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Agreement Concerning the International
Carriage of Dangerous Goods by Road

Volume II

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ANNEX A

GENERAL PROVISIONS AND PROVISIONS CONCERNING DANGEROUS SUBSTANCES AND ARTICLES *(cont'd)*

PART 4

Packing and tank provisions

CHAPTER 4.1

USE OF PACKAGINGS, INCLUDING INTERMEDIATE BULK CONTAINERS (IBCs) AND LARGE PACKAGINGS

NOTE: Packagings, including IBCs and large packagings, marked in accordance with 6.1.3, 6.2.2.7, 6.2.2.8, 6.2.2.9, 6.2.2.10, 6.3.4, 6.5.2 or 6.6.3 but which were approved in a country which is not Contracting Party to ADR may nevertheless be used for carriage under ADR.

4.1.1 General provisions for the packing of dangerous goods in packagings, including IBCs and large packagings

NOTE: For the packing of goods of Classes 2, 6.2 and 7, the general provisions of this section only apply as indicated in 4.1.8.2 (Class 6.2, UN Nos. 2814 and 2900), 4.1.9.1.5 (Class 7) and in the applicable packing instructions of 4.1.4 (P201, P207 and LP200 for Class 2 and P620, P621, P622, IBC620, LP621 and LP622 for Class 6.2).

4.1.1.1 Dangerous goods shall be packed in good quality packagings, including IBCs and large packagings, which shall be strong enough to withstand the shocks and loadings normally encountered during carriage, including trans-shipment between cargo transport units and between cargo transport units and warehouses as well as any removal from a pallet or overpack for subsequent manual or mechanical handling. Packagings, including IBCs and large packagings, shall be constructed and closed so as to prevent any loss of contents when prepared for transport which might be caused under normal conditions of transport, by vibration, or by changes in temperature, humidity or pressure (resulting from altitude, for example). Packagings, including IBCs and large packagings, shall be closed in accordance with the information provided by the manufacturer. No dangerous residue shall adhere to the outside of packagings, IBCs and large packagings during carriage. These provisions apply, as appropriate, to new, reused, reconditioned or remanufactured packagings and to new, reused, repaired or remanufactured IBCs, and to new, reused or remanufactured large packagings.

4.1.1.2 Parts of packagings, including IBCs and large packagings, which are in direct contact with dangerous goods:

- (a) Shall not be affected or significantly weakened by those dangerous goods;
- (b) Shall not cause a dangerous effect e.g. catalysing a reaction or reacting with the dangerous goods; and
- (c) Shall not allow permeation of the dangerous goods that could constitute a danger under normal conditions of carriage.

Where necessary, they shall be provided with a suitable inner coating or treatment.

NOTE: For chemical compatibility of plastics packagings, including IBCs, made from polyethylene see 4.1.1.21.

4.1.1.3 Design type

4.1.1.3.1 Unless otherwise provided elsewhere in ADR, each packaging, including IBCs and large packagings, except inner packagings, shall conform to a design type successfully tested in accordance with the requirements of 6.1.5, 6.3.5, 6.5.6 or 6.6.5, as applicable.

4.1.1.3.2 Packagings, including IBCs and large packagings, may conform to one or more than one successfully tested design type and may bear more than one mark.

4.1.1.4 When filling packagings, including IBCs and large packagings, with liquids, sufficient ullage (outage) shall be left to ensure that neither leakage nor permanent distortion of the packaging occurs as a result of an expansion of the liquid caused by temperatures likely to occur during transport. Unless specific requirements are prescribed, liquids shall not completely fill a packaging at a temperature of 55 °C. However, sufficient ullage shall be left in an IBC to ensure that at the mean bulk temperature of 50 °C it is not filled to more than 98 % of its water capacity. For a filling temperature of 15 °C, the maximum degree of filling shall be determined as follows, unless otherwise provided, either:

(a)	Boiling point (initial boiling point) of the substance in °C	< 60	≥ 60 < 100	≥ 100 < 200	≥ 200 < 300	≥ 300
	Degree of filling as a percentage of the capacity of the packaging	90	92	94	96	98

or

$$(b) \text{ Degree of filling} = \frac{98}{1 + \alpha (50 - t_f)} \% \text{ of the capacity of the packaging.}$$

In this formula α represents the mean coefficient of cubic expansion of the liquid substance between 15 °C and 50 °C; that is to say, for a maximum rise in temperature of 35 °C,

$$\alpha \text{ is calculated according to the formula: } \alpha = \frac{d_{15} - d_{50}}{35 \times d_{50}}$$

d_{15} and d_{50} being the relative densities¹ of the liquid at 15 °C and 50 °C and t_f the mean temperature of the liquid at the time of filling.

4.1.1.5 Inner packagings shall be packed in an outer packaging in such a way that, under normal conditions of carriage, they cannot break, be punctured or leak their contents into the outer packaging. Inner packagings containing liquids shall be packed with their closures upward and placed within outer packagings consistent with the orientation marks prescribed in 5.2.1.10. Inner packagings that are liable to break or be punctured easily, such as those made of glass, porcelain or stoneware or of certain plastics materials, etc., shall be secured in outer packagings with suitable cushioning material. Any leakage of the contents shall not substantially impair the protective properties of the cushioning material or of the outer packaging.

4.1.1.5.1 Where an outer packaging of a combination packaging or a large packaging has been successfully tested with different types of inner packagings, a variety of such different inner packagings may also be assembled in this outer packaging or large packaging. In addition, provided an equivalent level of performance is maintained, the following variations in inner packagings are allowed without further testing of the package:

- (a) Inner packagings of equivalent or smaller size may be used provided:
 - (i) The inner packagings are of similar design to the tested inner packagings (e.g. shape - round, rectangular, etc.);
 - (ii) The material of construction of the inner packagings (glass, plastics, metal, etc.) offers resistance to impact and stacking forces equal to or greater than that of the originally tested inner packaging;
 - (iii) The inner packagings have the same or smaller openings and the closure is of similar design (e.g. screw cap, friction lid, etc.);
 - (iv) Sufficient additional cushioning material is used to take up void spaces and to prevent significant movement of the inner packagings; and
 - (v) Inner packagings are oriented within the outer packaging in the same manner as in the tested package.
- (b) A lesser number of the tested inner packagings, or of the alternative types of inner packagings identified in (a) above, may be used provided sufficient cushioning is added to fill the void space(s) and to prevent significant movement of the inner packagings.

4.1.1.5.2 Use of supplementary packagings within an outer packaging (e.g. an intermediate packaging or a receptacle inside a required inner packaging) additional to what is required by the packing instructions is authorized provided all relevant requirements are met, including those of 4.1.1.3, and, if appropriate, suitable cushioning is used to prevent movement within the packaging.

¹ Relative density (d) is considered to be synonymous with specific gravity (SG) and will be used throughout this Chapter.

4.1.1.5.3 For the carriage of waste, other than articles, inner packagings of different sizes and shapes, containing liquids or solids, may be packed together in one outer packaging, provided that the following conditions are met:

- (a) The waste carried in each inner packaging is not classified as class 1, 2, 6.2 or 7;
- (b) By derogation from 4.1.1.5, 4.1.1.5.1, 4.1.1.5.2, 4.1.1.21, 4.1.3.1 to 4.1.3.5, 4.1.3.7, 4.1.4, 6.1.5.2.1, 6.5.6.1.2 and 6.6.5.2.1:
 - (i) The outer packaging is one of the following types:
 - 1H2, 1A2, 3A2, 3H1, 3H2, 4A or 4H2;
 - 11A, 11H1 or 11H2;
 - 50A or 50H;
 - (ii) The outer packaging is tested for packing group I;
 - (iii) The outer packaging does not need to be tested according to the tests required for packagings intended to contain liquids, but it shall be capable of retaining liquids under normal conditions of carriage;
 - (iv) Sufficient cushioning material is used to prevent significant movement of the inner packagings under normal conditions of carriage;
 - (v) If the outer packaging contains inner packagings that are liable to break easily, such as those made of glass, porcelain or stoneware, or non-leakproof inner packagings, the outer packaging has a means of retaining any free liquid that might escape from the inner packagings during carriage, e.g. absorbent material or other equally efficient means of retention;
 - (vi) For polyethylene outer packaging, proof of sufficient chemical compatibility is deemed to have been provided if the chemical compatibility of the material of the outer packaging with all the standard liquids described in 6.1.6.1 has been verified as part of a design type test and approval for packaging of the same material with code 1H1 or 3H1;
- (c) Depending on the waste identified in each inner packaging, inner packagings are packed together in an appropriate outer packaging only by trained and competent personnel in accordance with 1.3.2.2, with the use of instructions or procedures ensuring compliance with 4.1.1.6 and the provisions of mixed packing of 4.1.10.4;
- (d) The waste contained in one outer packaging is assigned to the most appropriate entry. More than one entry may be used, if needed. By derogation from 5.1.4, the only marking and labelling on the outer packaging corresponds to the entry or entries assigned to the outer packaging.

4.1.1.6 Dangerous goods shall not be packed together in the same outer packaging or in large packagings, with dangerous or other goods if they react dangerously with each other and cause:

- (a) Combustion or evolution of considerable heat;
- (b) Evolution of flammable, asphyxiant, oxidizing or toxic gases;
- (c) The formation of corrosive substances; or
- (d) The formation of unstable substances.

NOTE: For mixed packing special provisions, see 4.1.10.

4.1.1.7 The closures of packagings containing wetted or diluted substances shall be such that the percentage of liquid (water, solvent or phlegmatizer) does not fall below the prescribed limits during transport.

4.1.1.7.1 Where two or more closure systems are fitted in series on an IBC, that nearest to the substance being carried shall be closed first.

4.1.1.8 Where pressure may develop in a package by the emission of gas from the contents (as a result of temperature increase or other causes), the packaging or IBC may be fitted with a vent provided that the gas emitted will not cause danger on account of its toxicity, its flammability or the quantity released, for example.

A venting device shall be fitted if dangerous overpressure may develop due to normal decomposition of substances. The vent shall be so designed that, when the packaging or IBC is in the attitude in which it is intended to be carried, leakages of liquid and the penetration of foreign substances are prevented under normal conditions of carriage.

NOTE: Venting of the package is not permitted for air carriage.

4.1.1.8.1 Liquids may only be filled into inner packagings which have an appropriate resistance to internal pressure that may be developed under normal conditions of carriage.

4.1.1.9 New, remanufactured or reused packagings, including IBCs and large packagings, or reconditioned packagings and repaired or routinely maintained IBCs shall be capable of passing the tests prescribed in 6.1.5, 6.3.5, 6.5.6 or 6.6.5, as applicable. Before being filled and handed over for carriage, every packaging, including IBCs and large packagings, shall be inspected to ensure that it is free from corrosion, contamination or other damage and every IBC shall be inspected with regard to the proper functioning of any service equipment. Any packaging which shows signs of reduced strength as compared with the approved design type shall no longer be used or shall be so reconditioned, that it is able to withstand the design type tests. Any IBC which shows signs of reduced strength as compared with the tested design type shall no longer be used or shall be so repaired or routinely maintained that it is able to withstand the design type tests.

4.1.1.10 Liquids shall be filled only into packagings, including IBCs, which have an appropriate resistance to the internal pressure that may develop under normal conditions of carriage. Packagings and IBCs marked with the hydraulic test pressure prescribed in 6.1.3.1 (d) and 6.5.2.2.1, respectively shall be filled only with a liquid having a vapour pressure:

- (a) Such that the total gauge pressure in the packaging or IBC (i.e. the vapour pressure of the filling substance plus the partial pressure of air or other inert gases, less 100 kPa) at 55 °C, determined on the basis of a maximum degree of filling in accordance with 4.1.1.4 and a filling temperature of 15 °C, will not exceed two-thirds of the marked test pressure; or
- (b) At 50 °C less than four-sevenths of the sum of the marked test pressure plus 100 kPa; or
- (c) At 55 °C less than two-thirds of the sum of the marked test pressure plus 100 kPa.

IBCs intended for the carriage of liquids shall not be used to carry liquids having a vapour pressure of more than 110 kPa (1.1 bar) at 50 °C or 130 kPa (1.3 bar) at 55 °C.

Examples of required marked test pressures for packagings, including IBCs, calculated as in 4.1.1.10 (c)

UN No	Name	Class	Packing group	V_{p55} (kPa)	$V_{p55} \times 1.5$ (kPa)	$(V_{p55} \times 1.5)$ minus 100 (kPa)	Required minimum test pressure gauge under 6.1.5.5.4(c) (kPa)	Minimum test pressure (gauge) to be marked on the packaging (kPa)
2056	Tetrahydrofuran	3	II	70	105	5	100	100
2247	n-Decane	3	III	1.4	2.1	-97.9	100	100
1593	Dichloromethane	6.1	III	164	246	146	146	150
1155	Diethyl ether	3	I	199	299	199	199	250

NOTE 1: For pure liquids the vapour pressure at 55 °C (V_{p55}) can often be obtained from scientific tables.

NOTE 2: The table refers to the use of 4.1.1.10 (c) only, which means that the marked test pressure shall exceed 1.5 times the vapour pressure at 55 °C less 100 kPa. When, for example, the test pressure for n-decane is determined according to 6.1.5.5.4 (a), the minimum marked test pressure may be lower.

NOTE 3: For diethyl ether the required minimum test pressure under 6.1.5.5.5 is 250 kPa.

4.1.1.11 Empty packagings, including IBCs and large packagings, that have contained a dangerous substance are subject to the same requirements as those for a filled packaging, unless adequate measures have been taken to nullify any hazard.

NOTE: When such packagings are carried for disposal, recycling or recovery of their material, they may also be carried under UN No. 3509 provided the conditions of special provision 663 of Chapter 3.3 are met.

4.1.1.12 Every packaging as specified in Chapter 6.1 intended to contain liquids shall successfully undergo a suitable leakproofness test. This test is part of a quality assurance programme as stipulated in 6.1.1.4 which shows the capability of meeting the appropriate test level indicated in 6.1.5.4.3:

- (a) Before it is first used for carriage;
- (b) After remanufacturing or reconditioning of any packaging, before it is re-used for carriage.

For this test the packaging need not have its closures fitted. The inner receptacle of a composite packaging may be tested without the outer packaging, provided the test results are not affected. This test is not required for:

- Inner packagings of combination packagings or large packagings;
- Inner receptacles of composite packagings (glass, porcelain or stoneware) marked with the symbol "RID/ADR" in accordance with 6.1.3.1 (a) (ii);
- Light gauge metal packagings marked with the symbol "RID/ADR" in accordance with 6.1.3.1 (a) (ii).

4.1.1.13 Packagings, including IBCs, used for solids which may become liquid at temperatures likely to be encountered during carriage shall also be capable of containing the substance in the liquid state.

4.1.1.14 Packagings, including IBCs, used for powdery or granular substances shall be sift-proof or shall be provided with a liner.

4.1.1.15 For plastics drums and jerricans, rigid plastics IBCs and composite IBCs with plastics inner receptacles, unless otherwise approved by the competent authority, the period of use permitted for the carriage of dangerous substances shall be five years from the date of manufacture of the receptacles, except where a shorter period of use is prescribed because of the nature of the substance to be carried.

NOTE: For composite IBCs the period of use refers to the date of manufacture of the inner receptacle.

4.1.1.16 Where ice is used as a coolant it shall not affect the integrity of the packaging.

4.1.1.17 *(Deleted)*

4.1.1.18 Explosives, self-reactive substances and organic peroxides

Unless specific provision to the contrary is made in ADR, the packagings, including IBCs and large packagings, used for goods of Class 1, self-reactive substances of Class 4.1 and organic peroxides of Class 5.2 shall comply with the provisions for the medium danger group (packing group II).

4.1.1.19 Use of salvage packagings and large salvage packagings

4.1.1.19.1 Damaged, defective, leaking or non-conforming packages, or dangerous goods that have spilled or leaked may be carried in salvage packagings mentioned in 6.1.5.1.11 and in large salvage packagings mentioned in 6.6.5.1.9. This does not prevent the use of a larger size packaging, an IBC of type 11A or a large packaging of appropriate type and performance level and under the conditions of 4.1.1.19.2 and 4.1.1.19.3.

4.1.1.19.2 Appropriate measures shall be taken to prevent excessive movement of the damaged or leaking packages within a salvage packaging or large salvage packaging. When the salvage packaging or large salvage packaging contains liquids, sufficient inert absorbent material shall be added to eliminate the presence of free liquid.

4.1.1.19.3 Appropriate measures shall be taken to ensure that there is no dangerous build-up of pressure.

4.1.1.20 *Use of salvage pressure receptacles*

4.1.1.20.1 In the case of damaged, defective, leaking or non-conforming pressure receptacles, salvage pressure receptacles according to 6.2.3.11 may be used.

NOTE: A salvage pressure receptacle may be used as an overpack in accordance with 5.1.2. When used as an overpack, marks shall be in accordance with 5.1.2.1 instead of 5.2.1.3.

4.1.1.20.2 Pressure receptacles shall be placed in salvage pressure receptacles of suitable size. More than one pressure receptacle may be placed in the same salvage pressure receptacle only if the contents are known and do not react dangerously with each other (see 4.1.1.6). In this case the total sum of water capacities of the placed pressure receptacles shall not exceed 3 000 litres. Appropriate measures shall be taken to prevent movement of the pressure receptacles within the salvage pressure receptacle e.g. by partitioning, securing or cushioning.

4.1.1.20.3 A pressure receptacle may only be placed in a salvage pressure receptacle if:

- (a) The salvage pressure receptacle is in accordance with 6.2.3.11 and a copy of the approval certificate is available;
- (b) Parts of the salvage pressure receptacle which are, or are likely to be in direct contact with the dangerous goods will not be affected or weakened by those dangerous goods and will not cause a dangerous effect (e.g. catalyzing reaction or reacting with the dangerous goods); and
- (c) The contents of the contained pressure receptacle(s) are limited in pressure and volume so that if totally discharged into the salvage pressure receptacle, the pressure in the salvage pressure receptacle at 65 °C will not exceed the test pressure of the salvage pressure receptacle (for gases, see packing instruction in P200 (3) in 4.1.4.1). The reduction of the useable water capacity of the salvage pressure receptacle, e.g. by any contained equipment and cushioning, shall be taken into account.

4.1.1.20.4 The proper shipping name, the UN number preceded by the letters "UN" and label(s) as required for packages in Chapter 5.2 applicable to the dangerous goods inside the contained pressure receptacle(s) shall be applied to the salvage pressure receptacle for carriage.

4.1.1.20.5 Salvage pressure receptacles shall be cleaned, purged and visually inspected internally and externally after each use. They shall be periodically inspected and tested in accordance with 6.2.3.5 at least once every five years.

4.1.1.21 *Verification of the chemical compatibility of plastics packagings, including IBCs, by assimilation of filling substances to standard liquids***4.1.1.21.1** *Scope*

For polyethylene packagings as specified in 6.1.5.2.6, and for polyethylene IBCs as specified in 6.5.6.3.5, the chemical compatibility with filling substances may be verified by assimilation to standard liquids following the procedures, as set out in 4.1.1.21.3 to 4.1.1.21.5 and using the list in table 4.1.1.21.6, provided that the particular design types have been tested with these standard liquids in accordance with 6.1.5 or 6.5.6, taking into account 6.1.6 and that the conditions in 4.1.1.21.2 are met. When assimilation in accordance with this sub-section is not possible, the chemical compatibility needs to be verified by design type testing in accordance with 6.1.5.2.5 or by laboratory tests in accordance with 6.1.5.2.7 for packagings, and in accordance with 6.5.6.3.3 or 6.5.6.3.6 for IBCs, respectively.

NOTE: Irrespective of the provisions of this sub-section, the use of packagings, including IBCs, for a specific filling substance is subject to the limitations of Table A of Chapter 3.2, and the packing instructions in Chapter 4.1.

4.1.1.21.2 *Conditions*

The relative densities of the filling substances shall not exceed that used to determine the height for the drop test performed successfully according to 6.1.5.3.5 or 6.5.6.9.4 and the mass for the stacking test performed successfully according to 6.1.5.6 or where necessary according to 6.5.6.6 with the assimilated standard liquid(s). The vapour pressures of the filling substances at 50 °C or 55 °C shall not exceed that used to determine the pressure for the internal pressure (hydraulic) test performed successfully according to 6.1.5.5.4 or 6.5.6.8.4.2 with the assimilated standard liquid(s). In case that

filling substances are assimilated to a combination of standard liquids, the corresponding values of the filling substances shall not exceed the minimum values derived from the applied drop heights, stacking masses and internal test pressures.

Example: UN No. 1736 Benzoyl chloride is assimilated to the combination of standard liquids "Mixture of hydrocarbons and wetting solution". It has a vapour pressure of 0.34 kPa at 50 °C and a relative density of approximately 1.2. Design type tests for plastics drums and jerricans were frequently performed at minimum required test levels. In practice this means that the stacking test is commonly performed with stacking loads considering only a relative density of 1.0 for the "Mixture of hydrocarbons" and a relative density of 1.2 for the "Wetting solution" (see definition of standard liquids in 6.1.6). As a consequence chemical compatibility of such tested design types would not be verified for benzoyl chloride by reason of the inadequate test level of the design type with the standard liquid "mixture of hydrocarbons". (Due to the fact that in the majority of cases the applied internal hydraulic test pressure is not less than 100 kPa, the vapour pressure of benzoyl chloride would be covered by such test level according to 4.1.1.10).

All components of a filling substance, which may be a solution, mixture or preparation, such as wetting agents in detergents and disinfectants, irrespective whether dangerous or non-dangerous, shall be included in the assimilation procedure.

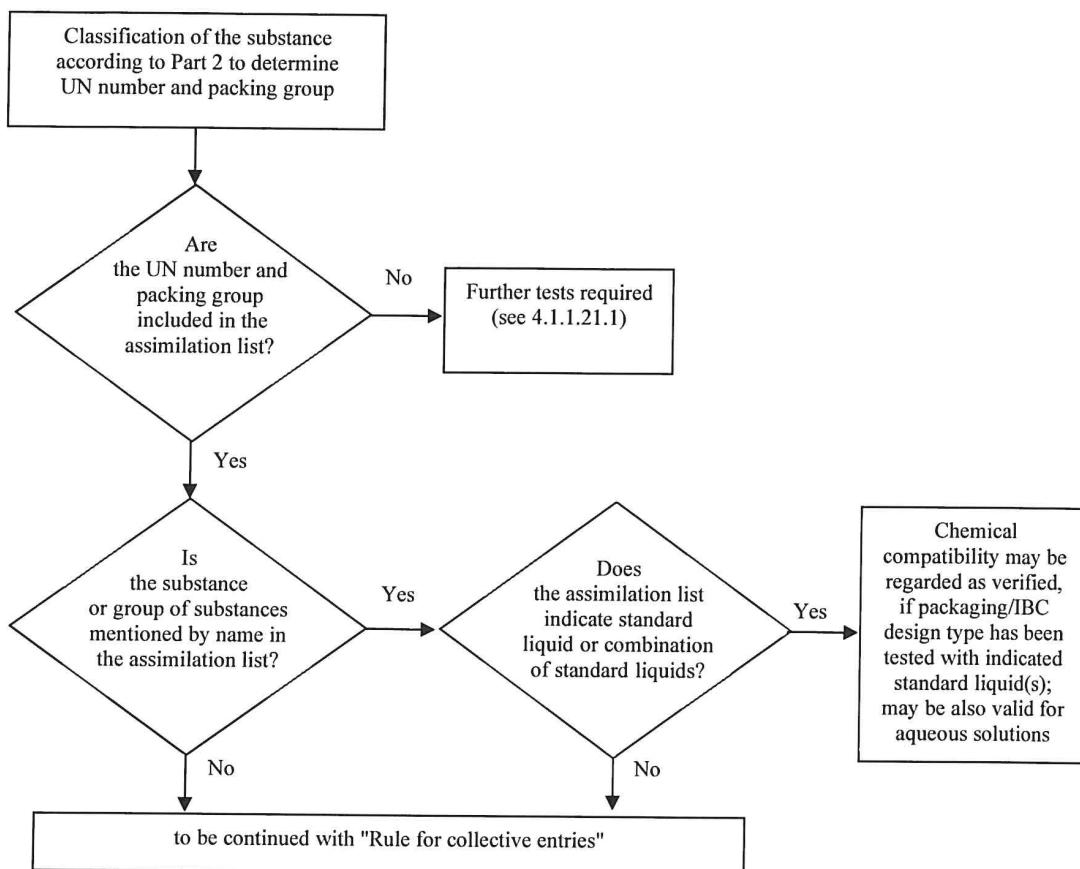
4.1.1.21.3 Assimilation procedure

The following steps shall be taken to assign filling substances to listed substances or groups of substances in table 4.1.1.21.6 (see also scheme in Figure 4.1.1.21.1):

- (a) Classify the filling substance in accordance with the procedures and criteria of Part 2 (determination of the UN number and packing group);
- (b) If it is included there, go to the UN number in column (1) of table 4.1.1.21.6;
- (c) Select the line that corresponds in terms of packing group, concentration, flashpoint, the presence of non-dangerous components etc. by means of the information given in columns (2a), (2b) and (4), if there is more than one entry for this UN number.

If this is not possible, the chemical compatibility shall be verified in accordance with 6.1.5.2.5 or 6.1.5.2.7 for packagings, and in accordance with 6.5.6.3.3 or 6.5.6.3.6 for IBCs (however, in the case of aqueous solutions, see 4.1.1.21.4);

- (d) If the UN number and packing group of the filling substance determined in accordance with (a) is not included in the assimilation list, the chemical compatibility shall be proved in accordance with 6.1.5.2.5 or 6.1.5.2.7 for packagings, and in accordance with 6.5.6.3.3 or 6.5.6.3.6 for IBCs;
- (e) Apply the "Rule for collective entries", as described in 4.1.1.21.5, if this is indicated in column (5) of the selected line;
- (f) The chemical compatibility of the filling substance may be regarded as verified taking into account 4.1.1.21.1 and 4.1.1.21.2, if a standard liquid or a combination of standard liquids is assimilated in column (5) and the design type is approved for that/those standard liquid(s).

Figure 4.1.1.21.1: Scheme for the assimilation of filling substances to standard liquids

4.1.1.21.4 *Aqueous solutions*

Aqueous solutions of substances and groups of substances assimilated to specific standard liquid(s) in accordance with 4.1.1.21.3 may also be assimilated to that (those) standard liquid(s) provided the following conditions are met:

- (a) The aqueous solution can be assigned to the same UN number as the listed substance in accordance with the criteria of 2.1.3.3, and
- (b) The aqueous solution is not specifically mentioned by name otherwise in the assimilation list in 4.1.1.21.6, and
- (c) No chemical reaction is taking place between the dangerous substance and the solvent water.

Example: Aqueous solutions of UN No. 1120 tert-Butanol:

- *Pure tert-Butanol itself is assigned to the standard liquid "acetic acid" in the assimilation list.*
- *Aqueous solutions of tert-Butanol can be classified under the entry UN No. 1120 BUTANOLS in accordance with 2.1.3.3, because the aqueous solution of tert-Butanol does not differ from the entries of the pure substances relating to the class, the packing group(s) and the physical state. Furthermore, the entry "1120 BUTANOLS" is not explicitly limited to the pure substances, and aqueous solutions of these substances are not specifically mentioned by name otherwise in Table A of chapter 3.2 as well as in the assimilation list.*
- *UN No. 1120 BUTANOLS do not react with water under normal conditions of carriage.*

As a consequence, aqueous solutions of UN No. 1120 tert-Butanol may be assigned to the standard liquid "acetic acid".

4.1.1.21.5 *Rule for collective entries*

For the assimilation of filling substances for which "Rule for collective entries" is indicated in column (5), the following steps shall be taken and conditions be met (see also scheme in Figure 4.1.1.21.2):

- (a) Perform the assimilation procedure for each dangerous component of the solution, mixture or preparation in accordance with 4.1.1.21.3 taking into account the conditions in 4.1.1.21.2. In the case of generic entries, components may be neglected, that are known to have no damaging effect on high density polyethylene (e.g. solid pigments in UN No. 1263 PAINT or PAINT RELATED MATERIAL);
- (b) A solution, mixture or preparation cannot be assimilated to a standard liquid, if:
 - (i) The UN number and packing group of one or more of the dangerous components does not appear in the assimilation list; or
 - (ii) "Rule for collective entries" is indicated in column (5) of the assimilation list for one or more of the components; or
 - (iii) (With the exception of UN No. 2059 NITROCELLULOSE SOLUTION, FLAMMABLE) the classification code of one or more of its dangerous components differs from that of the solution, mixture or preparation.
- (c) If all dangerous components are listed in the assimilation list, and its classification codes are in accordance with the classification code of the solution, mixture or preparation itself, and all dangerous components are assimilated to the same standard liquid or combination of standard liquids in column (5), the chemical compatibility of the solution, mixture or preparation may be regarded as verified taking into account 4.1.1.21.1 and 4.1.1.21.2;
- (d) If all dangerous components are listed in the assimilation list and its classification codes are in accordance with the classification code of the solution, mixture or preparation itself, but different standard liquids are indicated in column (5), the chemical compatibility may only be regarded as verified for the following combinations of standard liquids taking into account 4.1.1.21.1 and 4.1.1.21.2:
 - (i) water/nitric acid 55 %; with the exception of inorganic acids with the classification code C1, which are assigned to standard liquid "water";
 - (ii) water/wetting solution;
 - (iii) water/acetic acid;
 - (iv) water/mixture of hydrocarbons;
 - (v) water/n-butyl acetate – n-butyl acetate-saturated wetting solution;
- (e) In the scope of this rule, chemical compatibility is not regarded as verified for other combinations of standard liquids than those specified in (d) and for all cases specified in (b). In such cases the chemical compatibility shall be verified by other means (see 4.1.1.21.3 (d)).

Example 1: Mixture of UN No. 1940 THIOGLYCOLIC ACID (50 %) and UN No. 2531 METHACRYLIC ACID, STABILIZED (50 %); classification of the mixture: UN No. 3265 CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.

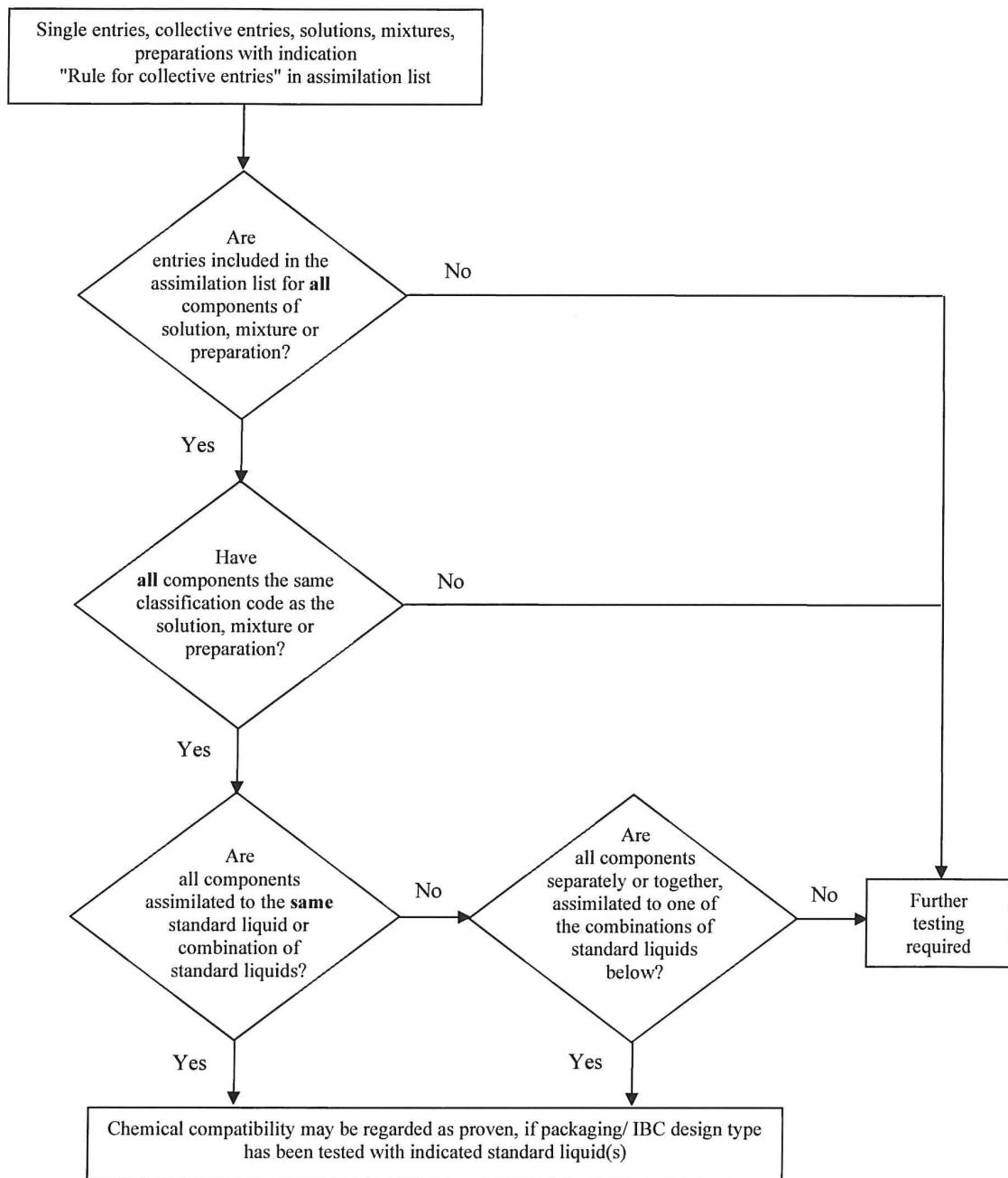
- Both the UN numbers of the components and the UN number of the mixture are included in the assimilation list;
- Both the components and the mixture have the same classification code: C3;
- UN No. 1940 THIOGLYCOLIC ACID is assimilated to standard liquid "acetic acid", and UN No. 2531 METHACRYLIC ACID, STABILIZED is assimilated to standard liquid "n-butyl acetate/n-butyl acetate-saturated wetting solution". According to paragraph (d) this is not an

acceptable combination of standard liquids. The chemical compatibility of the mixture has to be verified by other means.

***Example 2:** Mixture of UN No. 1793 ISOPROPYL ACID PHOSPHATE (50 %) and UN No. 1803 PHENOLSULPHONIC ACID, LIQUID (50 %); classification of the mixture: UN No. 3265 CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.*

- *Both the UN numbers of the components and the UN number of the mixture are included in the assimilation list;*
- *Both the components and the mixture have the same classification code: C3;*
- *UN No. 1793 ISOPROPYL ACID PHOSPHATE is assimilated to standard liquid "wetting solution", and UN No. 1803 PHENOLSULPHONIC ACID, LIQUID is assimilated to standard liquid "water". According to paragraph (d) this is one of the acceptable combinations of standard liquids. As a consequence the chemical compatibility may be regarded as verified for this mixture, provided the packaging design type is approved for the standard liquids "wetting solution" and "water".*

Figure 4.1.1.21.2: Scheme "Rules for collective entries"



Acceptable combinations of standard liquids:

- Water/nitric acid (55 %), with the exception of inorganic acids of classification code C1 which are assigned to standard liquid "water";
- Water/wetting solution;
- Water/acetic acid;
- Water/mixture of hydrocarbons;
- Water/n-butyl acetate – n-butyl acetate saturated wetting solution

4.1.1.21.6 *Assimilation list*

In the following table (assimilation list) dangerous substances are listed in the numerical order of their UN numbers. As a rule, each line deals with a dangerous substance, single entry or collective entry covered by a specific UN number. However, several consecutive lines may be used for the same UN number, if substances belonging to the same UN number have different names (e.g. individual isomers of a group of substances), different chemical properties, different physical properties and/or different transport conditions. In such cases the single entry or collective entry within the particular packing group is the last one of such consecutive lines.

Columns (1) to (4) of table 4.1.1.21.6, following a structure similar to that of Table A of Chapter 3.2, are used to identify the substance for the purpose of this sub-section. The last column indicates the standard liquid(s) to which the substance can be assimilated.

Explanatory notes for each column:

Column (1) UN No.

Contains the UN number:

- Of the dangerous substance, if the substance has been assigned its own specific UN number, or
- Of the collective entry to which dangerous substances not listed by name have been assigned in accordance with the criteria ("decision trees") of Part 2.

Column (2a) Proper shipping name or technical name

Contains the name of the substance, the name of the single entry, which may cover various isomers, or the name of the collective entry itself.

The indicated name can deviate from the applicable proper shipping name.

Column (2b) Description

Contains a descriptive text to clarify the scope of the entry in those cases when the classification, the transport conditions and/or the chemical compatibility of the substance may be variable.

Column (3a) Class

Contains the number of the class, whose heading covers the dangerous substance. This class number is assigned in accordance with the procedures and criteria of Part 2.

Column (3b) Classification code

Contains the classification code of the dangerous substance in accordance with the procedures and criteria of Part 2.

Column (4) Packing group

Contains the packing group number(s) (I, II or III) assigned to the dangerous substance in accordance with the procedures and criteria of Part 2. Certain substances are not assigned to packing groups.

Column (5) Standard liquid

This column indicates, as definite information, either a standard liquid or a combination of standard liquids to which the substance can be assimilated, or a reference to the rule for collective entries in 4.1.1.21.5.

Table 4.1.1.21.6: Assimilation list

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
1090	Acetone		3	F1	II	Mixture of hydrocarbons Remark: applicable only, if it is proved that the permeability of the substance out of the package intended for carriage has an acceptable level
1093	Acrylonitrile, stabilized		3	FT1	I	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1104	Amyl acetates	pure isomers and isomeric mixture	3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1105	Pentanols	pure isomers and isomeric mixture	3	F1	II/III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1106	Amylamines	pure isomers and isomeric mixture	3	FC	II/III	Mixture of hydrocarbons and wetting solution
1109	Amyl formates	pure isomers and isomeric mixture	3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1120	Butanols	pure isomers and isomeric mixture	3	F1	II/III	Acetic acid
1123	Butyl acetates	pure isomers and isomeric mixture	3	F1	II/III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1125	n-Butylamine		3	FC	II	Mixture of hydrocarbons and wetting solution
1128	n-Butyl formate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1129	Butyraldehyde		3	F1	II	Mixture of hydrocarbons
1133	Adhesives	containing flammable liquid	3	F1	I/II/III	Rule for collective entries
1139	Coating solution	includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining	3	F1	I/II/III	Rule for collective entries
1145	Cyclohexane		3	F1	II	Mixture of hydrocarbons
1146	Cyclopentane		3	F1	II	Mixture of hydrocarbons
1153	Ethylene glycol diethyl ether		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution and mixture of hydrocarbons
1154	Diethylamine		3	FC	II	Mixture of hydrocarbons and wetting solution
1158	Diisopropylamine		3	FC	II	Mixture of hydrocarbons and wetting solution

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
1160	Dimethylamine aqueous solution		3	FC	II	Mixture of hydrocarbons and wetting solution
1165	Dioxane		3	F1	II	Mixture of hydrocarbons
1170	Ethanol or Ethanol solution	aqueous solution	3	F1	II/III	Acetic acid
1171	Ethylene glycol monoethyl ether		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution and mixture of hydrocarbons
1172	Ethylene glycol monoethyl ether acetate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution and mixture of hydrocarbons
1173	Ethyl acetate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1177	2-Ethylbutyl acetate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1178	2-Ethylbutyraldehyde		3	F1	II	Mixture of hydrocarbons
1180	Ethyl butyrate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1188	Ethylene glycol monomethyl ether		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution and mixture of hydrocarbons
1189	Ethylene glycol monomethyl ether acetate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution and mixture of hydrocarbons
1190	Ethyl formate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1191	Octyl aldehydes	pure isomers and isomeric mixture	3	F1	III	Mixture of hydrocarbons
1192	Ethyl lactate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1195	Ethyl propionate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1197	Extracts, liquid, for flavour or aroma		3	F1	II/III	Rule for collective entries
1198	Formaldehyde solution, flammable	aqueous solution, flashpoint between 23 °C and 60 °C	3	FC	III	Acetic acid
1202	Diesel fuel	complying with EN 590:2013 + A1:2017 or with a flashpoint not more than 100 °C	3	F1	III	Mixture of hydrocarbons

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
1202	Gas oil	flashpoint not more than 100 °C	3	F1	III	Mixture of hydrocarbons
1202	Heating oil, light	extra light	3	F1	III	Mixture of hydrocarbons
1202	Heating oil, light	complying with EN 590:2013 + AC:2014 or with a flashpoint not more than 100 °C	3	F1	III	Mixture of hydrocarbons
1203	Motor spirit, or gasoline, or petrol		3	F1	II	Mixture of hydrocarbons
1206	Heptanes	pure isomers and isomeric mixture	3	F1	II	Mixture of hydrocarbons
1207	Hexaldehyde	n-Hexaldehyde	3	F1	III	Mixture of hydrocarbons
1208	Hexanes	pure isomers and isomeric mixture	3	F1	II	Mixture of hydrocarbons
1210	Printing ink or Printing ink related material	flammable, including printing ink thinning or reducing compound	3	F1	I/II/III	Rule for collective entries
1212	Isobutanol		3	F1	III	Acetic acid
1213	Isobutyl acetate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1214	Isobutylamine		3	FC	II	Mixture of hydrocarbons <u>and</u> wetting solution
1216	Isooctenes	pure isomers and isomeric mixture	3	F1	II	Mixture of hydrocarbons
1219	Isopropanol		3	F1	II	Acetic acid
1220	Isopropyl acetate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1221	Isopropylamine		3	FC	I	Mixture of hydrocarbons <u>and</u> wetting solution
1223	Kerosene		3	F1	III	Mixture of hydrocarbons
1224	3,3-Dimethyl-2-butanone		3	F1	II	Mixture of hydrocarbons
1224	Ketones, liquid, n.o.s.		3	F1	II/III	Rule for collective entries
1230	Methanol		3	FT1	II	Acetic acid
1231	Methyl acetate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1233	Methylamyl acetate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1235	Methylamine, aqueous solution		3	FC	II	Mixture of hydrocarbons <u>and</u> wetting solution
1237	Methyl butyrate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1247	Methyl methacrylate monomer, stabilized		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
1248	Methyl propionate		3	F1	II	n-Butyl acetate/ n-butyl acetate-saturated wetting solution
1262	Octanes	pure isomers and isomeric mixture	3	F1	II	Mixture of hydrocarbons
1263	Paint or Paint related material	including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base or including paint thinning and reducing compound	3	F1	I/II/III	Rule for collective entries
1265	Pentanes	n-Pentane	3	F1	II	Mixture of hydrocarbons
1266	Perfumery products	with flammable solvents	3	F1	II/III	Rule for collective entries
1268	Coal tar naphtha	vapour pressure at 50 °C not more than 110 kPa	3	F1	II	Mixture of hydrocarbons
1268	Petroleum distillates, n.o.s. or Petroleum products, n.o.s.		3	F1	I/II/III	Rule for collective entries
1274	n-Propanol		3	F1	II/III	Acetic acid
1275	Propionaldehyde		3	F1	II	Mixture of hydrocarbons
1276	n-Propyl acetate		3	F1	II	n-Butyl acetate/ n-butyl acetate-saturated wetting solution
1277	Propylamine	n-Propylamine	3	FC	II	Mixture of hydrocarbons and wetting solution
1281	Propyl formates	pure isomers and isomeric mixture	3	F1	II	n-Butyl acetate/ n-butyl acetate-saturated wetting solution
1282	Pyridine		3	F1	II	Mixture of hydrocarbons
1286	Rosin oil		3	F1	II/III	Rule for collective entries
1287	Rubber solution		3	F1	II/III	Rule for collective entries
1296	Triethylamine		3	FC	II	Mixture of hydrocarbons and wetting solution
1297	Trimethylamine, aqueous solution	not more than 50 % trimethylamine, by mass	3	FC	I/II/III	Mixture of hydrocarbons and wetting solution
1301	Vinyl acetate, stabilized		3	F1	II	n-Butyl acetate/ n-butyl acetate-saturated wetting solution
1306	Wood preservatives, liquid		3	F1	II/III	Rule for collective entries
1547	Aniline		6.1	T1	II	Acetic acid
1590	Dichloroanilines, liquid	pure isomers and isomeric mixture	6.1	T1	II	Acetic acid
1602	Dye, liquid, toxic, n.o.s. or Dye intermediate, liquid, toxic, n.o.s.		6.1	T1	I/II/III	Rule for collective entries
1604	Ethylenediamine		8	CF1	II	Mixture of hydrocarbons and wetting solution

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
1715	Acetic anhydride		8	CF1	II	Acetic acid
1717	Acetyl chloride		3	FC	II	n-Butyl acetate/ n-butyl acetate-saturated wetting solution
1718	Butyl acid phosphate		8	C3	III	Wetting solution
1719	Hydrogen sulphide	aqueous solution	8	C5	III	Acetic acid
1719	Caustic alkali liquid, n.o.s.	inorganic	8	C5	II/III	Rule for collective entries
1730	Antimony pentachloride, liquid	pure	8	C1	II	Water
1736	Benzoyl chloride		8	C3	II	Mixture of hydrocarbons and wetting solution
1750	Chloroacetic acid solution	aqueous solution	6.1	TC1	II	Acetic acid
1750	Chloroacetic acid solution	mixtures of mono- and dichloroacetic acid	6.1	TC1	II	Acetic acid
1752	Chloroacetyl chloride		6.1	TC1	I	n-Butyl acetate/ n-butyl acetate-saturated wetting solution
1755	Chromic acid solution	aqueous solution with not more than 30 % chromic acid	8	C1	II/III	Nitric acid
1760	Cyanamide	aqueous solution with not more than 50 % cyanamide	8	C9	II	Water
1760	O,O-Diethyl-dithiophosphoric acid		8	C9	II	n-Butyl acetate/ n-butyl acetate-saturated wetting solution
1760	O,O-Diisopropyl-dithiophosphoric acid		8	C9	II	n-Butyl acetate/ n-butyl acetate-saturated wetting solution
1760	O,O-Di-n-propyl-dithiophosphoric acid		8	C9	II	n-Butyl acetate/ n-butyl acetate-saturated wetting solution
1760	Corrosive liquid, n.o.s.	flashpoint more than 60 °C	8	C9	I/II/III	Rule for collective entries
1761	Cupriethylenediamine solution	aqueous solution	8	CT1	II/III	Mixture of hydrocarbons and wetting solution
1764	Dichloroacetic acid		8	C3	II	Acetic acid
1775	Fluoroboric acid	aqueous solution with not more than 50 % fluoroboric acid	8	C1	II	Water
1778	Fluorosilicic acid		8	C1	II	Water
1779	Formic acid	with more than 85 % acid by mass	8	CF1	II	Acetic acid
1783	Hexamethylenediamine solution	aqueous solution	8	C7	II/III	Mixture of hydrocarbons and wetting solution
1787	Hydriodic acid	aqueous solution	8	C1	II/III	Water
1788	Hydrobromic acid	aqueous solution	8	C1	II/III	Water
1789	Hydrochloric acid	not more than 38 % aqueous solution	8	C1	II/III	Water
1790	Hydrofluoric acid	with not more than 60 % hydrogen fluoride	8	CT1	II	Water the permissible period of use: not more than 2 years

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
1791	Hypochlorite solution	aqueous solution, containing wetting agents as customary in trade	8	C9	II/III	Nitric acid <u>and</u> wetting solution *
1791	Hypochlorite solution	aqueous solution	8	C9	II/III	Nitric acid *
* For UN No. 1791: Test to be carried out only with vent. If the test is carried out with nitric acid as the standard liquid, an acid-resistant vent and gasket shall be used. If the test is carried out with hypochlorite solutions themselves, vents and gaskets of the same design type, resistant to hypochlorite (e.g. of silicone rubber) but not resistant to nitric acid, are also permitted.						
1793	Isopropyl acid phosphate		8	C3	III	Wetting solution
1802	Perchloric acid	aqueous solution with not more than 50 % acid, by mass	8	CO1	II	Water
1803	Phenolsulphonic acid, liquid	isomeric mixture	8	C3	II	Water
1805	Phosphoric acid, solution		8	C1	III	Water
1814	Potassium hydroxide solution	aqueous solution	8	C5	II/III	Water
1824	Sodium hydroxide solution	aqueous solution	8	C5	II/III	Water
1830	Sulphuric acid	with more than 51 % pure acid	8	C1	II	Water
1832	Sulphuric acid, spent	chemical stable	8	C1	II	Water
1833	Sulphurous acid		8	C1	II	Water
1835	Tetramethylammonium hydroxide, solution	aqueous solution, flashpoint more than 60 °C	8	C7	II	Water
1840	Zinc chloride solution	aqueous solution	8	C1	III	Water
1848	Propionic acid	with not less than 10 % and less than 90 % acid by mass	8	C3	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1862	Ethyl crotonate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1863	Fuel, aviation, turbine engine		3	F1	I/II/III	Mixture of hydrocarbons
1866	Resin solution	flammable	3	F1	I/II/III	Rule for collective entries
1902	Diisooctyl acid phosphate		8	C3	III	Wetting solution
1906	Sludge acid		8	C1	II	Nitric acid
1908	Chlorite solution	aqueous solution	8	C9	II/III	Acetic acid
1914	Butyl propionates		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1915	Cyclohexanone		3	F1	III	Mixture of hydrocarbons
1917	Ethyl acrylate, stabilized		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1919	Methyl acrylate, stabilized		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1920	Nonanes	pure isomers and isomeric mixture, flashpoint between 23 °C and 60 °C	3	F1	III	Mixture of hydrocarbons
1935	Cyanide solution, n.o.s.	inorganic	6.1	T4	I/II/III	Water
1940	Thioglycolic acid		8	C3	II	Acetic acid
1986	Alcohols, flammable, toxic, n.o.s.		3	FT1	I/II/III	Rule for collective entries

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
1987	Cyclohexanol	technical pure	3	F1	III	Acetic acid
1987	Alcohols, n.o.s.		3	F1	II/III	Rule for collective entries
1988	Aldehydes, flammable, toxic, n.o.s.		3	FT1	I/II/III	Rule for collective entries
1989	Aldehydes, n.o.s.		3	F1	I/II/III	Rule for collective entries
1992	2,6-cis-Dimethyl-morpholine		3	FT1	III	Mixture of hydrocarbons
1992	Flammable liquid, toxic, n.o.s.		3	FT1	I/II/III	Rule for collective entries
1993	Propionic acid vinyl ester		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1993	(1-Methoxy-2-propyl) acetate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
1993	Flammable liquid, n.o.s.		3	F1	I/II/III	Rule for collective entries
2014	Hydrogen peroxide, aqueous solution	with not less than 20 % but not more than 60 % hydrogen peroxide, stabilized as necessary	5.1	OC1	II	Nitric acid
2022	Cresylic acid	liquid mixture containing cresols, xylenols and methyl phenols	6.1	TC1	II	Acetic acid
2030	Hydrazine aqueous solution	with not less than 37 % but not more than 64 % hydrazine, by mass	8	CT1	II	Water
2030	Hydrazine hydrate	aqueous solution with 64 % hydrazine	8	CT1	II	Water
2031	Nitric acid	other than red fuming, with not more than 55 % pure acid	8	CO1	II	Nitric acid
2045	Isobutyraldehyde		3	F1	II	Mixture of hydrocarbons
2050	Diisobutylene isomeric compounds		3	F1	II	Mixture of hydrocarbons
2053	Methyl isobutyl carbinol		3	F1	III	Acetic acid
2054	Morpholine		8	CF1	I	Mixture of hydrocarbons
2057	Tripropylene		3	F1	I/II/III	Mixture of hydrocarbons
2058	Valeraldehyde	pure isomers and isomeric mixture	3	F1	II	Mixture of hydrocarbons
2059	Nitrocellulose solution, flammable		3	D	I/II/III	Rule for collective entries: Deviating from the general procedure this rule may be applied to solvents of classification code F1
2075	Chloral, anhydrous, stabilized		6.1	T1	II	Wetting solution
2076	Cresols, liquid	pure isomers and isomeric mixture	6.1	TC1	II	Acetic acid
2078	Toluene diisocyanate	liquid	6.1	T1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2079	Diethylenetriamine		8	C7	II	Mixture of hydrocarbons
2209	Formaldehyde solution	aqueous solution with 37 % Form-aldehyde, methanol content: 8-10 %	8	C9	III	Acetic acid

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
2209	Formaldehyde solution	aqueous solution, with not less than 25 % formaldehyde	8	C9	III	Water
2218	Acrylic acid, stabilized		8	CF1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2227	n-Butyl methacrylate, stabilized		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2235	Chlorobenzyl chlorides, liquid	para-Chlorobenzyl chloride	6.1	T2	III	Mixture of hydrocarbons
2241	Cycloheptane		3	F1	II	Mixture of hydrocarbons
2242	Cycloheptene		3	F1	II	Mixture of hydrocarbons
2243	Cyclohexyl acetate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2244	Cyclopentanol		3	F1	III	Acetic acid
2245	Cyclopentanone		3	F1	III	Mixture of hydrocarbons
2247	n-Decane		3	F1	III	Mixture of hydrocarbons
2248	Di-n-butylamine		8	CF1	II	Mixture of hydrocarbons
2258	1,2-Propylenediamine		8	CF1	II	Mixture of hydrocarbons <u>and</u> wetting solution
2259	Triethylenetetramine		8	C7	II	Water
2260	Tripropylamine		3	FC	III	Mixture of hydrocarbons <u>and</u> wetting solution
2263	Dimethylecyclohexanes	pure isomers and isomeric mixture	3	F1	II	Mixture of hydrocarbons
2264	N,N-Dimethyl-cyclohexylamine		8	CF1	II	Mixture of hydrocarbons <u>and</u> wetting solution
2265	N,N-Dimethyl-formamide		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2266	Dimethyl-N-propylamine		3	FC	II	Mixture of hydrocarbons <u>and</u> wetting solution
2269	3,3'-Imino-dipropylamine		8	C7	III	Mixture of hydrocarbons <u>and</u> wetting solution
2270	Ethylamine, aqueous solution	with not less than 50 % but not more than 70 % ethylamine, flashpoint below 23 °C, corrosive or slightly corrosive	3	FC	II	Mixture of hydrocarbons <u>and</u> wetting solution
2275	2-Ethylbutanol		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2276	2-Ethylhexylamine		3	FC	III	Mixture of hydrocarbons <u>and</u> wetting solution
2277	Ethyl methacrylate, stabilized		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
2278	n-Heptene		3	F1	II	Mixture of hydrocarbons
2282	Hexanols	pure isomers and isomeric mixture	3	F1	III	n-Butyl acetate/ n-butyl acetate-saturated wetting solution
2283	Isobutyl methacrylate, stabilized		3	F1	III	n-Butyl acetate/ n-butyl acetate-saturated wetting solution
2286	Pentamethylheptane		3	F1	III	Mixture of hydrocarbons
2287	Isoheptenes		3	F1	II	Mixture of hydrocarbons
2288	Isohexenes		3	F1	II	Mixture of hydrocarbons
2289	Isophoronediamine		8	C7	III	Mixture of hydrocarbons and wetting solution
2293	4-Methoxy-4-methyl-pantan-2-one		3	F1	III	Mixture of hydrocarbons
2296	Methylecyclohexane		3	F1	II	Mixture of hydrocarbons
2297	Methylecyclohexanone	pure isomers and isomeric mixture	3	F1	III	Mixture of hydrocarbons
2298	Methylecyclopentane		3	F1	II	Mixture of hydrocarbons
2302	5-Methylhexan-2-one		3	F1	III	Mixture of hydrocarbons
2308	Nitrosylsulphuric acid, liquid		8	C1	II	Water
2309	Octadienes		3	F1	II	Mixture of hydrocarbons
2313	Picolines	pure isomers and isomeric mixture	3	F1	III	Mixture of hydrocarbons
2317	Sodium cuprocyanide solution	aqueous solution	6.1	T4	I	Water
2320	Tetraethylenepentamine		8	C7	III	Mixture of hydrocarbons and wetting solution
2324	Triisobutylene	mixture of C12-mono-olefines, flashpoint between 23 °C and 60 °C	3	F1	III	Mixture of hydrocarbons
2326	Trimethyl-cyclohexylamine		8	C7	III	Mixture of hydrocarbons and wetting solution
2327	Trimethylhexamethylene-diamines	pure isomers and isomeric mixture	8	C7	III	Mixture of hydrocarbons and wetting solution
2330	Undecane		3	F1	III	Mixture of hydrocarbons
2336	Allyl formate		3	FT1	I	n-Butyl acetate/ n-butyl acetate-saturated wetting solution
2348	Butyl acrylates, stabilized	pure isomers and isomeric mixture	3	F1	III	n-Butyl acetate/ n-butyl acetate-saturated wetting solution
2357	Cyclohexylamine	flashpoint between 23 °C and 60 °C	8	CF1	II	Mixture of hydrocarbons and wetting solution
2361	Diisobutylamine		3	FC	III	Mixture of hydrocarbons and wetting solution
2366	Diethyl carbonate		3	F1	III	n-Butyl acetate/ n-butyl acetate-saturated wetting solution

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
2367	alpha-Methyl-valeraldehyde		3	F1	II	Mixture of hydrocarbons
2370	1-Hexene		3	F1	II	Mixture of hydrocarbons
2372	1,2-Di-(dimethylamino)-ethane		3	F1	II	Mixture of hydrocarbons and wetting solution
2379	1,3-Dimethylbutylamine		3	FC	II	Mixture of hydrocarbons and wetting solution
2383	Dipropylamine		3	FC	II	Mixture of hydrocarbons and wetting solution
2385	Ethyl isobutyrate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2393	Isobutyl formate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2394	Isobutyl propionate	flashpoint between 23 °C and 60 °C	3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2396	Methacrylaldehyde, stabilized		3	FT1	II	Mixture of hydrocarbons
2400	Methyl isovalerate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2401	Piperidine		8	CF1	I	Mixture of hydrocarbons and wetting solution
2403	Isopropenyl acetate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2405	Isopropyl butyrate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2406	Isopropyl isobutyrate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2409	Isopropyl propionate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2410	1,2,3,6-Tetrahydro-pyridine		3	F1	II	Mixture of hydrocarbons
2427	Potassium chlorate, aqueous solution		5.1	O1	II/III	Water
2428	Sodium chlorate, aqueous solution		5.1	O1	II/III	Water
2429	Calcium chlorate, aqueous solution		5.1	O1	II/III	Water
2436	Thioacetic acid		3	F1	II	Acetic acid
2457	2,3-Dimethylbutane		3	F1	II	Mixture of hydrocarbons
2491	Ethanolamine		8	C7	III	Wetting solution
2491	Ethanolamine solution	aqueous solution	8	C7	III	Wetting solution

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
2496	Propionic anhydride		8	C3	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2524	Ethyl orthoformate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2526	Furfurylamine		3	FC	III	Mixture of hydrocarbons and wetting solution
2527	Isobutyl acrylate, stabilized		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2528	Isobutyl isobutyrate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2529	Isobutyric acid		3	FC	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2531	Methacrylic acid, stabilized		8	C3	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2542	Tributylamine		6.1	T1	II	Mixture of hydrocarbons
2560	2-Methylpentan-2-ol		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2564	Trichloroacetic acid solution	aqueous solution	8	C3	II/III	Acetic acid
2565	Dicyclohexylamine		8	C7	III	Mixture of hydrocarbons and wetting solution
2571	Ethylsulphuric acid		8	C3	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2571	Alkylsulphuric acids		8	C3	II	Rule for collective entries
2580	Aluminium bromide solution	aqueous solution	8	C1	III	Water
2581	Aluminium chloride solution	aqueous solution	8	C1	III	Water
2582	Ferric chloride solution	aqueous solution	8	C1	III	Water
2584	Methane sulphonic acid	with more than 5 % free sulphuric acid	8	C1	II	Water
2584	Alkylsulphonic acids, liquid	with more than 5 % free sulphuric acid	8	C1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2584	Benzene sulphonic acid	with more than 5 % free sulphuric acid	8	C1	II	Water
2584	Toluene sulphonic acids	with more than 5 % free sulphuric acid	8	C1	II	Water
2584	Arylsulphonic acids, liquid	with more than 5 % free sulphuric acid	8	C1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2586	Methane sulfonic acid	with not more than 5 % free sulphuric acid	8	C1	III	Water
2586	Alkylsulphonic acids, liquid	with not more than 5 % free sulphuric acid	8	C1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
2586	Benzene sulphonic acid	with not more than 5 % free sulphuric acid	8	C1	III	Water
2586	Toluene sulphonic acids	with not more than 5 % free sulphuric acid	8	C1	III	Water
2586	Arylsulphonic acids, liquid	with not more than 5 % free sulphuric acid	8	C1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2610	Triallylamine		3	FC	III	Mixture of hydrocarbons and wetting solution
2614	Methallyl alcohol		3	F1	III	Acetic acid
2617	Methylecyclohexanols	pure isomers and isomeric mixture, flashpoint between 23 °C and 60 °C	3	F1	III	Acetic acid
2619	Benzylidimethylamine		8	CF1	II	Mixture of hydrocarbons and wetting solution
2620	Amyl butyrates	pure isomers and isomeric mixture, flashpoint between 23 °C and 60 °C	3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2622	Glycidaldehyde	flashpoint below 23 °C	3	FT1	II	Mixture of hydrocarbons
2626	Chloric acid, aqueous solution	with not more than 10 % chloric acid	5.1	O1	II	Nitric acid
2656	Quinoline	flashpoint more than 60 °C	6.1	T1	III	Water
2672	Ammonia solution	relative density between 0.880 and 0.957 at 15 °C in water, with more than 10 % but not more than 35 % ammonia	8	C5	III	Water
2683	Ammonium sulphide solution	aqueous solution, flashpoint between 23 °C and 60 °C	8	CFT	II	Acetic acid
2684	3-Diethylamino-propylamine		3	FC	III	Mixture of hydrocarbons and wetting solution
2685	N,N-Diethylethylene-diamine		8	CF1	II	Mixture of hydrocarbons and wetting solution
2693	Bisulphites, aqueous solution, n.o.s.	inorganic	8	C1	III	Water
2707	Dimethyldioxanes	pure isomers and isomeric mixture	3	F1	II/III	Mixture of hydrocarbons
2733	Amines, flammable, corrosive, n.o.s. or Polyamines, flammable, corrosive, n.o.s.		3	FC	I/II/III	Mixture of hydrocarbons and wetting solution
2734	Di-sec-butylamine		8	CF1	II	Mixture of hydrocarbons
2734	Amines, liquid, corrosive, flammable, n.o.s. or Polyamines, liquid, corrosive, flammable, n.o.s.		8	CF1	I/II	Mixture of hydrocarbons and wetting solution

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
2735	Amines, liquid, corrosive, n.o.s. or Polyamines, liquid, corrosive, n.o.s.		8	C7	I/II/III	Mixture of hydrocarbons and wetting solution
2739	Butyric anhydride		8	C3	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2789	Acetic acid, glacial or Acetic acid solution	aqueous solution, more than 80 % acid, by mass	8	CF1	II	Acetic acid
2790	Acetic acid solution	aqueous solution, more than 10 % but not more than 80 % acid, by mass	8	C3	II/III	Acetic acid
2796	Sulphuric acid	with not more than 51 % pure acid	8	C1	II	Water
2797	Battery fluid, alkali	potassium/sodium hydroxide, aqueous solution	8	C5	II	Water
2810	2-Chloro-6-fluorobenzyl chloride	stabilized	6.1	T1	III	Mixture of hydrocarbons
2810	2-Phenylethanol		6.1	T1	III	Acetic acid
2810	Ethylene glycol monohexyl ether		6.1	T1	III	Acetic acid
2810	Toxic liquid, organic, n.o.s.		6.1	T1	I/II/III	Rule for collective entries
2815	N-Aminoethylpiperazine		8	CT1	III	Mixture of hydrocarbons and wetting solution
2818	Ammonium polysulphide solution	aqueous solution	8	CT1	II/III	Acetic acid
2819	Amyl acid phosphate		8	C3	III	Wetting solution
2820	Butyric acid	n-Butyric acid	8	C3	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2821	Phenol solution	aqueous solution, toxic, non-alkaline	6.1	T1	II/III	Acetic acid
2829	Caproic acid	n-Caproic acid	8	C3	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2837	Bisulphates, aqueous solution		8	C1	II/III	Water
2838	Vinyl butyrate, stabilized		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2841	Di-n-amylamine		3	FT1	III	Mixture of hydrocarbons and wetting solution
2850	Propylene tetramer	mixture of C12-monoolefines, flashpoint between 23 °C and 60 °C	3	F1	III	Mixture of hydrocarbons
2873	Dibutylaminoethanol	N,N-Di-n-butylaminoethanol	6.1	T1	III	Acetic acid
2874	Furfuryl alcohol		6.1	T1	III	Acetic acid
2920	O,O-Diethyl-dithiophosphoric acid	flashpoint between 23 °C and 60 °C	8	CF1	II	n-Butylacetate/n-Butylacetate-saturated wetting solution

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
2920	O,O-Dimethyl-dithiophosphoric acid	flashpoint between 23 °C and 60 °C	8	CF1	II	Wetting solution
2920	Hydrogen bromide	33 % solution in glacial acetic acid	8	CF1	II	Wetting solution
2920	Tetramethylammonium hydroxide	aqueous solution, flashpoint between 23 °C and 60 °C	8	CF1	II	Water
2920	Corrosive liquid, flammable, n.o.s.		8	CF1	I/II	Rule for collective entries
2922	Ammonium sulphide	aqueous solution, flashpoint more than 60 °C	8	CT1	II	Water
2922	Cresols	aqueous alkaline solution, mixture of sodium and potassium cresolate,	8	CT1	II	Acetic acid
2922	Phenol	aqueous alkaline solution, mixture of sodium and potassium phenolate	8	CT1	II	Acetic acid
2922	Sodium hydrogen difluoride	aqueous solution	8	CT1	III	Water
2922	Corrosive liquid, toxic, n.o.s.		8	CT1	I/II/III	Rule for collective entries
2924	Flammable liquid, corrosive, n.o.s.	slightly corrosive	3	FC	I/II/III	Rule for collective entries
2927	Toxic liquid, corrosive, organic, n.o.s.		6.1	TC1	I/II	Rule for collective entries
2933	Methyl 2-chloro-propionate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2934	Isopropyl 2-chloro-propionate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2935	Ethyl 2-chloropropionate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2936	Thiolactic acid		6.1	T1	II	Acetic acid
2941	Fluoroanilines	pure isomers and isomeric mixture	6.1	T1	III	Acetic acid
2943	Tetrahydrofurfurylamine		3	F1	III	Mixture of hydrocarbons
2945	N-Methylbutylamine		3	FC	II	Mixture of hydrocarbons and wetting solution
2946	2-Amino-5-diethyl-aminopentane		6.1	T1	III	Mixture of hydrocarbons and wetting solution
2947	Isopropyl chloroacetate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
2984	Hydrogen peroxide, aqueous solution	with not less than 8 % but less than 20 % hydrogen peroxide, stabilized as necessary	5.1	O1	III	Nitric acid
3056	n-Heptaldehyde		3	F1	III	Mixture of hydrocarbons
3065	Alcoholic beverages	with more than 24 % alcohol by volume	3	F1	II/III	Acetic acid

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
3066	Paint or Paint related material	including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base or including paint thinning and reducing compound	8	C9	II/III	Rule for collective entries
3079	Methacrylonitrile, stabilized		6.1	TF1	I	n-Butyl acetate/n-butyl acetate-saturated wetting solution
3082	sec-Alcohol C ₆ -C ₁₇ poly (3-6) ethoxylate		9	M6	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution <u>and</u> mixture of hydrocarbons
3082	Alcohol C ₁₂ -C ₁₅ poly (1-3) ethoxylate		9	M6	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution <u>and</u> mixture of hydrocarbons
3082	Alcohol C ₁₃ -C ₁₅ poly (1-6) ethoxylate		9	M6	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution <u>and</u> mixture of hydrocarbons
3082	Aviation turbine fuel JP-5	flashpoint more than 60 °C	9	M6	III	Mixture of hydrocarbons
3082	Aviation turbine fuel JP-7	flashpoint more than 60 °C	9	M6	III	Mixture of hydrocarbons
3082	Coal tar	flashpoint more than 60 °C	9	M6	III	Mixture of hydrocarbons
3082	Coal tar naphtha	flashpoint more than 60 °C	9	M6	III	Mixture of hydrocarbons
3082	Creosote produced of coal tar	flashpoint more than 60 °C	9	M6	III	Mixture of hydrocarbons
3082	Creosote produced of wood tar	flashpoint more than 60 °C	9	M6	III	Mixture of hydrocarbons
3082	Cresyl diphenyl phosphate		9	M6	III	Wetting solution
3082	Decyl acrylate		9	M6	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution <u>and</u> mixture of hydrocarbons
3082	Diisobutyl phthalate		9	M6	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution <u>and</u> mixture of hydrocarbons
3082	Di-n-butyl phthalate		9	M6	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution <u>and</u> mixture of hydrocarbons
3082	Hydrocarbons	liquid, flashpoint more than 60 °C, environmentally hazardous	9	M6	III	Rule for collective entries
3082	Isodecyl diphenyl phosphate		9	M6	III	Wetting solution
3082	Methylnaphthalenes	isomeric mixture, liquid	9	M6	III	Mixture of hydrocarbons
3082	Triaryl phosphates	n.o.s.	9	M6	III	Wetting solution

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
3082	Tricresyl phosphate	with not more than 3 % ortho-isomer	9	M6	III	Wetting solution
3082	Trixylenyl phosphate		9	M6	III	Wetting solution
3082	Zinc alkyl dithiophosphate	C3-C14	9	M6	III	Wetting solution
3082	Zinc aryl dithiophosphate	C7-C16	9	M6	III	Wetting solution
3082	Environmentally hazardous substance, liquid, n.o.s.		9	M6	III	Rule for collective entries
3099	Oxidizing liquid, toxic, n.o.s.		5.1	OT1	I/II/III	Rule for collective entries
3101 3103 3105 3107 3109 3111 3113 3115 3117 3119	Organic Peroxide, Type B, C, D, E or F, liquid or Organic Peroxide, Type B, C, D, E or F, liquid, temperature controlled		5.2	P1		n-Butyl acetate/ n-butyl acetate-saturated wetting solution and mixture of hydrocarbons and nitric acid**
** For UN Nos. 3101, 3103, 3105, 3107, 3109, 3111, 3113, 3115, 3117, 3119 (tert-butyl hydroperoxide with more than 40 % peroxide content and peroxyacetic acids are excluded): All organic peroxides in a technically pure form or in solution in solvents which, as far as their compatibility is concerned, are covered by the standard liquid "mixture of hydrocarbons" in this list. Compatibility of vents and gaskets with organic peroxides may be verified, also independently of the design type test, by laboratory tests with nitric acid.						
3145	Butylphenols	liquid, n.o.s.	8	C3	I/II/III	Acetic acid
3145	Alkylphenols, liquid, n.o.s.	including C2 to C12 homologues	8	C3	I/II/III	n-Butyl acetate/ n-butyl acetate-saturated wetting solution
3149	Hydrogen peroxide and peroxyacetic acid mixture, stabilized	with UN No. 2790 acetic acid, UN No. 2796 sulphuric acid and/or UN No. 1805 phosphoric acid, water and not more than 5 % peroxyacetic acid	5.1	OC1	II	Wetting solution and nitric acid
3210	Chlorates, inorganic, aqueous solution, n.o.s.		5.1	O1	II/III	Water
3211	Perchlorates, inorganic, aqueous solution, n.o.s.		5.1	O1	II/III	Water
3213	Bromates, inorganic, aqueous solution, n.o.s.		5.1	O1	II/III	Water
3214	Permanganates, inorganic, aqueous solution, n.o.s.		5.1	O1	II	Water
3216	Persulphates, inorganic, aqueous solution, n.o.s.		5.1	O1	III	Wetting solution
3218	Nitrates, inorganic, aqueous solution, n.o.s.		5.1	O1	II/III	Water
3219	Nitrites, inorganic, aqueous solution, n.o.s.		5.1	O1	II/III	Water
3264	Cupric chloride	aqueous solution, slightly corrosive	8	C1	III	Water
3264	Hydroxylamine sulphate	25 % aqueous solution	8	C1	III	Water
3264	Phosphorous acid	aqueous solution	8	C1	III	Water

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
3264	Corrosive liquid, acidic, inorganic, n.o.s.	flashpoint more than 60 °C	8	C1	I/II/III	Rule for collective entries; not applicable to mixtures having components of UN Nos.: 1830, 1832, 1906 and 2308
3265	Methoxyacetic acid		8	C3	I	n-Butyl acetate/n-butyl acetate-saturated wetting solution
3265	Allyl succinic acid anhydride		8	C3	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
3265	Dithioglycolic acid		8	C3	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
3265	Butyl phosphate	mixture of mono- and di-butyl phosphate	8	C3	III	Wetting solution
3265	Caprylic acid		8	C3	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
3265	Isovaleric acid		8	C3	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
3265	Pelargonic acid		8	C3	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
3265	Pyruvic acid		8	C3	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
3265	Valeric acid		8	C3	III	Acetic acid
3265	Corrosive liquid, acidic, organic, n.o.s.	flashpoint more than 60 °C	8	C3	I/II/III	Rule for collective entries
3266	Sodium hydrosulphide	aqueous solution	8	C5	II	Acetic acid
3266	Sodium sulphide	aqueous solution, slightly corrosive	8	C5	III	Acetic acid
3266	Corrosive liquid, basic, inorganic, n.o.s.	flashpoint more than 60 °C	8	C5	I/II/III	Rule for collective entries
3267	2,2'-(Butylimino)-bisethanol		8	C7	II	Mixture of hydrocarbons and wetting solution
3267	Corrosive liquid, basic, organic, n.o.s.	flashpoint more than 60 °C	8	C7	I/II/III	Rule for collective entries
3271	Ethylene glycol monobutyl ether	flashpoint 60 °C	3	F1	III	Acetic acid
3271	Ether, n.o.s.		3	F1	II/III	Rule for collective entries
3272	Acrylic acid tert-butyl ester		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
3272	Isobutyl propionate	flashpoint below 23 °C	3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
3272	Methyl valerate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution
3272	Trimethyl ortho-formate		3	F1	II	n-Butyl acetate/n-butyl acetate-saturated wetting solution

UN No.	Proper shipping name or technical name	Description	Class	Classification Code	Packing group	Standard liquid
	3.1.2	3.1.2	2.2	2.2	2.1.1.3	
(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
3272	Ethyl valerate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
3272	Isobutyl isovalerate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
3272	n-Amyl propionate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
3272	n-Butylbutyrate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
3272	Methyl lactate		3	F1	III	n-Butyl acetate/n-butyl acetate-saturated wetting solution
3272	Ester, n.o.s.		3	F1	II/III	Rule for collective entries
3287	Sodium nitrite	40 % aqueous solution	6.1	T4	III	Water
3287	Toxic liquid, inorganic, n.o.s.		6.1	T4	I/II/III	Rule for collective entries
3291	Clinical waste, unspecified, n.o.s.	liquid	6.2	I3		Water
3293	Hydrazine, aqueous solution	with not more than 37 % hydrazine, by mass	6.1	T4	III	Water
3295	Heptenes	n.o.s	3	F1	II	Mixture of hydrocarbons
3295	Nonanes	flashpoint below 23 °C	3	F1	II	Mixture of hydrocarbons
3295	Decanes	n.o.s	3	F1	III	Mixture of hydrocarbons
3295	1,2,3-Trimethylbenzene		3	F1	III	Mixture of hydrocarbons
3295	Hydrocarbons, liquid, n.o.s.		3	F1	I/II/III	Rule for collective entries
3405	Barium chlorate, solution	aqueous solution	5.1	OT1	II/III	Water
3406	Barium perchlorate, solution	aqueous solution	5.1	OT1	II/III	Water
3408	Lead perchlorate, solution	aqueous solution	5.1	OT1	II/III	Water
3413	Potassium cyanide, solution	aqueous solution	6.1	T4	I/II/III	Water
3414	Sodium cyanide, solution	aqueous solution	6.1	T4	I/II/III	Water
3415	Sodium fluoride, solution	aqueous solution	6.1	T4	III	Water
3422	Potassium fluoride, solution	aqueous solution	6.1	T4	III	Water

4.1.1.21.7 By derogation from 4.1.1.21.1, liquid waste classified under 2.1.3.5.5 may be filled into polyethylene packaging provided that the packagings have passed the tests with all standard liquids described in 6.1.6.1. Packagings shall conform to the packing group performance level as assigned in accordance with 2.1.3.5.5.

By derogation from 4.1.1.15, on the basis of the knowledge of the composition of the liquid waste, in case of presence of substances that could weaken the polyethylene packaging (e.g. some chlorinated compounds), the period of use permitted for this packaging shall be two and a half years from the date of its manufacture.

4.1.2 Additional general provisions for the use of IBCs

4.1.2.1 When IBCs are used for the carriage of liquids with a flash-point of 60 °C (closed cup) or lower, or of powders liable to dust explosion, measures shall be taken to prevent a dangerous electrostatic discharge.

4.1.2.2 Every metal, rigid plastics and composite IBC, shall be inspected and tested, as relevant, in accordance with 6.5.4.4 or 6.5.4.5:

- Before it is put into service;
- Thereafter at intervals not exceeding two and a half and five years, as appropriate;
- After the repair or remanufacture, before it is re-used for carriage.

An IBC shall not be filled and offered for carriage after the date of expiry of the last periodic test or inspection. However, an IBC filled prior to the date of expiry of the last periodic test or inspection may be carried for a period not to exceed three months beyond the date of expiry of the last periodic test or inspection. In addition, an IBC may be carried after the date of expiry of the last periodic test or inspection:

- (a) After emptying but before cleaning, for purposes of performing the required test or inspection prior to refilling; and
- (b) Unless otherwise approved by the competent authority, for a period not to exceed six months beyond the date of expiry of the last periodic test or inspection in order to allow the return of dangerous goods or residues for proper disposal or recycling.

NOTE: For the particulars in the transport document, see 5.4.1.1.11.

4.1.2.3 IBCs of type 31HZ2 shall be filled to at least 80 % of the volume of the outer casing.

4.1.2.4 Except for routine maintenance of metal, rigid plastics, composite and flexible IBCs performed by the owner of the IBC, whose State and name or authorized symbol is durably marked on the IBC, the party performing routine maintenance shall durably mark the IBC near the manufacturer's UN design type mark to show:

- (a) The State in which the routine maintenance was carried out; and
- (b) The name or authorized symbol of the party performing the routine maintenance.

4.1.3 General provisions concerning packing instructions

4.1.3.1 Packing instructions applicable to dangerous goods of Classes 1 to 9 are specified in Section 4.1.4. They are subdivided in three sub-sections depending on the type of packagings to which they apply:

Sub-section 4.1.4.1 for packagings other than IBCs and large packagings; these packing instructions are designated by an alphanumeric code starting with the letter "P" or "R" for packagings specific to RID and ADR;

Sub-section 4.1.4.2 for IBCs; these are designated by an alphanumeric code starting with the letters "IBCs";

Sub-section 4.1.4.3 for large packagings; these are designated by an alphanumeric code starting with the letters "LP".

Generally, packing instructions specify that the general provisions of 4.1.1, 4.1.2 or 4.1.3, as appropriate, are applicable. They may also require compliance with the special provisions of Sections 4.1.5, 4.1.6, 4.1.7, 4.1.8 or 4.1.9 when appropriate. Special packing provisions may also be specified in the packing instruction for individual substances or articles. They are also designated by an alphanumeric code comprising the letters:

"PP" for packagings other than IBCs and large packagings, or "RR" for special provisions specific to RID and ADR;

"B" for IBCs or "BB" for special packing provisions specific to RID and ADR;

"L" for large packagings or "LL" for special packing provisions specific to RID and ADR.

Unless otherwise specified, each packaging shall conform to the applicable requirements of Part 6. Generally packing instructions do not provide guidance on compatibility and the user shall not select a packaging without checking that the substance is compatible with the packaging material selected (e.g. glass receptacles are unsuitable for most fluorides). Where glass receptacles are permitted in the packing instructions porcelain, earthenware and stoneware packagings are also allowed.

4.1.3.2 Column (8) of Table A of Chapter 3.2 shows for each article or substance the packing instruction(s) that shall be used. Columns (9a) and (9b) indicate the special packing provisions and the mixed packing provisions (see 4.1.10) applicable to specific substances or articles.

4.1.3.3 Each packing instruction shows, where applicable, the acceptable single and combination packagings. For combination packagings, the acceptable outer packagings, inner packagings and when applicable the maximum quantity permitted in each inner or outer packaging, are shown. Maximum net mass and maximum capacity are as defined in 1.2.1. Where packagings which need not meet the requirements of 4.1.1.3 (e.g. crates, pallets) are authorized in a packing instruction or the special provisions listed in Table A in Chapter 3.2, these packagings are not subject to the mass or volume limits generally applicable to packagings conforming to the requirements of Chapter 6.1, unless otherwise indicated in the relevant packing instruction or special provision.

4.1.3.4 The following packagings shall not be used when the substances being carried are liable to become liquid during carriage:

Packagings

Drums:	1D and 1G
Boxes:	4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1 and 4H2
Bags:	5L1, 5L2, 5L3, 5H1, 5H2, 5H3, 5H4, 5M1 and 5M2
Composite packagings:	6HC, 6HD2, 6HG1, 6HG2, 6HD1, 6PC, 6PD1, 6PD2, 6PG1, 6PG2 and 6PH1

Large packagings

Flexible plastics:	51H (outer packaging)
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IBCs

For substances of packing group I: All types of IBC

For substances of packing groups II and III:

Wooden:	11C, 11D and 11F
Fibreboard:	11G
Flexible:	13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 and 13M2
Composite:	11HZ2 and 21HZ2

For the purposes of this paragraph, substances and mixtures of substances having a melting point equal to or less than 45 °C shall be treated as solids liable to become liquid during carriage.

4.1.3.5 Where the packing instructions in this Chapter authorize the use of a particular type of packaging (e.g. 4G; 1A2), packagings bearing the same packaging identification code followed by the letters "V", "U" or "W" marked in accordance with the requirements of Part 6 (e.g. 4GV, 4GU or 4GW; 1A2V, 1A2U or 1A2W) may also be used under the same conditions and limitations applicable to the use of that type of packaging according to the relevant packing instructions. For example, a combination packaging marked with the packaging code "4GV" may be used whenever a combination packaging marked "4G" is authorized, provided the requirements in the relevant packing instruction regarding types of inner packagings and quantity limitations are respected.

4.1.3.6 *Pressure receptacles for liquids and solids*

4.1.3.6.1 Unless otherwise indicated in ADR, pressure receptacles conforming to:

- (a) The applicable requirements of Chapter 6.2; or
- (b) The national or international standards on the design, construction, testing, manufacturing and inspection, as applied by the country in which the pressure receptacles are manufactured, provided that the provisions of 4.1.3.6 are met, and that, for metallic cylinders, tubes, pressure drums, bundles of cylinders and salvage pressure receptacles, the construction is such that the minimum burst ratio (burst pressure divided by test pressure) is:
 - (i) 1.50 for refillable pressure receptacles;
 - (ii) 2.00 for non-refillable pressure receptacles,

are authorized for the carriage of any liquid or solid substance other than explosives, thermally unstable substances, organic peroxides, self-reactive substances, substances where significant pressure may develop by evolution of chemical reaction and radioactive material (unless permitted in 4.1.9).

This sub-section is not applicable to the substances mentioned in 4.1.4.1, packing instruction P200, table 3.

4.1.3.6.2 Every design type of pressure receptacle shall be approved by the competent authority of the country of manufacture or as indicated in Chapter 6.2.

4.1.3.6.3 Unless otherwise indicated, pressure receptacles having a minimum test pressure of 0.6 MPa shall be used.

4.1.3.6.4 Unless otherwise indicated, pressure receptacles may be provided with an emergency pressure relief device designed to avoid bursting in case of overfill or fire accidents.

Pressure receptacle valves shall be designed and constructed in such a way that they are inherently able to withstand damage without release of the contents or shall be protected from damage which could cause inadvertent release of the contents of the pressure receptacle, by one of the methods as given in 4.1.6.8 (a) to (e).

4.1.3.6.5 The degree of filling shall not exceed 95 % of the capacity of the pressure receptacle at 50 °C. Sufficient ullage (outage) shall be left to ensure that the pressure receptacle will not be liquid full at a temperature of 55 °C.

4.1.3.6.6 Unless otherwise indicated pressure receptacles shall be subjected to a periodic inspection and test every 5 years. The periodic inspection shall include an external examination, an internal examination or alternative method as approved by the competent authority, a pressure test or equivalent effective non-destructive testing with the agreement of the competent authority including an inspection of all accessories (e.g. tightness of valves, emergency relief valves or fusible elements). Pressure receptacles shall not be filled after they become due for periodic inspection and test but may be carried after the expiry of the time limit. Pressure receptacle repairs shall meet the requirements of 4.1.6.11.

4.1.3.6.7 Prior to filling, the packer shall perform an inspection of the pressure receptacle and ensure that the pressure receptacle is authorized for the substances to be carried and that the requirements of ADR have been met. Shut-off valves shall be closed after filling and remain closed during carriage. The consignor shall verify that the closures and equipment are not leaking.

4.1.3.6.8 Refillable pressure receptacles shall not be filled with a substance different from that previously contained unless the necessary operations for change of service have been performed.

4.1.3.6.9 Marking of pressure receptacles for liquids and solids according to 4.1.3.6 (not conforming to the requirements of Chapter 6.2) shall be in accordance with the requirements of the competent authority of the country of manufacturing.

4.1.3.7 Packagings or IBCs not specifically authorized in the applicable packing instruction shall not be used for the carriage of a substance or article unless specifically allowed under a temporary derogation agreed between Contracting Parties in accordance with 1.5.1.

4.1.3.8 *Unpackaged articles other than Class 1 articles***4.1.3.8.1**

Where large and robust articles cannot be packaged in accordance with the requirements of Chapters 6.1 or 6.6 and they have to be carried empty, uncleaned and unpackaged, the competent authority of the country of origin² may approve such carriage. In doing so the competent authority shall take into account that:

- (a) Large and robust articles shall be strong enough to withstand the shocks and loadings normally encountered during carriage including trans-shipment between cargo transport units and between cargo transport units and warehouses, as well as any removal from a pallet for subsequent manual or mechanical handling;
- (b) All closures and openings shall be sealed so that there can be no loss of contents which might be caused under normal conditions of carriage, by vibration, or by changes in temperature, humidity or pressure (resulting from altitude, for example). No dangerous residue shall adhere to the outside of the large and robust articles;
- (c) Parts of large and robust articles, which are in direct contact with dangerous goods:
 - (i) Shall not be affected or significantly weakened by those dangerous goods; and
 - (ii) Shall not cause a dangerous effect e.g. catalysing a reaction or reacting with the dangerous goods;
- (d) Large and robust articles containing liquids shall be stowed and secured to ensure that neither leakage nor permanent distortion of the article occurs during carriage;
- (e) They shall be fixed in cradles or crates or other handling devices or to the cargo transport unit in such a way that they will not become loose during normal conditions of carriage.

4.1.3.8.2

Unpackaged articles approved by the competent authority in accordance with the provisions of 4.1.3.8.1 shall be subject to the consignment procedures of Part 5. In addition the consignor of such articles shall ensure that a copy of any such approval is attached to the transport document.

NOTE: A large and robust article may include flexible fuel containment systems, military equipment, machinery or equipment containing dangerous goods above the limited quantities according to 3.4.1.

4.1.4*List of packing instructions*

NOTE: Although the following packing instructions use the same numbering system as used in the IMDG Code and the UN Model Regulations, readers should be aware that some of the details may be different in the case of ADR.

² If the country of origin is not a contracting party to ADR, the competent authority of the first country contracting party to the ADR reached by the consignment.

4.1.4.1 *Packing instructions concerning the use of packagings (except IBCs and large packagings)*

P001		PACKING INSTRUCTION (LIQUIDS)			P001
		The following packagings are authorized provided the general provisions of 4.1.1 and 4.1.3 are met:			
		Maximum capacity/net mass (see 4.1.3.3)			
		Packing group I			Packing group III
Combination packagings					
Inner packagings		Outer packagings			
Glass	10 l	Drums			
Plastics	30 l	steel (1A1, 1A2)	250 kg	400 kg	400 kg
Metal	40 l	aluminium (1B1, 1B2)	250 kg	400 kg	400 kg
		other metal (1N1, 1N2)	250 kg	400 kg	400 kg
		plastics (1H1, 1H2)	250 kg	400 kg	400 kg
		plywood (1D)	150 kg	400 kg	400 kg
		fibre (1G)	75 kg	400 kg	400 kg
		Boxes			
		steel (4A)	250 kg	400 kg	400 kg
		aluminium (4B)	250 kg	400 kg	400 kg
		other metal (4N)	250 kg	400 kg	400 kg
		natural wood (4C1, 4C2)	150 kg	400 kg	400 kg
		plywood (4D)	150 kg	400 kg	400 kg
		reconstituted wood (4F)	75 kg	400 kg	400 kg
		fibreboard (4G)	75 kg	400 kg	400 kg
		expanded plastics (4H1)	60 kg	60 kg	60 kg
		solid plastics (4H2)	150 kg	400 kg	400 kg
		Jerricans			
		steel (3A1, 3A2)	120 kg	120 kg	120 kg
		aluminium (3B1, 3B2)	120 kg	120 kg	120 kg
		plastics (3H1, 3H2)	120 kg	120 kg	120 kg
Single packagings					
Drums					
	steel, non-removable head (1A1)	250 l	450 l	450 l	
	steel, removable head (1A2)	250 l ^a	450 l	450 l	
	aluminium, non-removable head (1B1)	250 l	450 l	450 l	
	aluminium, removable head (1B2)	250 l ^a	450 l	450 l	
	other metal, non-removable head (1N1)	250 l	450 l	450 l	
	other metal, removable head (1N2)	250 l ^a	450 l	450 l	
	plastics, non-removable head (1H1)	250 l	450 l	450 l	
	plastics, removable head (1H2)	250 l ^a	450 l	450 l	
Jerricans					
	steel, non-removable head (3A1)	60 l	60 l	60 l	
	steel, removable head (3A2)	60 l ^a	60 l	60 l	
	aluminium, non-removable head (3B1)	60 l	60 l	60 l	
	aluminium, removable head (3B2)	60 l ^a	60 l	60 l	
	plastics, non-removable head (3H1)	60 l	60 l	60 l	
	plastics, removable head (3H2)	60 l ^a	60 l	60 l	

^a Only substances with a viscosity of more than 2 680 mm²/s are authorized.

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P001	PACKING INSTRUCTION (LIQUIDS) (cont'd)	P001		
		Maximum capacity/net mass (see 4.1.3.3)		
		Packing group I	Packing group II	Packing group III
Single packagings (cont'd)				
Composite packagings				
plastics receptacle with outer steel, aluminium or plastics drum (6HA1, 6HB1, 6HH1)	250 l	250 l	250 l	
plastics receptacle with outer fibre or plywood drum (6HG1, 6HD1)	120 l	250 l	250 l	
plastics receptacle with outer steel or aluminium crate or box or plastics receptacle with outer wooden, plywood, fibreboard or solid plastics box (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)	60 l	60 l	60 l	
glass receptacle with outer steel, aluminium, fibreboard, plywood, expanded plastics or solid plastics drum (6PA1, 6PB1, 6PG1, 6PD1, 6PH1 or 6PH2) or with outer steel or aluminium crate or box or with outer wooden or fibreboard box or with outer wickerwork hamper (6PA2, 6PB2, 6PC, 6PG2 or 6PD2)	60 l	60 l	60 l	
Pressure receptacles , provided that the general provisions of 4.1.3.6 are met.				
Additional requirement:				
For substances of Class 3, packing group III, which give off small quantities of carbon dioxide or nitrogen, the packagings shall be vented.				
Special packing provisions:				
PP1	For UN Nos. 1133, 1210, 1263 and 1866 and for adhesives, printing inks, printing ink related materials, paints, paint related materials and resin solutions which are assigned to UN No. 3082, metal or plastics packagings for substances of packing groups II and III in quantities of 5 litres or less per packaging are not required to meet the performance tests in Chapter 6.1 when carried:			
	(a) In palletized loads, a pallet box or unit load device, e.g. individual packagings placed or stacked and secured by strapping, shrink or stretch-wrapping or other suitable means to a pallet; or			
	(b) As inner packagings of combination packagings with a maximum net mass of 40 kg.			
PP2	For UN No. 3065, wooden barrels with a maximum capacity of 250 litres and which do not meet the provisions of Chapter 6.1 may be used.			
PP4	For UN No. 1774, packagings shall meet the packing group II performance level.			
PP5	For UN No. 1204, packagings shall be so constructed that explosion is not possible by reason of increased internal pressure. Cylinders, tubes and pressure drums shall not be used for these substances.			
PP6	<i>(Deleted)</i>			
PP10	For UN No. 1791, packing group II, the packaging shall be vented.			
PP31	For UN No. 1131, packagings shall be hermetically sealed.			
PP33	For UN No. 1308, packing groups I and II, only combination packagings with a maximum gross mass of 75 kg allowed.			
PP81	For UN No. 1790 with more than 60 % but not more than 85 % hydrogen fluoride and UN No. 2031 with more than 55 % nitric acid, the permitted use of plastics drums and jerricans as single packagings shall be two years from their date of manufacture.			
PP93	For UN Nos. 3532 and 3534, packagings shall be designed and constructed to permit the release of gas or vapour to prevent a build-up of pressure that could rupture the packagings in the event of loss of stabilization.			
Special packing provisions specific to RID and ADR:				
RR2	For UN No. 1261, removable head packagings are not permitted.			

P002		PACKING INSTRUCTION (SOLIDS)			P002
		The following packagings are authorized provided that the general provisions of 4.1.1 and 4.1.3 are met:			
					Maximum net mass (see 4.1.3.3)
					Packing group I Packing group II Packing group III
Combination packagings					
Inner packagings		Outer packagings			
Glass	10 kg	Drums			
Plastics ^a	50 kg	steel (1A1, 1A2)	400 kg	400 kg	400 kg
Metal	50 kg	aluminium (1B1, 1B2)	400 kg	400 kg	400 kg
Paper ^{a, b, c}	50 kg	other metal (1N1, 1N2)	400 kg	400 kg	400 kg
Fibre ^{a, b, c}	50 kg	plastics (1H1, 1H2)	400 kg	400 kg	400 kg
		plywood (1D)	400 kg	400 kg	400 kg
		fibre (1G)	400 kg	400 kg	400 kg
		Boxes			
		steel (4A)	400 kg	400 kg	400 kg
		aluminium (4B)	400 kg	400 kg	400 kg
		other metal (4N)	400 kg	400 kg	400 kg
		natural wood (4C1)	250 kg	400 kg	400 kg
		natural wood with sift proof walls (4C2)	250 kg	400 kg	400 kg
		plywood (4D)	250 kg	400 kg	400 kg
		reconstituted wood (4F)	125 kg	400 kg	400 kg
		fibreboard (4G)	125 kg	400 kg	400 kg
		expanded plastics (4H1)	60 kg	60 kg	60 kg
		solid plastics (4H2)	250 kg	400 kg	400 kg
		Jerrycans			
		steel (3A1, 3A2)	120 kg	120 kg	120 kg
		aluminium (3B1, 3B2)	120 kg	120 kg	120 kg
		plastics (3H1, 3H2)	120 kg	120 kg	120 kg
Single packagings					
Drums					
steel (1A1 or 1A2 ^d)			400 kg	400 kg	400 kg
aluminium (1B1 or 1B2 ^d)			400 kg	400 kg	400 kg
metal, other than steel or aluminium (1N1 or 1N2 ^d)			400 kg	400 kg	400 kg
plastics (1H1 or 1H2 ^d)			400 kg	400 kg	400 kg
fibre (1G) ^c			400 kg	400 kg	400 kg
plywood (1D) ^e			400 kg	400 kg	400 kg

- ^a These inner packagings shall be sift-proof.
- ^b These inner packagings shall not be used when the substances being carried may become liquid during carriage (see 4.1.3.4).
- ^c These inner packagings shall not be used for substances of packing group I.
- ^d These packagings shall not be used for substances of packing group I that may become liquid during carriage (see 4.1.3.4).
- ^e These packagings shall not be used when substances being carried may become liquid during carriage (see 4.1.3.4).

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P002		PACKING INSTRUCTION (SOLIDS) (cont'd)			P002
		Maximum net mass (see 4.1.3.3)			
		Packing group I	Packing group II	Packing group III	
Single packagings (cont'd)					
Jerricans					
Steel (3A1 or 3A2 ^d)		120 kg	120 kg	120 kg	
Aluminium (3B1 or 3B2 ^d)		120 kg	120 kg	120 kg	
plastics (3H1 or 3H2 ^d)		120 kg	120 kg	120 kg	
Boxes					
steel (4A) ^e		Not allowed	400 kg	400 kg	
aluminium (4B) ^e		Not allowed	400 kg	400 kg	
other metal (4N) ^e		Not allowed	400 kg	400 kg	
natural wood (4C1) ^e		Not allowed	400 kg	400 kg	
plywood (4D) ^e		Not allowed	400 kg	400 kg	
reconstituted wood (4F) ^e		Not allowed	400 kg	400 kg	
natural wood with sift proof walls (4C2) ^e		Not allowed	400 kg	400 kg	
fibreboard (4G) ^e		Not allowed	400 kg	400 kg	
solid plastics (4H2) ^e		Not allowed	400 kg	400 kg	
Bags					
bags (5H3, 5H4, 5L3, 5M2) ^e		Not allowed	50 kg	50 kg	
Composite packagings					
plastics receptacle with outer steel, aluminium, plywood, fibre or plastics drum (6HA1, 6HB1, 6HG1 ^e , 6HD1 ^e , or 6HH1)		400 kg	400 kg	400 kg	
plastics receptacle with outer steel or aluminium crate or box, wooden box, plywood box, fibreboard box or solid plastics box (6HA2, 6HB2, 6HC, 6HD2 ^e , 6HG2 ^e or 6HH2)		75 kg	75 kg	75 kg	
glass receptacle with outer steel, aluminium plywood or fibre drum (6PA1, 6PB1, 6PD1 ^e or 6PG1 ^e) or with outer steel or aluminium crate or box or with outer wooden, or fibreboard box or with outer wickerwork hamper (6PA2, 6PB2, 6PC, 6PD2 ^e , or 6PG2 ^e) or with outer expanded plastics or solid plastics packaging (6PH1 or 6PH2 ^e)		75 kg	75 kg	75 kg	
Pressure receptacles , provided that the general provisions of 4.1.3.6 are met.					
Special packing provisions:					
PP6 (Deleted)					
PP7	For UN No. 2000, celluloid may also be transported unpacked on pallets, wrapped in plastic film and secured by appropriate means, such as steel bands as a full load in closed vehicles or containers. Each pallet shall not exceed 1 000 kg.				
PP8	For UN No. 2002, packagings shall be so constructed that explosion is not possible by reason of increased internal pressure. Cylinders, tubes and pressure drums shall not be used for these substances.				
PP9	For UN Nos. 3175, 3243 and 3244, packagings shall conform to a design type that has passed a leakproofness test at the packing group II performance level. For UN No. 3175, the leakproofness test is not required when the liquids are fully absorbed in solid material contained in sealed bags.				
PP11	For UN No. 1309, packing group III, and UN No. 1362, 5H1, 5L1 and 5M1 bags are allowed if they are overpacked in plastic bags and are wrapped in shrink or stretch wrap on pallets.				

^d These packagings shall not be used for substances of packing group I that may become liquid during transport (see 4.1.3.4).

^e These packagings shall not be used when the substances being transported may become liquid during transport (see 4.1.3.4).

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P002	PACKING INSTRUCTION (SOLIDS) (cont'd)	P002
Special packing provisions (cont'd):		
PP12	For UN Nos. 1361, 2213 and UN No. 3077, 5H1, 5L1 and 5M1 bags are allowed when carried in closed vehicles or containers.	
PP13	For articles classified under UN No. 2870, only combination packagings meeting the packing group I performance level are authorized.	
PP14	For UN Nos. 2211, 2698 and 3314, packagings are not required to meet the performance tests in Chapter 6.1.	
PP15	For UN Nos. 1324 and 2623, packagings shall meet the packing group III performance level.	
PP20	For UN No. 2217, any sift-proof, tearproof receptacle may be used.	
PP30	For UN No. 2471, paper or fibre inner packagings are not permitted.	
PP34	For UN No. 2969 (as whole beans), 5H1, 5L1 and 5M1 bags are permitted.	
PP37	For UN Nos. 2590 and 2212, 5M1 bags are permitted. All bags of any type shall be carried in closed vehicles or containers or be placed in closed rigid overpacks.	
PP38	For UN No. 1309, packing group II, bags are permitted only in closed vehicles or containers.	
PP84	For UN No. 1057, rigid outer packagings meeting the packing group II performance level shall be used. The packagings shall be designed and constructed and arranged to prevent movement, inadvertent ignition of the devices or inadvertent release of flammable gas or liquid.	
<i>NOTE: For waste lighters collected separately see Chapter 3.3, special provision 654.</i>		
PP92	For UN Nos. 3531 and 3533, packagings shall be designed and constructed to permit the release of gas or vapour to prevent a build-up of pressure that could rupture the packagings in the event of loss of stabilization.	
Special packing provision specific to RID and ADR:		
RR5	Notwithstanding special packing provision PP84, only the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.5 to 4.1.1.7 need be complied with if the gross mass of the package is not more than 10 kg.	
<i>NOTE: For waste lighters collected separately see Chapter 3.3, special provision 654.</i>		

P003	PACKING INSTRUCTION	P003
<p>Dangerous goods shall be placed in suitable outer packagings. The packagings shall meet the provisions of 4.1.1.1, 4.1.1.2, 4.1.1.4, 4.1.1.8 and 4.1.3 and be so designed that they meet the construction requirements of 6.1.4. Outer packagings constructed of suitable material, and of adequate strength and design in relation to the packaging capacity and its intended use, shall be used. Where this packing instruction is used for the transport of articles or inner packagings of combination packagings, the packaging shall be designed and constructed to prevent inadvertent discharge of articles during normal conditions of carriage.</p>		
<p>Special packing provisions:</p>		
<p>PP16 For UN No. 2800, batteries shall be protected from short circuits and shall be securely packed in strong outer packagings.</p> <p><i>NOTE 1: Non-spillable batteries which are an integral part of, and necessary for, the operation of mechanical or electronic equipment shall be securely fastened in the battery holder on the equipment and protected in such a manner as to prevent damage and short circuits.</i></p> <p><i>NOTE 2: For used batteries (UN No. 2800), see P801.</i></p>		
<p>PP17 For UN No. 2037, packages shall not exceed 55 kg net mass for fibreboard packagings or 125 kg net mass for other packagings.</p>		
<p>PP19 For UN Nos. 1364 and 1365, carriage as bales is authorized.</p>		
<p>PP20 For UN Nos. 1363, 1386, 1408 and 2793 any sift-proof, tearproof receptacle may be used.</p>		
<p>PP32 UN Nos. 2857 and 3358 and robust articles consigned under UN No. 3164 may be carried unpackaged, in crates or in appropriate overpacks.</p>		
<p><i>NOTE: The packagings authorized may exceed a net mass of 400 kg (see 4.1.3.3).</i></p>		
<p>PP87 <i>(Deleted)</i></p>		
<p>PP88 <i>(Deleted)</i></p>		
<p>PP90 For UN Nos. 3506 and 3554, sealed inner liners or bags of strong leakproof and puncture-resistant material impervious to mercury or gallium, as appropriate, which will prevent escape of the substance from the package irrespective of the position or the orientation of the package shall be used.</p>		
<p>PP91 For UN No. 1044, large fire extinguishers may also be carried unpackaged provided that the requirements of 4.1.3.8.1 (a) to (e) are met, the valves are protected by one of the methods in accordance with 4.1.6.8 (a) to (d) and other equipment mounted on the fire extinguisher is protected to prevent accidental activation. For the purpose of this special packing provision, "large fire extinguishers" means fire extinguishers as described in indents (c) to (e) of special provision 225 of Chapter 3.3.</p>		
<p>PP96 For UN No. 2037 waste gas cartridges carried in accordance with special provision 327 of Chapter 3.3, the packagings shall be adequately ventilated to prevent the creation of dangerous atmospheres and the build-up of pressure.</p>		
<p>Special packing provisions specific to RID and ADR:</p>		
<p>RR6 For UN No. 2037 in the case of carriage by full load, metal articles may also be packed as follows: the articles shall be grouped together in units on trays and held in position with an appropriate plastics cover; these units shall be stacked and suitably secured on pallets.</p>		
<p>RR9 For UN No. 3509, packagings are not required to meet the requirements of 4.1.1.3.</p> <p>Packagings meeting the requirements of 6.1.4, made leak tight or fitted with a leak tight and puncture-resistant sealed liner or bag, shall be used.</p> <p>When the only residues contained are solids which are not liable to become liquid at temperatures likely to be encountered during carriage, flexible packagings may be used.</p> <p>When liquid residues are present, rigid packagings that provide a means of retention (e.g. absorbent material) shall be used.</p> <p>Before being filled and handed over for carriage, every packaging shall be inspected to ensure that it is free from corrosion, contamination or other damage. Any packaging showing signs of reduced strength shall no longer be used (minor dents and scratches are not considered as reducing the strength of the packaging).</p> <p>Packagings intended for the carriage of packagings, discarded, empty, uncleared with residues of Class 5.1 shall be so constructed or adapted that the goods cannot come into contact with wood or any other combustible material.</p>		

P004	PACKING INSTRUCTION	P004
This instruction applies to UN Nos. 3473, 3476, 3477, 3478 and 3479.		
The following packagings are authorized:		
(1) For fuel cell cartridges, provided that the general provisions of 4.1.1.1, 4.1.1.2, 4.1.1.3, 4.1.1.6 and 4.1.3 are met:		
Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G);		
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);		
Jerricans (3A2, 3B2, 3H2).		
Packagings shall conform to the packing group II performance level.		
(2) For fuel cell cartridges packed with equipment: strong outer packagings which meet the general provisions of 4.1.1.1, 4.1.1.2, 4.1.1.6 and 4.1.3.		
When fuel cell cartridges are packed with equipment, they shall be packed in inner packagings or placed in the outer packaging with cushioning material or divider(s) so that the fuel cell cartridges are protected against damage that may be caused by the movement or placement of the contents within the outer packaging.		
The equipment shall be secured against movement within the outer packaging.		
For the purpose of this packing instruction, "equipment" means apparatus requiring the fuel cell cartridges with which it is packed for its operation.		
(3) For fuel cell cartridges contained in equipment: strong outer packagings which meet the general provisions of 4.1.1.1, 4.1.1.2, 4.1.1.6 and 4.1.3.		
Large robust equipment (see 4.1.3.8) containing fuel cell cartridges may be carried unpackaged. For fuel cell cartridges contained in equipment, the entire system shall be protected against short circuit and inadvertent operation.		
<i>NOTE: The packagings authorized in (2) and (3) may exceed a net mass of 400 kg (see 4.1.3.3).</i>		

P005	PACKING INSTRUCTION	P005
This instruction applies to UN Nos. 3528, 3529 and 3530.		
If the engine or machinery is constructed and designed so that the means of containment containing the dangerous goods affords adequate protection, an outer packaging is not required.		
Dangerous goods in engines or machinery shall otherwise be packed in outer packagings constructed of suitable material, and of adequate strength and design in relation to the packaging capacity and its intended use, and meeting the applicable requirements of 4.1.1.1, or they shall be fixed in such a way that they will not become loose during normal conditions of carriage, e.g. in cradles or crates or other handling devices.		
<i>NOTE: The packagings authorized may exceed a net mass of 400 kg (see 4.1.3.3).</i>		
In addition, the manner in which means of containment are contained within the engine or machinery, shall be such that under normal conditions of carriage, damage to the means of containment containing the dangerous goods is prevented; and in the event of damage to the means of containment containing liquid dangerous goods, no leakage of the dangerous goods from the engine or machinery is possible (a leakproof liner may be used to satisfy this requirement).		
Means of containment containing dangerous goods shall be so installed, secured or cushioned as to prevent their breakage or leakage and so as to control their movement within the engine or machinery during normal conditions of carriage. Cushioning material shall not react dangerously with the content of the means of containment. Any leakage of the contents shall not substantially impair the protective properties of the cushioning material.		
Additional requirement:		
Other dangerous goods (e.g. batteries, fire extinguishers, compressed gas accumulators or safety devices) required for the functioning or safe operation of the engine or machinery shall be securely mounted in the engine or machine.		

P006	PACKING INSTRUCTION	P006
This instruction applies to UN Nos. 3537 to 3548.		
(1) The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:		
Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans (3A2, 3B2, 3H2)		
Packagings shall conform to the packing group II performance level.		
(2) In addition, for robust articles the following packagings are authorized:		
Strong outer packagings constructed of suitable material and of adequate strength and design in relation to the packaging capacity and its intended use. The packagings shall meet the provisions of 4.1.1.1, 4.1.1.2, 4.1.1.8 and 4.1.3 in order to achieve a level of protection that is at least equivalent to that provided by Chapter 6.1. Articles may be carried unpackaged or on pallets when the dangerous goods are afforded equivalent protection by the article in which they are contained.		
<i>NOTE: The packagings authorized may exceed a net mass of 400 kg (see 4.1.3.3).</i>		
(3) Additionally, the following conditions shall be met:		
(a) Receptacles within articles containing liquids or solids shall be constructed of suitable materials and secured in the article in such a way that, under normal conditions of carriage, they cannot break, be punctured or leak their contents into the article itself or the outer packaging;		
(b) Receptacles containing liquids with closures shall be packed with their closures correctly oriented. The receptacles shall in addition conform to the internal pressure test provisions of 6.1.5.5;		
(c) Receptacles that are liable to break or be punctured easily, such as those made of glass, porcelain or stoneware or of certain plastics materials shall be properly secured. Any leakage of the contents shall not substantially impair the protective properties of the article or of the outer packaging;		
(d) Receptacles within articles containing gases shall meet the requirements of Section 4.1.6 and Chapter 6.2 as appropriate or be capable of providing an equivalent level of protection as packing instructions P200 or P208;		
(e) Where there is no receptacle within the article, the article shall fully enclose the dangerous substances and prevent their release under normal conditions of carriage.		
(4) Articles shall be packed to prevent movement and inadvertent operation during normal conditions of carriage.		
(5) Articles containing pre-production prototype lithium cells or batteries or sodium ion cells or batteries when these prototypes are carried for testing or production runs of not more than 100 lithium cells or batteries or sodium ion cells or batteries that are of a type that has not met the testing requirements of the <i>Manual of Tests and Criteria</i> , Part III, sub-section 38.3 shall in addition meet the following:		
(a) Packagings shall conform to the requirements in paragraph (1) of this packing instruction;		
(b) Appropriate measures shall be taken to minimize the effects of vibration and shocks and prevent movement of the article within the package that may lead to damage and a dangerous condition during carriage. When cushioning material is used to meet this requirement it shall be non-combustible and electrically non-conductive;		
(c) Non-combustibility of the cushioning material shall be assessed according to a standard recognized in the country where the packaging is designed or manufactured;		
(d) The article may be carried unpackaged under conditions specified by the competent authority of any Contracting Party to ADR, which may also recognize an approval granted by the competent authority of a country which is not a Contracting Party to ADR, provided that this approval has been granted in accordance with the procedures applicable according to RID, ADR, ADN, the IMDG Code or the ICAO Technical Instructions. Additional conditions that may be considered in the approval process include, but are not limited to:		
(i) The article shall be strong enough to withstand the shocks and loadings normally encountered during carriage, including trans-shipment between cargo transport units and between cargo transport units and warehouses as well as any removal from a pallet for subsequent manual or mechanical handling; and		
(ii) The article shall be fixed in cradles or crates or other handling devices in such a way that it will not become loose during normal conditions of carriage.		

P010		PACKING INSTRUCTION	P010
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:			
			Maximum capacity/net mass (see 4.1.3.3)
Combination packagings			
Inner packagings		Outer packagings	
Glass	1 l	Drums	
Steel	40 l	steel (1A1, 1A2)	400 kg
		plastics (1H1,1H2)	400 kg
		plywood (1D)	400 kg
		fibre (1G)	400 kg
		Boxes	
		steel (4A)	400 kg
		natural wood (4C1, 4C2)	400 kg
		plywood (4D)	400 kg
		reconstituted wood (4F)	400 kg
		fibreboard (4G)	400 kg
		expanded plastics (4H1)	60 kg
		solid plastics (4H2)	400 kg
Single packagings			
Drums			
steel, non-removable head (1A1)		450 l	
Jerricans			
steel, non-removable head (3A1)		60 l	
Composite packagings			
plastics receptacle in steel drums (6HA1)		250 l	
Steel pressure receptacles , provided that the general provisions of 4.1.3.6 are met.			

P099		PACKING INSTRUCTION	P099
Only packagings which are approved for these goods by the competent authority may be used. A copy of the competent authority approval shall accompany each consignment or the transport document shall include an indication that the packaging was approved by the competent authority.			

P101		PACKING INSTRUCTION	P101
Only packagings which are approved by the competent authority of the country of origin may be used. If the country of origin is not a Contracting Party to the ADR, the packaging shall be approved by the competent authority of the first country Contracting Party to ADR reached by the consignment. The distinguishing sign used on vehicles in international road traffic ^a of the country for which the authority acts, shall be marked on the transport documents as follows:			
"Packaging approved by the competent authority of..."			(see 5.4.1.2.1 (e))

^a *Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.*

P110(a)		PACKING INSTRUCTION	P110(a)
(Reserved)			
NOTE: This packing instruction in the UN Model Regulations is not admitted for carriage under ADR.			

PACKING INSTRUCTION		
P110(b)		P110(b)
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
Receptacles metal wood rubber, conductive plastics, conductive	Dividing partitions metal wood plastics fibreboard	Boxes natural wood, sift-proof wall (4C2) plywood (4D) reconstituted wood (4F)
Bags rubber, conductive plastics, conductive		
Special packing provision:		
PP42 For UN Nos. 0074, 0113, 0114, 0129, 0130, 0135 and 0224, the following conditions shall be met:		
(a) Inner packagings shall not contain more than 50 g of explosive substance (quantity corresponding to dry substance);		
(b) Compartments between dividing partitions shall not contain more than one inner packaging, firmly fitted; and		
(c) The outer packaging may be partitioned into up to 25 compartments.		

PACKING INSTRUCTION		
P111		P111
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
Bags paper, waterproofed plastics textile, rubberized	Not necessary	Boxes steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2)
Receptacles wood		Drums steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
Sheets plastics textile, rubberized		
Special packing provision:		
PP43 For UN No. 0159, inner packagings are not required when metal (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2) or plastics (1H1 or 1H2) drums are used as outer packagings.		

P112(a)	PACKING INSTRUCTION (Solid wetted, 1.1D)		P112(a)
Inner packagings	Intermediate packagings	Outer packagings	
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
Bags paper, multiwall, water-resistant plastics textile textile, rubberized woven plastics	Bags plastics textile, plastic coated or lined	Boxes steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2)	
Receptacles metal plastics wood	Receptacles metal plastics wood	Drums steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)	
Additional requirement: Intermediate packagings are not required if leakproof removable head drums are used as the outer packaging.			
Special packing provisions: PP26 For UN Nos. 0004, 0076, 0078, 0154, 0219 and 0394, packagings shall be lead free. PP45 For UN Nos. 0072 and 0226, intermediate packagings are not required.			

P112(b)		PACKING INSTRUCTION (Solid dry, other than powder 1.1D)	P112(b)
		The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:	
Inner packagings	Intermediate packagings	Outer packagings	
Bags paper, kraft paper, multiwall, water-resistant plastics textile textile, rubberized woven plastics	Bags (for UN No. 0150 only) plastics textile, plastic coated or lined	Bags woven plastics, sift-proof (5H2) woven plastics, water-resistant (5H3) plastics, film (5H4) textile, sift-proof (5L2) textile, water-resistant (5L3) paper, multiwall, water-resistant (5M2) Boxes steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2) Drums steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)	
Special packing provisions: <p>PP26 For UN Nos. 0004, 0076, 0078, 0154, 0216, 0219 and 0386, packagings shall be lead free.</p> <p>PP46 For UN No. 0209, bags, sift-proof (5H2) are recommended for flake or prilled TNT in the dry state and a maximum net mass of 30 kg.</p> <p>PP47 For UN No. 0222 inner packagings are not required when the outer packaging is a bag.</p>			