5	10	1.30	k
1069	NITROSYL CHLORIDE	2TC	35	X		X		5	13	1.10	k, r
1070	NITROUS OXIDE	2O		X	X	X	X	10	180 225 250	0.68 0.74 0.75	
1075	PETROLEUM GASES, LIQUEFIED	2F		X	X	X	X	10			v, z
1076	PHOSGENE	2TC	5	X	X	X		5	20	1.23	k, r
1077	PROPYLENE	2F		X	X	X	X	10	30	0.43	r

* *This LC_{50} value is under review.*

P200	PACKING INSTRUCTION (cont'd)										P200
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	**Name and description**	**Classification code**	**LC_{50} ml/m³**	**Cylinders**	**Pressure drums**	**Bundles of cylinders**	**Tubes**	**Test period, years [a]**	**Test pressure, bar**	**Filling ratio**	**Special packing provisions**
1078	REFRIGERANT GAS, N.O.S.	2A		X	X	X	X	10			r, z
	Mixture F1			X	X	X	X	10	12	1.23	
	Mixture F2			X	X	X	X	10	18	1.15	
	Mixture F3			X	X	X	X	10	29	1.03	
1079	SULPHUR DIOXIDE	2TC	2520	X	X	X	X	5	14	1.23	r
1080	SULPHUR HEXAFLUORIDE	2A		X	X	X	X	10	70	1.04	r
									140	1.33	r
									160	1.37	r
1081	TETRAFLUOROETHYLE-NE, STABILIZED	2F		X	X	X	X	10	200		m, o, r
1082	TRIFLUOROCHLOROETHY-LENE, STABILIZED	2TF	2000	X	X	X	X	5	19	1.13	r, u
1083	TRIMETHYLAMINE, ANHYDROUS	2F		X	X	X	X	10	10	0.56	b, r
1085	VINYL BROMIDE, STABILIZED	2F		X	X	X	X	10	10	1.37	a, r
1086	VINYL CHLORIDE, STABILIZED	2F		X	X	X	X	10	12	0.81	a, r
1087	VINYL METHYL ETHER, STABILIZED	2F		X	X	X	X	10	10	0.67	r
1581	CHLOROPICRIN AND METHYL BROMIDE MIXTURE	2T	850	X	X	X	X	5	10	1.51	a
1582	CHLOROPICRIN AND METHYL CHLORIDE MIXTURE	2T	*	X	X	X	X	5	17	0.81	a
1589	CYANOGEN CHLORIDE, STABILIZED	2TC	80	X		X		5	20	1.03	k
1741	BORON TRICHLORIDE	2TC	2541	X	X	X	X	5	10	1.19	r
1749	CHLORINE TRIFLUORIDE	2TOC	299	X	X	X	X	5	30	1.40	a
1858	HEXAFLUOROPROPY-LENE (REFRIGERANT GAS R 1216)	2A		X	X	X	X	10	22	1.11	r
1859	SILICON TETRAFLUORIDE	2TC	450	X	X	X	X	5	200	0.74	
									300	1.10	
1860	VINYL FLUORIDE, STABILIZED	2F		X	X	X	X	10	250	0.64	a, r
1911	DIBORANE	2TF	80	X		X		5	250	0.07	d, k, o

* *This LC_{50} value is under review.*

P200	PACKING INSTRUCTION (cont'd)										P200
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	**Name and description**	**Classification code**	**LC_{50} ml/m³**	**Cylinders**	**Pressure drums**	**Bundles of cylinders**	**Tubes**	**Test period, years [a]**	**Test pressure, bar**	**Filling ratio**	**Special packing provisions**
1912	METHYL CHLORIDE AND METHYLENE CHLORIDE MIXTURE	2F		X	X	X	X	10	17	0.81	a, r
1952	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with not more than 9% ethylene oxide	2A		X	X	X	X	10	190 250	0.66 0.75	r r
1958	1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 114)	2A		X	X	X	X	10	10	1.30	r
1959	1,1-DIFLUOROETHYLENE (REFRIGERANT GAS R 1132a)	2F		X	X	X	X	10	250	0.77	r
1962	ETHYLENE	2F		X	X	X	X	10	225 300	0.34 0.37	
1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. Mixture A Mixture A01 Mixture A02 Mixture A0 Mixture A1 Mixture B1 Mixture B2 Mixture B Mixture C	2F		X	X	X	X	10 10 10 10 10 10 10 10 10 10 10	 10 15 15 15 20 25 25 25 30	**b** 0.50 0.49 0.48 0.47 0.46 0.45 0.44 0.43 0.42	r, t [ADR only], v, z
1967	INSECTICIDE GAS, TOXIC, N.O.S.	2T		X	X	X	X	5			z
1968	INSECTICIDE GAS, N.O.S.	2A		X	X	X	X	10			r, z
1969	ISOBUTANE	2F		X	X	X	X	10	10	0.49	r, v
1973	CHLORODIFLUOROMETHANE AND CHLOROPENTAFLUOROETHANE MIXTURE with fixed boiling point, with approximately 49% chlorodifluoromethane (REFRIGERANT GAS R 502)	2A		X	X	X	X	10	31	1.05	r

P200	PACKING INSTRUCTION (cont'd)										P200
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	**Name and description**	**Classification code**	**LC_{50} ml/m³**	**Cylinders**	**Pressure drums**	**Bundles of cylinders**	**Tubes**	**Test period, years [a]**	**Test pressure, bar**	**Filling ratio**	**Special packing provisions**
1974	CHLORODIFLUORO-BROMOMETHANE (REFRIGERANT GAS R 12B1)	2A		X	X	X	X	10	10	1.61	r
1975	NITRIC OXIDE AND DINITROGEN TETROXIDE MIXTURE (NITRIC OXIDE AND NITROGEN DIOXIDE MIXTURE)	2TOC	115	X	X	X		5			k, z
1976	OCTAFLUOROCYCLO-BUTANE (REFRIGERANT GAS RC 318)	2.A		X	X	X	X	10	11	1.34	r
1978	PROPANE	2F		X	X	X	X	10	25	0.42	r, v
1982	TETRAFLUOROMETHANE (REFRIGERANT GAS R 14)	2A		X	X	X	X	10	200 300	0.62 0.94	
1983	1-CHLORO-2,2,2-TRIFLUOROETHANE (REFRIGERANT GAS R 133a)	2A		X	X	X	X	10	10	1.18	r
1984	TRIFLUOROMETHANE (REFRIGERANT GAS R 23)	2A		X	X	X	X	10	190 250	0.87 0.95	r r
2035	1,1,1-TRIFLUOROETHANE (REFRIGERANT GAS R 143a)	2F		X	X	X	X	10	35	0.75	r
2036	XENON	2A		X	X	X	X	10	130	1.24	
2044	2,2-DIMETHYLPROPANE	2F		X	X	X	X	10	10	0.53	r
2073	AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water, with more than 35% but not more than 40% ammonia with more than 40% but not more than 50% ammonia	4A		X X	X X	X X	X X	5 5	10 12	0.80 0.77	b b
2188	ARSINE	2TF	20	X		X		5	42	1.10	d, k
2189	DICHLOROSILANE	2TFC	314	X	X	X	X	5	10	0.90	
2191	SULPHURYL FLUORIDE	2T	3020	X	X	X	X	5	50	1.10	u
2192	GERMANE [c]	2TF	620*	X	X	X	X	5	250	1.02	d, r
2193	HEXAFLUOROETHANE (REFRIGERANT GAS R 116)	2A		X	X	X	X	10	200	1.10	
2194	SELENIUM HEXAFLUORIDE	2TC	50	X		X		5	36	1.46	k, r

P200	PACKING INSTRUCTION (cont'd)										P200
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	**Name and description**	**Classification code**	**LC_{50} ml/m³**	**Cylinders**	**Pressure drums**	**Bundles of cylinders**	**Tubes**	**Test period, years [a]**	**Test pressure, bar**	**Filling ratio**	**Special packing provisions**
2195	TELLURIUM HEXAFLUORIDE	2TC	25	X		X		5	20	1.00	k, r
2196	TUNGSTEN HEXAFLUORIDE	2TC	160*	X		X		5	10	2.70	a, k, r
2197	HYDROGEN IODIDE, ANHYDROUS	2TC	2860	X	X	X	X	5	23	2.25	a, d, r
2198	PHOSPHORUS PENTAFLUORIDE	2TC	190*	X		X		5	200 300	0.90 1.34	k k
2199	PHOSPHINE [c]	2TF	20	X		X		5	225 250	0.30 0.45	d, k, r d, k, r
2200	PROPADIENE, STABILIZED	2F		X	X	X	X	10	22	0.50	r
2202	HYDROGEN SELENIDE, ANHYDROUS	2TF	2	X		X		5	31	1.60	k
2203	SILANE [c]	2F		X	X	X	X	10	225 250	0.32 0.36	d, q d, q
2204	CARBONYL SULPHIDE	2TF	1700	X	X	X	X	5	26	0.84	r, u
2417	CARBONYL FLUORIDE	2TC	360	X	X	X	X	5	200 300	0.47 0.70	
2418	SULPHUR TETRAFLUORIDE	2TC	40	X		X		5	30	0.91	k, r
2419	BROMOTRIFLUORO-ETHYLENE	2F		X	X	X	X	10	10	1.19	r
2420	HEXAFLUOROACETONE	2TC	470	X	X	X	X	5	22	1.08	r
2421	NITROGEN TRIOXIDE	2TOC	CARRIAGE PROHIBITED								
2422	OCTAFLUOROBUT-2-ENE (REFRIGERANT GAS R 1318)	2A		X	X	X	X	10	12	1.34	r
2424	OCTAFLUOROPROPANE (REFRIGERANT GAS R 218)	2A		X	X	X	X	10	25	1.09	r
2451	NITROGEN TRIFLUORIDE	2O		X	X	X	X	10	200 300	0.50 0.75	
2452	ETHYLACETYLENE, STABILIZED	2F		X	X	X	X	10	10	0.57	c, r
2453	ETHYL FLUORIDE (REFRIGERANT GAS R 161)	2F		X	X	X	X	10	30	0.57	r
2454	METHYL FLUORIDE (REFRIGERANT GAS R 41)	2F		X	X	X	X	10	300	0.36	r
2455	METHYL NITRITE	2A	CARRIAGE PROHIBITED								

P200	PACKING INSTRUCTION (cont'd)										P200
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	**Name and description**	**Classification code**	**LC_{50} ml/m³**	**Cylinders**	**Pressure drums**	**Bundles of cylinders**	**Tubes**	**Test period, years [a]**	**Test pressure, bar**	**Filling ratio**	**Special packing provisions**
2517	1-CHLORO-1,1-DIFLUOROETHANE (REFRIGERANT GAS R 142b)	2F		X	X	X	X	10	10	0.99	r
2534	METHYLCHLOROSILANE	2TFC	600	X	X	X	X	5			r, z
2548	CHLORINE PENTAFLUORIDE	2TOC	122	X		X		5	13	1.49	a, k
2599	CHLOROTRIFLUORO-METHANE AND TRIFLUOROMETHANE AZEOTROPIC MIXTURE with approximately 60% chlorotrifluoromethane (REFRIGERANT GAS R 503)	2A		X	X	X	X	10	31 42 100	0.11 0.20 0.66	r r r
2601	CYCLOBUTANE	2F		X	X	X	X	10	10	0.63	r
2602	DICHLORODIFLUORO-METHANE AND DIFLUOROETHANE AZEOTROPIC MIXTURE with approximately 74% dichlorodifluoromethane (REFRIGERANT GAS R 500)	2A		X	X	X	X	10	22	1.01	r
2676	STIBINE	2TF	20	X		X		5	20	1.20	k, r
2901	BROMINE CHLORIDE	2TOC	290	X	X	X	X	5	10	1.50	a
3057	TRIFLUOROACETYL CHLORIDE	2TC	10*	X	X	X		5	17	1.17	k, r
3070	ETHYLENE OXIDE AND DICHLORODIFLUORO-METHANE MIXTURE with not more than 12,5% ethylene oxide	2A		X	X	X	X	10	18	1.09	r
3083	PERCHLORYL FLUORIDE	2TO	770	X	X	X	X	5	33	1.21	k, u
3153	PERFLUORO(METHYL VINYL ETHER)	2F		X	X	X	X	10	20	0.75	r
3154	PERFLUORO(ETHYL VINYL ETHER)	2F		X	X	X	X	10	10	0.98	r
3157	LIQUEFIED GAS, OXIDIZING, N.O.S.	2O		X	X	X	X	10			z

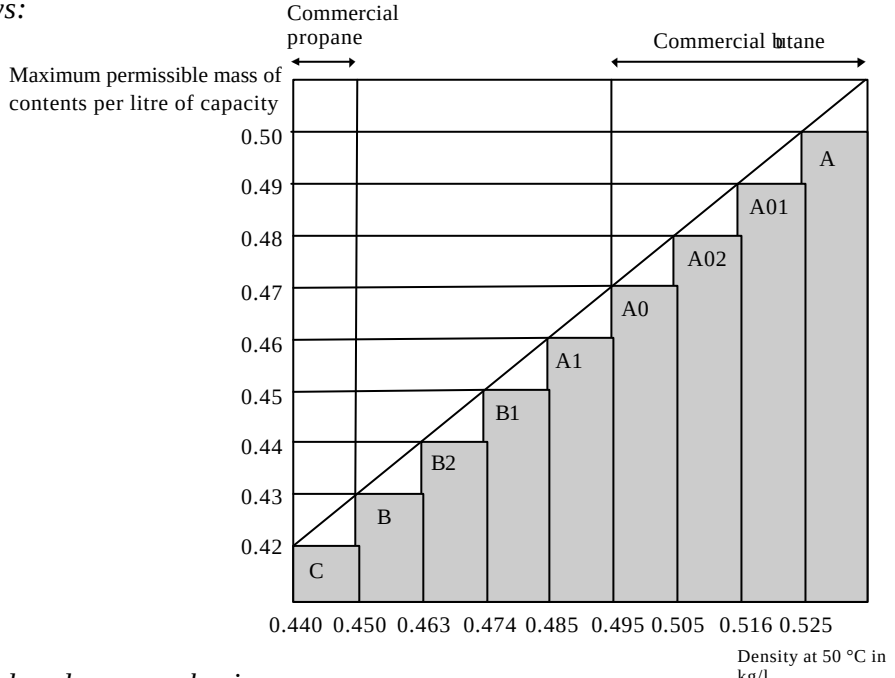
* *This LC_{50} value is under review.*

P200	PACKING INSTRUCTION (cont'd)										P200
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	**Name and description**	**Classification code**	**LC_{50} ml/m³**	**Cylinders**	**Pressure drums**	**Bundles of cylinders**	**Tubes**	**Test period, years [a]**	**Test pressure, bar**	**Filling ratio**	**Special packing provisions**
3159	1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)	2A		X	X	X	X	10	22	1.04	r
3160	LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.	2TF		X	X	X	X	5			r, z
3161	LIQUEFIED GAS, FLAMMABLE, N.O.S.	2F		X	X	X	X	10			r, z
3162	LIQUEFIED GAS, TOXIC, N.O.S.	2T		X	X	X	X	5			z
3163	LIQUEFIED GAS, N.O.S.	2A		X	X	X	X	10			r, z
3220	PENTAFLUOROETHANE (REFRIGERANT GAS R 125)	2A		X	X	X	X	10	49 36	0.95 0.72	r r
3252	DIFLUOROMETHANE (REFRIGERANT GAS R 32)	2F		X	X	X	X	10	48	0.78	r
3296	HEPTAFLUOROPROPANE (REFRIGERANT GAS R 227)	2A		X	X	X	X	10	15	1.20	r
3297	ETHYLENE OXIDE AND CHLOROTETRAFLUORO-ETHANE MIXTURE with not more than 8.8% ethylene oxide	2A		X	X	X	X	10	10	1.16	r
3298	ETHYLENE OXIDE AND PENTAFLUOROETHANE MIXTURE with not more than 7.9% ethylene oxide	2A		X	X	X	X	10	26	1.02	r
3299	ETHYLENE OXIDE AND TETRAFLUOROETHANE MIXTURE with not more than 5.6% ethylene oxide	2A		X	X	X	X	10	17	1.03	r
3300	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 87% ethylene oxide	2TF	More than 2900	X	X	X	X	5	28	0.73	r
3307	LIQUEFIED GAS, TOXIC, OXIDIZING, N.O.S.	2TO		X	X	X	X	5			z
3308	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.	2TC		X	X	X	X	5			r, z
3309	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	2TFC		X	X	X	X	5			r, z

P200	PACKING INSTRUCTION (cont'd)										P200
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	**Name and description**	**Classification code**	**LC_{50} ml/m³**	**Cylinders**	**Pressure drums**	**Bundles of cylinders**	**Tubes**	**Test period, years [a]**	**Test pressure, bar**	**Filling ratio**	**Special packing provisions**
3310	LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	2TOC		X	X	X	X	5			z
3318	AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water, with more than 50% ammonia	4TC		X	X	X	X	5			b
3337	REFRIGERANT GAS R 404A	2A		X	X	X	X	10	36	0.82	r
3338	REFRIGERANT GAS R 407A	2A		X	X	X	X	10	36	0.94	r
3339	REFRIGERANT GAS R 407B	2A		X	X	X	X	10	38	0.93	r
3340	REFRIGERANT GAS R 407C	2A		X	X	X	X	10	35	0.95	r
3354	INSECTICIDE GAS, FLAMMABLE, N.O.S	2F		X	X	X	X	10			r, z
3355	INSECTICIDE GAS, TOXIC, FLAMMABLE, N.O.S.	2TF		X	X	X	X	5			r, z
3374	ACETYLENE, SOLVENT FREE	2F		X		X		5	60		c, p

[a] *Not applicable for receptacles made of composite materials.*

[b] *For mixtures of UN No. 1965, the maximum permissible filling mass per litre of capacity is as follows:*



[c] *Considered as pyrophoric.*

P200	PACKING INSTRUCTION (cont'd)											P200
Table 3: SUBSTANCES NOT IN CLASS 2												
UN No.	**Name and description**	**Class or Division**	**Classification Code**	**LC_{50} ml/m^3**	**Cylinders**	**Pressure drums**	**Bundles of cylinders**	**Tubes**	**Test period, years [a]**	**Test pressure, bar**	**Filling ratio**	**Special packing provisions**
1051	HYDROGEN CYANIDE, STABILIZED containing less than 3% water	6.1	TF1	140	X	X	X		5	100	0.55	k
1052	HYDROGEN FLUORIDE, ANHYDROUS	8	CT1	966*	X	X	X		5	10	0.84	
1745	BROMINE PENTAFLUORIDE	5.1	OTC	25*	X	X	X		5	10	**	k
1746	BROMINE TRIFLUORIDE	5.1	OTC	180	X	X	X		5	10	**	k
2495	IODINE PENTAFLUORIDE	5.1	OTC	120	X	X	X		5	10	**	k

[a] *Not applicable for receptacles made of composite materials.*

* *This LC_{50} value is under review.*

** *A minimum ullage of 8% by volume is required.*

4.1.4.1 P601 Add a new special packing provision specific to RID and ADR to read as follows:

"RR3 Only receptacles which satisfy one of the special requirements listed in 4.1.4.4 shall be used.".

4.1.4.4 Add in the table a new particular pressure receptacle requirement as follows:

Pressure receptacle requirements	UN Nos.	Applicable construction, testing, filling and marking requirements
PR7	1614	Liquid hydrogen cyanide, stabilized, when completely absorbed by an inert porous material, shall be packed in metal receptacles of a capacity of not more than 7.5 litres, placed in wooden cases in such a manner that they cannot come into contact with one another. Such combination packagings shall comply with the following conditions: (1) the receptacles shall be tested at a pressure of not less than 0.6 MPa (6 bar) (gauge pressure); (2) the receptacles shall be entirely filled with the porous material which shall not shake down or form dangerous spaces even after prolonged use or under impact, even at temperatures of up to 50 °C; (3) the date of filling shall be durably marked on the lid of each receptacle; (4) combination packagings shall be tested and approved, in accordance with 6.1.5.21 for packing group I; (5) a package shall not weigh more than 120 kg.

4.1.6.5 Delete the whole paragraph and renumber existing paragraph 4.1.6.6 as 4.1.6.5.

4.1.6.6 Add the following paragraphs after existing 4.1.6.6 (renumbered as 4.1.6.5) and renumber existing 4.1.6.7 as 4.1.6.10.

"4.1.6.6 Non-refillable pressure receptacles shall:

(a) be carried in an outer packaging, such as a box, or crate, or in shrink-wrapped trays or stretch-wrapped trays;

(b) be of a water capacity less than or equal to 1.25 litres when filled with flammable or toxic gas;

(c) not be used for toxic gases with an LC_{50} less than or equal to 200 ml/m^3; and

(d) not be repaired after being put into service.

4.1.6.7 Pressure receptacles shall not be subjected to repairs of any of the following;

(a) weld cracks or other weld defects;

(b) cracks in walls;

(c) leaks or defects in the material of the wall, head or bottom.

4.1.6.8 Pressure receptacles shall not be offered for filling:

(a) when damaged to such an extent that the integrity of the pressure receptacle or its service equipment may be affected;

(b) unless the pressure receptacle and its service equipment has been examined and found to be in good working order; and

(c) unless the required certification, retest, and filling markings are legible.

4.1.6.9 Charged pressure receptacles shall not be offered for carriage;

(a) when leaking;

(b) when damaged to such an extent that the integrity of the pressure receptacle or its service equipment may be affected;

(c) unless the pressure receptacle and its service equipment has been examined and found to be in good working order; and

(d) unless the required certification, retest, and filling markings are legible.".

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