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**Economic Commission for Europe****Inland Transport Committee****Working Party on the Transport of Dangerous Goods****Agreement concerning the International Carriage of  
Dangerous Goods by Road (ADR)****Draft amendments to annexes A and B of ADR****Note by the secretariat**

At its 114th session, the Working Party on the Transport of Dangerous Goods requested the secretariat to prepare a consolidated list of all the amendments which it had adopted for entry into force on 1 January 2025 so that they could be made the subject of an official proposal in accordance with the procedure set out in article 14 of ADR, which, following usual practice, the Chair would be responsible for transmitting to the depositary through his Government. The notification would have to be issued no later than 1 July 2024, with a reference to 1 January 2025 as the scheduled date of entry into force (see ECE/TRANS/WP.15/264, paragraph 76).

This document contains the requested consolidated list of amendments adopted by the Working Party at its 111th, 112th, 113th and 114th sessions (see ECE/TRANS/WP.15/258, annex II, ECE/TRANS/WP.15/260, annex, ECE/TRANS/WP.15/262, annex and ECE/TRANS/WP.15/264, annex II).

## Chapter 1.1

- 1.1.2.2 Amend the title for Chapter 1.2 to read “Definitions, units of measurement and abbreviations”.
- 1.1.3.1 Rename current sub-paragraph (a) as sub-paragraph (a) (i).  
After sub-paragraph (a) (i), add the following new sub-paragraph (ii):
- “(ii) The carriage of dangerous goods by private individuals in the limits defined in paragraph (a) (i) intended initially for their personal or domestic use or for their leisure or sporting activities and which are carried as waste, including the cases when these dangerous goods are no longer packaged in the original package for retail sale, provided that measures have been taken to prevent any leakage under normal conditions of carriage;”.
- 1.1.3.6.3 In the table:
- For transport category 2, in the second column, for Class 9, replace “and 3536” by “, 3536, 3551 and 3552”;
- For transport category 3, in the second column, for Class 8, replace “and 3506” by “, 3506 and 3554”;
- For transport category 4, in the second column, for Class 9, replace “and 3548” by “, 3548 and 3559”.

## Chapter 1.2

- 1.2.1 Amend the definition of “*Recycled plastics material*” to read as follows:
- “*Recycled plastics material*” means material recovered from used industrial packagings or from other plastics material that has been pre-sorted and prepared for processing into new packagings, including IBCs. The specific properties of the recycled material used for production of new packagings, including IBCs, shall be assured and documented regularly as part of a quality assurance programme recognized by the competent authority. The quality assurance programme shall include a record of proper pre-sorting and verification that each batch of recycled plastics material, which is of homogeneous composition, is consistent with the material specifications (melt flow rate, density, and tensile properties) of the design type manufactured from such recycled material. This necessarily includes knowledge about the plastics material from which the recycled plastics have been derived, as well as awareness of the prior use, including prior contents, of the plastics material if that prior use might reduce the capability of new packagings, including IBCs, produced using that material. In addition, the packaging or IBC manufacturer's quality assurance programme under 6.1.1.4 or 6.5.4.1 shall include performance of the appropriate mechanical design type tests in 6.1.5 or 6.5.6 on packagings or IBCs, manufactured from each batch of recycled plastics material. In this testing, stacking performance may be verified by appropriate dynamic compression testing rather than static load testing;”
- In the note under the definition, in the first sentence, replace “to be followed” by “which may be followed”.
- In the definition of “*Globally Harmonized System of Classification and Labelling of Chemicals*”, replace “ninth” by “tenth” and replace “(ST/SG/AC.10/30/Rev.9)” by “(ST/SG/AC.10/30/Rev.10)”.
- In the definition of “*Manual of Tests and Criteria*”, replace “seventh” by “eighth” and “(ST/SG/AC.10/11/Rev.7 and Amend.1)” by “(ST/SG/AC.10/11/Rev.8)”.
- In the definition of “*UN Model Regulations*”, replace “twenty-second” by “twenty-third” and replace “(ST/SG/AC.10/1/Rev.22)” by “(ST/SG/AC.10/1/Rev.23)”.

In the definition of “*Filling ratio*”, replace “a pressure receptacle” by “the means of containment”.

1.2.1 Add a new definition in proper alphabetical order to read as follows:

“*Degree of filling*” means the ratio, expressed in %, of the volume of liquid or solid introduced at 15 °C into the means of containment and the volume of the means of containment ready for use;”

1.2.2.1 In the table, in the entry for “Electrical resistance”, in the last column, replace “ $1 \Omega = 1 \text{ kg} \cdot \text{m}^2 / \text{s}^3 / \text{A}^2$ ” by “ $1 \Omega = 1 \text{ kg} \cdot \text{m}^2 \cdot \text{s}^{-3} \cdot \text{A}^{-2}$ ”.

## Chapter 1.4

1.4.2.1.1 In sub-paragraph (e), replace “bulk containers” by “containers for carriage in bulk”.

1.4.3.3 In sub-paragraph (e), replace “permissible degree of filling or the permissible mass of contents per litre of capacity” by “permissible degree of filling, permissible filling ratio or permissible mass of contents per litre of capacity, as appropriate,”.

## Chapter 1.6

1.6.1.1 Replace “2023” by “2025” and “2022” by “2024”.

1.6.1.8 After “may continue to be used”, add “until 31 December 2026”.

1.6.1.38 Delete and replace “1.6.1.39 to 1.6.1.42 (*Deleted*)” by “1.6.1.38 to 1.6.1.42 (*Deleted*)”.

1.6.1.43 Replace “2.2.9.1.7” by “2.2.9.1.7.1”.

1.6.1.53 Delete and add “1.6.1.53 (*Deleted*)”.

1.6.1 Add the following transitional measures:

“1.6.1.54 Vats for the carriage of molten aluminium of UN No. 3257 which have been constructed and approved before 1 July 2025 in accordance with the provisions of national law but which do not, however, conform to the construction and approval requirements of AP11 in 7.3.3.2.7 applicable as from 1 January 2025 may continue to be used with the approval of the competent authorities in the countries of use.”

“1.6.1.55 Substances assigned to UN No. 1835 or 3560 may be carried until 31 December 2026 in accordance with the classification provisions and transport conditions of ADR applicable to UN 1835 TETRAMETHYLAMMONIUM HYDROXIDE SOLUTION up to 31 December 2024.”

“1.6.1.56 Substances assigned to UN No. 3423 may be carried until 31 December 2026 in accordance with the classification provisions and transport conditions of ADR applicable up to 31 December 2024.”

“1.6.1.57 Packagings manufactured before 1 January 2027 and which do not conform to the requirements of 6.1.3.1 regarding the affixing of marks on non-removable components applicable as from 1 January 2025 may continue to be used.”

1.6.2.17 Delete and replace “1.6.2.16 (*Deleted*)” by “1.6.2.16 and 1.6.2.17 (*Deleted*)”.

1.6.2.21 and 1.6.2.22 Delete and add “1.6.2.21 and 1.6.2.22 (*Deleted*)”.

1.6.2 Add the following new transitional measures:

“1.6.2.23 The requirements of Note 3 of 6.2.1.6.1 applicable until 31 December 2024 may continue to be applied until 31 December 2026.”

- “1.6.2.24 For the carriage of gases of UN Nos. 1006, 1013, 1046 and 1066 in cylinders having a test pressure capacity product of maximum 15.2 MPa·l (152 bar·l), the provisions of special provision 653 of Chapter 3.3 applicable until 31 December 2024 may continue to be applied until 31 December 2026.”
- 1.6.3 Add the following transitional measure:
- “1.6.3.61 Fixed tanks (tank-vehicles) and demountable tanks constructed before 1 July 2025 in accordance with the requirements in force up to 31 December 2024, but which however do not conform to the requirements of 6.8.2.2.11 applicable from 1 January 2025, may continue to be used.”
- 1.6.3.61 to 1.6.3.99 Replace “1.6.3.61” by “1.6.3.62”.
- 1.6.4.59 Amend to read as follows:
- “1.6.4.59 Fibre-reinforced plastics tank-containers constructed before 1 July 2033 in accordance with the requirements of Chapter 6.9 in force up to 31 December 2022 may still be used in accordance with the provisions of Chapter 4.4 in force up to 31 December 2022.”
- 1.6.4 Add the following transitional measure:
- “1.6.4.65 Tank-containers constructed before 1 July 2025 in accordance with the requirements in force up to 31 December 2024, but which however do not conform to the requirements of 6.8.2.2.11 applicable from 1 January 2025, may continue to be used.”

## Chapter 1.8

- 1.8.3.2 Renumber sub-paragraphs (a) and (b) as (b) and (c). In the renumbered (c), before “carriage”, insert “consignment,” (twice).
- Add a new sub-paragraph (a) to read as follows:
- “(a) (Reserved);”
- 1.8.3.11 In sub-paragraph (b), second indent, replace “, provisions for tanks and tank-containers” by “and provisions for tanks”.
- In sub-paragraph (b), fifth indent, replace “carriage in fixed or demountable tanks” by “carriage in tanks”.
- In sub-paragraph (b), tenth indent, amend the text in parentheses to read “(packing, filling – degree of filling or filling ratio, as appropriate –, loading and unloading, stowage and segregation)”.
- 1.8.6.1 Before “surveillance”, add “authorization and”.
- 1.8.7.7 In the heading, replace “Surveillance” by “Authorization and surveillance”.
- 1.8.8.6 Replace “1.8.7.7.1 (d)” by “1.8.7.7.1 (b) (ii)”.

## Chapter 2.1

- 2.1.5.2 Amend to read as follows:
- “2.1.5.2 Such articles may in addition contain cells or batteries. Lithium cells and batteries that are integral to the article shall be of a type proven to meet the testing requirements of the *Manual of Tests and Criteria*, Part III, sub-section 38.3. For articles containing pre-production prototype lithium cells or batteries carried for testing, or for articles containing lithium cells or batteries manufactured in production runs of not more than 100 cells or batteries, the requirements of special provision 310 of Chapter 3.3 shall apply.”

## Chapter 2.2

- 2.2.1.1.1 In (a), for “Pyrotechnic substances”, replace “substances or mixtures of substances” by “explosive substances”.

The amendment to (c) does not apply to the English version.

At the end, before the definition of “*Phlegmatized*”, replace “definition applies” by “definitions apply”. At the end of the last paragraph, replace the full stop by a semicolon and add a new paragraph to read as follows:

“*Explosive or pyrotechnic effect* means, in the context of (c), an effect produced by self-sustaining exothermic chemical reactions including shock, blast, fragmentation, projection, heat, light, sound, gas and smoke.”

- 2.2.1.4 Add the following new entry in alphabetical order:

“FIRE SUPPRESSANT DISPERSING DEVICES: UN No. 0514

Articles which contain a pyrotechnic substance, which are intended to disperse a fire extinguishing agent (or aerosol) when activated, and which do not contain any other dangerous goods.”

- 2.2.2.3 Under classification code 2F, for UN No. 1010, replace “40 %” by “20 %”.

- 2.2.3.1.1 In the last sentence before the notes, replace “3357 and 3379” by “3357, 3379 and 3555”.

- 2.2.3.3 For “F1”, before “3065 ALCOHOLIC BEVERAGES”, add an entry for “3269 POLYESTER RESIN KIT, liquid base material”. For “F3”, delete the entry for “3269 POLYESTER RESIN KIT, liquid base material”.

- 2.2.41.1.2 Amend the name of subdivision “F” to read “Flammable solids, without subsidiary hazard, and articles containing such substances”.

- 2.2.41.1.3 Add a new paragraph at the end to read as follows:

“*Metal powders* are powders of metals or metal alloys.”

- 2.2.41.1.5 In sub-paragraph (a), replace “metal powders or powders of metal-alloys” by “metal powders”.

In sub-paragraph (b), replace “Metal powders or powders of metal-alloys” by “Metal powders”.

- 2.2.41.1.8 In sub-paragraph (b), replace “Metal powders or powders of metal-alloys” by “Metal powders”.

- 2.2.41.3 For “F1”, before the first entry, add an entry for “3527 POLYESTER RESIN KIT, solid base material”. For “F4”, delete the entry for “3527 POLYESTER RESIN KIT, solid base material”.

- 2.2.42.1.2 Amend the name of subdivision “S” to read “Substances liable to spontaneous combustion, without subsidiary hazard, and articles containing such substances”.

Amend subdivision “SW” to read as follows:

- “SW Substances liable to spontaneous combustion, which, in contact with water, emit flammable gases, and articles containing such substances:

SW1 Substances;

SW2 Articles”

- 2.2.42.3 At the entry of the tree, replace “Substances liable to spontaneous combustion” by “Substances liable to spontaneous combustion and articles containing such substances”.

Amend the branch for “Water-reactive SW” to read as follows:

<b>Water-reactive</b>	<b>substances SW1</b>	3393 ORGANOMETALLIC SUBSTANCE, SOLID, PYROPHORIC, WATER-REACTIVE 3394 ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE
	<b>SW</b>	(No collective entry with this classification code available; if need be, classification under a collective entry with a classification code to be determined according to the table of precedence of hazard in 2.1.3.10.)
	<b>articles SW2</b>	

2.2.43.3 At the entry of the tree, replace “Substances which, in contact with water, emit flammable gases” by “Substances which, in contact with water, emit flammable gases, and articles containing such substances”.

For “W3”, for UN No. 3292, replace “SODIUM” by “METALLIC SODIUM OR SODIUM ALLOY” (twice).

2.2.52.4 In the table, for “ISOPROPYL sec-BUTYL PEROXYDICARBONATE + DI-sec-BUTYL PEROXYDICARBONATE + DI-ISOPROPYL PEROXYDICARBONATE”, in column “Concentration”, replace “ $\leq 32 + \leq 15 - 18 \leq 12 - 15$ ” by “ $\leq 32 + \leq 15 - 18 + \leq 12 - 15$ ”.

In the table, for “DI-2,4-DICHLOROBENZOYL PEROXIDE”, concentration “ $\leq 52$  as a paste with silicon oil”, in column “Packing Method”, replace “OP7” by “OP5” and in column “Number (Generic entry)”, replace “3106” by “3104”.

In the table, add the following new entries:

DIBENZOYL PEROXIDE	$\leq 42$	$\geq 38$			$\geq 13$	OP8			3109	
2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY) HEXANE	$\leq 22$			$\geq 78$					Exempt	29)
METHYL ETHYL KETONE PEROXIDE(S)	see remark 33)	$\geq 41$			$\geq 9$	OP8			3105	33) 34)

After the table, add the following new remarks:

“33) Available oxygen  $\leq 10$  %.

34) Sum of diluent type A and water  $\geq 55$  %, and in addition methyl ethyl ketone.”

2.2.61.1.2 In the first sentence, after “Substances”, add “and articles”.

Amend the name of subdivision “T” to read “Toxic substances without subsidiary hazard and articles containing such substances”.

Amend the name of subdivision “TF” to read “Toxic substances, flammable, and articles containing such substances”. Under “TF”, add the following new subdivision: “TF4 Articles;”.

Amend the name of subdivision “TC” to read “Toxic substances, corrosive, and articles containing such substances”. Under “TC”, add the following new subdivision: “TC5 Articles;”.

2.2.61.3 Amend the titles before the trees to read:

“Toxic substances without subsidiary hazard(s), and articles containing such substances”

“Toxic substances with subsidiary hazard(s), and articles containing such substances”

For “TF3”, delete the entry for “1700 TEAR GAS CANDLES”.

For “TF”, after the branch for “TF3”, add the following new branch:

articles	TF4	1700 TEAR GAS CANDLES
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For “TC”, after the branch for “TC4”, add the following new branch:

articles	TC5	(No collective entry with this classification code available; if need be, classification under a collective entry with a classification code to be determined according to the table of precedence of hazard in 2.1.3.10.)
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2.2.62.1.4.1 In the table, for UN 2814, in the entry for “Monkeypox virus”, at the end, add “(cultures only)”.

2.2.7.1.3 In the definition for “*Specific activity of a radionuclide*”, at the end, add the following new note:

“**NOTE:** *The terms "activity concentration" and "specific activity" are synonymous for the purpose of ADR.*”

2.2.9.1.2 For code M4, after “Lithium batteries” add “and sodium ion batteries”.

2.2.9.1.3 Place this paragraph number before the heading “*Definitions and classification*”.

2.2.9.1.4 Place this paragraph number before the heading “*Substances which, on inhalation as fine dust, may endanger health*”.

2.2.9.1.5 Place this paragraph number before the heading “*Substances and articles which, in the event of fire, may form dioxins*”.

2.2.9.1.6 Place this paragraph number before the heading “*Substances evolving flammable vapour*”.

2.2.9.1.7 Before 2.2.9.1.7, replace “*Lithium batteries*” by the following heading:

“2.2.9.1.7 *Lithium batteries and sodium ion batteries*”

Renumber current 2.2.9.1.7 as 2.2.9.1.7.1 with the following heading:

“2.2.9.1.7.1 *Lithium batteries*”

2.2.9.1.7.1 (as renumbered) In sub-paragraph (g), at the end, add a new note to read as follows:

“**NOTE:** *The term "make available" means that manufacturers and subsequent distributors ensure that the test summary is accessible so that the consignor or other persons in the supply chain can confirm compliance.*”

Add a new 2.2.9.1.7.2 to read as follows:

“2.2.9.1.7.2 *Sodium ion batteries*

Cells and batteries, cells and batteries contained in equipment, or cells and batteries packed with equipment containing sodium ion, which are a rechargeable electrochemical system where the positive and negative electrode are both intercalation or insertion compounds, constructed with no metallic sodium (or sodium alloy) in either electrode and with an organic non aqueous compound as electrolyte, shall be assigned to UN Nos. 3551 or 3552, as appropriate.

**NOTE:** *Intercalated sodium exists in an ionic or quasi-atomic form in the lattice of the electrode material.*

They may be carried under these entries if they meet the following provisions:

- (a) Each cell or battery is of the type proved to meet the requirements of applicable tests of the *Manual of Tests and Criteria*, Part III, sub-section 38.3;

**NOTE:** Batteries shall be of a type proved to meet the testing requirements of the “Manual of Tests and Criteria”, Part III, sub-section 38.3, irrespective of whether the cells of which they are composed are of a tested type.

- (b) Each cell and battery incorporates a safety venting device or is designed to preclude a violent rupture under conditions normally encountered during carriage;
- (c) Each cell and battery is equipped with an effective means of preventing external short circuits;
- (d) Each battery containing cells or a series of cells connected in parallel is equipped with effective means as necessary to prevent dangerous reverse current flow (e.g. diodes, fuses, etc.);
- (e) Cells and batteries shall be manufactured under a quality management programme as prescribed under 2.2.9.1.7.1 (e) (i) to (ix);
- (f) Manufacturers and subsequent distributors of cells or batteries shall make available the test summary as specified in the *Manual of Tests and Criteria*, Part III, sub-section 38.3, paragraph 38.3.5.

**NOTE:** The term “make available” means that manufacturers and subsequent distributors ensure that the test summary is accessible so that the consignor or other persons in the supply chain can confirm compliance.

Sodium ion batteries are not subject to the provisions of ADR if they meet the requirements of special provisions 188 or 400 of Chapter 3.3.”

- 2.2.9.1.8 Place this paragraph number before the heading “*Life-saving appliances*”.
  - 2.2.9.1.9 Place this paragraph number before the heading “*Environmentally hazardous substances*”.
  - 2.2.9.1.10 Replace the current heading before 2.2.9.1.10 and the heading numbered 2.2.9.1.10 by:  
“2.2.9.1.10 *Pollutants to the aquatic environment: environmentally hazardous substances (aquatic environment)*”
  - 2.2.9.1.11 Place this paragraph number before the heading “*Genetically modified microorganisms or organisms*”.
- Add the following new note 3 and renumber current notes 3 and 4 as notes 4 and 5:
- “**NOTE 3:** *Pharmaceutical products (such as vaccines) that are packed in a form ready to be administered, including those in clinical trials, and that contain GMMOs or GMOs are not subject to ADR.*”
- 2.2.9.1.13 Place this paragraph number before the heading “*Elevated temperature substances*”.
  - 2.2.9.1.14 Place this paragraph number before the heading “*Other substances and articles presenting a danger during carriage but not meeting the definitions of another class*”.
- In the introductory sentence, after “miscellaneous substances” add “and articles”.
- 2.2.9.1.15 Place this paragraph number before the heading “*Assignment of the packing groups*”.
  - 2.2.9.2 In the first indent, after “Lithium batteries”, add “and sodium ion batteries”.



2.2.9.3 In the list of entries, for code “M4”, amend the branch header “Lithium batteries” to read “Lithium batteries and sodium ion batteries” and add the following new entries:

“3551 SODIUM ION BATTERIES with organic electrolyte

3552 SODIUM ION BATTERIES CONTAINED IN EQUIPMENT or SODIUM ION BATTERIES PACKED WITH EQUIPMENT, with organic electrolyte”.

In the list of entries, for code “M5”, add the following new entry:

“3559 FIRE SUPPRESSANT DISPERSING DEVICES”

In the list of entries, for code “M11”, add the following new entries before the entry for UN No. 3548:

“3556 VEHICLE, LITHIUM ION BATTERY POWERED

3557 VEHICLE, LITHIUM METAL BATTERY POWERED

3558 VEHICLE, SODIUM ION BATTERY POWERED”

## Chapter 3.1

3.1.2.2 In the first sentence, delete “and” or”.

## Chapter 3.2

3.2.1 In the explanatory note for column (4), in the last sentence, replace “Certain articles and substances” by “Articles and certain substances”. Add the following new sentence at the end: “Packing groups may also be assigned via special provisions in Chapter 3.3 as indicated in column (6).”.

In the explanatory note for column (10) of Table A, in the third paragraph after the title, replace “For fibre-reinforced plastic portable tanks” by “For portable tanks with shells made of FRP materials”.

In the explanatory note for column (12), in the fourth paragraph after the title, second sentence replace “maximum degree of filling” by “maximum degree of filling or filling ratio, as appropriate”.

## Chapter 3.2, table A

For UN No. 0331, in column (11), delete “TP1”.

For UN Nos. 1006, 1013, 1046 and 1066, in column (6), insert “406” and delete “653”.

For UN No. 1010, in column (2), replace “40 %” by “20 %” and in column (6), add “402”.

For UN Nos. 1204, 1310, 1320, 1321, 1322, 1336, 1337, 1344, 1347, 1348, 1349, 1354, 1355, 1356, 1357, 1517, 1571, 2059 (all entries), 2555, 2556, 2852, 2907, 3064, 3317, 3319, 3343, 3344, 3357, 3364, 3365, 3366, 3367, 3368, 3369, 3370 and 3376, in column (6), add “28”.

For UN Nos. 1391 and 3482, in column (10), add “T13” and in column (11), add “TP2 TP7 TP42”.

For UN No. 1700, in column (3b), replace “TF3” by “TF4”.

For UN No. 1774, in column (3b), replace “C11” by “C9”.

For UN No. 1835, packing group II:

In column (2), replace “SOLUTION” by “AQUEOUS SOLUTION with more than 2.5 % but less than 25 % tetramethylammonium hydroxide”;

In column (3b), replace “C7” by “CT1”;

In column (5), add "+6.1";

In column (6) add "279 408";

In column (18), add "CV13 CV28";

In column (20), replace "80" by "86";

For UN No. 1835, packing group III, in column (2), replace "SOLUTION" by "AQUEOUS SOLUTION with not more than 2.5 % tetramethylammonium hydroxide" and in column (6) add "408".

For UN No. 2016, in column (3b), replace "T2" by "T10".

For UN No. 2017, in column (3b), replace "TC2" by "TC5".

For UN No. 2028, in column (4), delete "II".

For all entries of UN No. 2037, in column (16), insert "V14".

For UN No. 2073, in column (6), delete "532".

For UN Nos. 2210, 2870 (first entry), 3393 and 3394, in column (3b), replace "SW" by "SW1".

For UN Nos. 2212 and 2590, in column (6), add "678", in column (17), add "VC1", "VC2" and "AP12" and in column (18), add "CV38".

For UN No. 2426, in column (6), delete "644".

For UN No. 2672, in column (6), delete "543".

For UN No. 2795, in column (6), add "401".

For UN No. 2803, in column (6), add "365".

For UN No. 2870 (second entry), in column (3b), replace "SW" by "SW2" and, in column (4), delete "I".

For UN No. 3082, in column (6), insert: "650".

For UN Nos. 3090, 3091, 3480, 3481, in column (6), add "677".

For UN Nos. 3101 to 3110, in column (18), insert "CV29".

For UN No. 3165, in column (4), delete "I".

For UN No. 3257, first entry, in column (17), add "AP11".

For UN No. 3269 (two entries), in column (3b), replace "F3" by "F1".

For UN No. 3270, in column (6), add "403".

For UN No. 3292, in column (2), replace "SODIUM" by "METALLIC SODIUM OR SODIUM ALLOY" (twice) and in column (6), add "401".

For UN No. 3423:

In column (3a), replace "8" by "6.1";

In column (3b), replace "C8" by "TC2";

In column (4), replace "II" by "I";

In column (5), replace "8" by "6.1 + 8";

In column (6), add "279";

In column (7a), replace "1 kg" by "0";

In column (7b), replace "E2" by "E5";

In column (8), replace "IBC08" by "IBC99";

In column (9a) delete "B4";

In column (9b), replace "MP10" by "MP18";

In column (10), replace “T3” by “T6”;

In column (12), replace “SGAN L4BN” by “S10AH L10CH”;

In column (13), insert “TU14 TU15 TE19 TE21”;

In column (15), replace “2 (E)” by “1 (C/E)”;

In column (18), add “CV1 CV13 CV28”;

In column (19), add “S9 S14”;

In column (20), replace “80” by “668”.

For UN No. 3527 (both entries), in column (3b), replace “F4” by “F1”.

For UN Nos. 3537, 3538, 3540, 3541, 3546, 3547 and 3548, in column (6), add “310”.

For UN No. 3550, in column (9b), insert “MP18”, in column (12), delete “L10CH” and in column (13), delete “TU14” and “TE21”.

Add the following new entries:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9a)	(9b)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
0514	FIRE SUPPRESSANT DISPERSING DEVICES	1	1.4S		1.4	407	0	E0	P135		MP23						4 (E)			CV1 CV2 CV3	S1	
3551	SODIUM ION BATTERIES with organic electrolyte	9	M4		9A	188 230 310 348 376 377 400 401 636 677	0	E0	P903 P908 P909 P910 P911 LP903 LP904 LP905 LP906								2 (E)					
3552	SODIUM ION BATTERIES CONTAINED IN EQUIPMENT or SODIUM ION BATTERIES PACKED WITH EQUIPMENT, with organic electrolyte	9	M4		9A	188 230 310 348 360 376 377 400 401 670 677	0	E0	P903 P908 P909 P910 P911 LP903 LP904 LP905 LP906								2 (E)					
3553	DISILANE	2	2F		2.1	632 662	0	E0	P200		MP9	(M)		PxBN(M)	TA4 TT9	FL	2 (B/D)			CV9 CV10 CV36	S2 S20	23
3554	GALLIUM CONTAINED IN MANUFACTURED ARTICLES	8	C11		8	366	5 kg	E0	P003	PP90	MP10						3 (E)					
3555	TRIFLUOROMETHYLTETRAZOLE-SODIUM SALT IN ACETONE, with not less than 68 % acetone, by mass	3	D	II	3	28	0	E0	P303	PP26	MP2						2 (B)			CV14 CV29	S2 S14	
3556	VEHICLE, LITHIUM ION BATTERY POWERED	9	M11		9A	388 666 667 669	0	E0	P912								- (-)					
3557	VEHICLE, LITHIUM METAL BATTERY POWERED	9	M11		9A	388 666 667 669	0	E0	P912								- (-)					
3558	VEHICLE, SODIUM ION BATTERY POWERED	9	M11		9A	388 404 666 667 669	0	E0	P912								- (-)					
3559	FIRE SUPPRESSANT DISPERSING DEVICES	9	M5		9	407	0	E0	P902								4 (E)					
3560	TETRAMETHYLAMMONIUM HYDROXIDE. AQUEOUS SOLUTION with not less than 25 % tetramethylammonium hydroxide	6.1	TC1	I	6.1 +8	279 408	0	E5	P001		MP8 MP17	T14	TP2	L10CH	TU14 TU15 TE19 TE21	AT	1 (C/E)			CV1 CV13 CV28	S9 S14	668

### Chapter 3.3

SP 188 In (a), after “lithium ion”, insert “or sodium ion”.

In the note under (a), replace “2.2.9.1.7” by “2.2.9.1.7.1”.

In (b), first sentence, after “lithium ion”, insert “or sodium ion”. In the second sentence, after “Lithium ion”, insert “and sodium ion” and replace “except those” by “except lithium ion batteries”.

In the note under (b), replace “2.2.9.1.7” by “2.2.9.1.7.1”.

In (c), after “Each”, insert “lithium”, replace “2.2.9.1.7” by “2.2.9.1.7.1” and after “(g)”, insert “or for sodium ion cells or batteries, the provisions of 2.2.9.1.7.2 (a), (e) and (f) shall apply”.

In (f), in the first and last paragraphs, replace “lithium battery mark” by “lithium battery or sodium ion battery mark”. In the Note, replace “lithium battery mark” by “lithium battery or sodium ion battery mark”.

In the antepenultimate paragraph, second sentence, delete “lithium”.

SP 230 Replace “2.2.9.1.7” by “2.2.9.1.7.1”. At the end, add the following new sentence “Sodium ion cells and batteries may be carried under this entry if they meet the provisions of 2.2.9.1.7.2.”.

SP 252 Amend to read as follows:

“252 (1) Ammonium nitrate hot concentrated solutions can be carried under this entry provided:

- (a) The solution contains not more than 93 % ammonium nitrate;
- (b) The solution contains at least 7 % water;
- (c) The solution contains not more than 0.2 % combustible material;
- (d) The solution contains no chlorine compounds in quantities such that the chloride ion level exceeds 0.02 %;
- (e) The pH of an aqueous solution of 10 % of the substance is between 5 and 7, measured at 25 °C; and
- (f) The maximum allowable carriage temperature of the solution is 140 °C.

(2) Additionally, ammonium nitrate hot concentrate solutions are not subject to ADR provided:

- (a) The solution contains not more than 80 % ammonium nitrate;
- (b) The solution contains not more than 0.2 % combustible material;
- (c) The ammonium nitrate remains in solution under all conditions of carriage; and
- (d) The solution does not meet the criteria of any other class.”

SP 280 In the last sentence, at the end, add “or to fire suppressant dispersing devices described in special provision 407 (UN Nos. 0514 and 3559)”.

SP 296 In (d), after “lithium batteries”, insert “or sodium ion batteries”.

SP 310 Amend the first paragraph to read as follows:

“Cells or batteries from production runs of not more than 100 cells or batteries, or pre-production prototypes of cells or batteries when these prototypes are carried for testing, shall meet the provisions of 2.2.9.1.7.1 with the exception of (a), (e) (vii), (f) (iii) if applicable, (f) (iv) if applicable and (g).

**NOTE:** “Carried for testing” includes, but is not limited to, testing described in the “Manual of Tests and Criteria”, Part III, sub-section 38.3, integration testing and product performance testing.

These cells and batteries shall be packaged in accordance with packing instruction P910 of 4.1.4.1 or LP905 of 4.1.4.3, as applicable.

Articles (UN Nos. 3537, 3538, 3540, 3541, 3546, 3547 or 3548) may contain such cells or batteries provided that the applicable parts of packing instruction P006 of 4.1.4.1 or LP03 of 4.1.4.3, as applicable, are met.”

In the current second paragraph, replace “Carriage” by “Transport”.

- SP 328 In the last paragraph, replace “lithium metal or lithium ion” by “lithium metal, lithium ion or sodium ion”, replace the “or” before “UN 3481” by a comma and, at the end of the sentence, add “or UN 3552 SODIUM ION BATTERIES CONTAINED IN EQUIPMENT”.
- SP 348 Replace “Batteries” by “Lithium batteries”. After “2011” insert “and sodium ion batteries manufactured after 31 December 2025”.
- SP 360 In the first sentence, replace “lithium metal batteries or lithium ion batteries” by “lithium metal, lithium ion or sodium ion batteries” and replace “entry UN 3171 BATTERY-POWERED VEHICLE” by “entries UN 3556 VEHICLE, LITHIUM ION BATTERY POWERED or UN 3557 VEHICLE, LITHIUM METAL BATTERY POWERED or UN 3558 VEHICLE, SODIUM ION BATTERY POWERED, as applicable”.
- SP 363 In (f), amend the second sentence to read “However, lithium batteries shall meet the provisions of 2.2.9.1.7.1, except that (a), (e) (vii), (f) (iii) if applicable, (f) (iv) if applicable and (g) do not apply when batteries of a production run of not more than 100 cells or batteries, or pre-production prototypes of cells or batteries when these prototypes are carried for testing, are installed in machinery or engines.”. Add the following new third sentence: “Furthermore, sodium ion batteries shall meet the provisions of 2.2.9.1.7.2, except that (a), (e) and (f) do not apply when batteries of a production run of not more than 100 cells or batteries, or pre-production prototypes of cells or batteries when these prototypes are carried for testing, are installed in machinery or engines.”.
- SP 365 After “mercury”, add “or gallium”. Replace “UN No. 3506” by “UN Nos. 3506 or 3554, as appropriate”.
- SP 366 After “mercury”, add “or gallium”.
- SP 371 In (1) (f), first sentence, replace “16.6.1.3.1 to 16.6.1.3.6” by “16.6.1.3.1 to 16.6.1.3.4, 16.6.1.3.6”.
- SP 376 In the first paragraph, replace “Lithium ion cells or batteries and lithium metal cells or batteries” by “Lithium metal, lithium ion or sodium ion cells or batteries”.
- In the paragraph after the note, replace “UN No. 3090, UN No. 3091, UN No. 3480 and UN No. 3481” by “UN Nos. 3090, 3091, 3480, 3481, 3551 and 3552, as appropriate”.
- In the third paragraph after the note, delete the last sentence, which reads “In both cases the cells and batteries are assigned to transport category 0.”.
- In the fourth paragraph after the note, replace “or” by a comma and after “LITHIUM METAL BATTERIES””, add “or ”DAMAGED/DEFECTIVE SODIUM ION BATTERIES””.
- SP 377 In the first paragraph, replace “Lithium ion and lithium metal” by “Lithium metal, lithium ion and sodium ion” and after “non-lithium”, insert “or non-sodium ion”.
- In the second paragraph, replace “2.2.9.1.7 (a) to (g)” by “2.2.9.1.7.1 (a) to (g) or 2.2.9.1.7.2 (a) to (f), as appropriate”.
- In the third paragraph, replace “or” by “, ”SODIUM ION BATTERIES FOR DISPOSAL”,”. At the end of the sentence, add “or ”SODIUM ION BATTERIES FOR RECYCLING”, as appropriate”.
- SP 379 In (d) (i), replace “ISO 11114-1:2012 + A1:2017” by “ISO 11114-1:2020”.
- SP 387 In the first sentence, replace “2.2.9.1.7” by “2.2.9.1.7.1”.
- SP 388 Amend the fifth paragraph to read as follows:
- “Entry UN 3171 only applies to vehicles and equipment powered by wet batteries, metallic sodium batteries or sodium alloy batteries, carried with these batteries installed.”

After the fifth paragraph, add the following new paragraph:

“UN 3556 VEHICLE, LITHIUM ION BATTERY POWERED, UN 3557 VEHICLE, LITHIUM METAL BATTERY POWERED and UN 3558 VEHICLE, SODIUM ION BATTERY POWERED, as applicable, apply to vehicles powered by lithium ion, lithium metal or sodium ion batteries carried with the batteries installed.”

In the seventh paragraph (old sixth paragraph), combine and amend the last two sentences to read “When vehicles are carried in a packaging, some parts of the vehicle, other than the battery, may be detached from its frame to fit into the packaging.”.

Amend the two last paragraphs to read as follows:

“Dangerous goods, such as batteries, airbags, fire extinguishers, compressed gas accumulators, safety devices and other integral components of the vehicle that are necessary for the operation of the vehicle or for the safety of its operator or passengers, shall be securely installed in the vehicle and are not otherwise subject to ADR. However, lithium batteries shall meet the provisions of 2.2.9.1.7.1, except that (a), (e) (vii), (f) (iii) if applicable, (f) (iv) if applicable and (g) do not apply when batteries of a production run of not more than 100 cells or batteries, or pre-production prototypes of cells or batteries when these prototypes are carried for testing, are installed in vehicles. Furthermore, sodium ion batteries shall meet the provisions of 2.2.9.1.7.2, except that (a), (e) and (f) do not apply when batteries of a production run of not more than 100 cells or batteries, or pre-production prototypes of cells or batteries when these prototypes are carried for testing, are installed in vehicles.

Where a lithium battery installed in a vehicle is damaged or defective, the vehicle shall be carried in accordance with the conditions defined in special provision 667 (c).”

SP 389 In the first paragraph, replace “2.2.9.1.7” by “2.2.9.1.7.1”.

Replace “399-499 (*Reserved*)” by “409-499 (*Reserved*)”.

SP 532 Delete and add “532 (*Deleted*)”.

SP 543 Delete and add “543 (*Deleted*)”.

SP 636 Amend as follows:

In the first paragraph:

Replace “lithium cells and batteries” by “lithium cells and batteries or sodium ion cells and batteries”;

Replace “lithium ion cells” by “lithium ion or sodium ion cells”;

Replace “lithium ion batteries” by “lithium ion or sodium ion batteries”;

Replace “other non-lithium cells or batteries,” by “other cells or batteries,”;

Replace “and 2.2.9.1.7” by “, 2.2.9.1.7.1 and 2.2.9.1.7.2”;

In sub-paragraph (b), after “lithium cells and batteries” add “and sodium ion cells and batteries”;

In the note under sub-paragraph (b), after “lithium cells and batteries” add “and sodium ion cells and batteries”;

Amend sub-paragraph (c) to read:

“(c) Packages are marked "LITHIUM BATTERIES FOR DISPOSAL", "LITHIUM BATTERIES FOR RECYCLING", "SODIUM ION BATTERIES FOR DISPOSAL" or "SODIUM ION BATTERIES FOR RECYCLING", as appropriate.”

SP 644 Delete and add “644 (*Deleted*)”.

- SP 650 In the first sentence, replace “under the conditions of packing group II” by: “under the conditions of UN No. 1263, packing group II, or UN No. 3082, as appropriate”.
- In the second sentence, replace “provisions of UN No. 1263, packing group II” by: “provisions for UN No. 1263, packing group II, and UN No. 3082”.
- In sub-paragraph (a), add the following new sentence at the end: “Mixed packing of waste classified as UN 1263 and waste water-based paints classified as UN 3082 is permitted.”.
- In sub-paragraph (d), after the first sentence, insert the following two new sentences: “Waste classified as UN 1263 may be mixed and loaded with waste water-based paints classified as UN 3082 in the same vehicle or container. In the case of such mixed loading the entire contents shall be assigned to UN 1263.”.
- In sub-paragraph (e), after “in accordance with 5.4.1.1.3.1”, add: “with the appropriate UN number(s)”. Amend the last two lines to read:
- “UN 1263 WASTE PAINT, 3, II, (D/E);
- UN 1263 WASTE PAINT, 3, PG II, (D/E);
- UN 3082 WASTE ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PAINT), 9, III, (-); or
- UN 3082 WASTE ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PAINT), 9, PG III, (-).”
- SP 653 Delete and add “653 (*Deleted*)”.
- SP 666 Add a new sub-paragraph (e):
- “(e) Vehicles that are fully enclosed by packagings, crates or other means that prevent ready identification are subject to the marking and labelling requirements of Chapter 5.2.”
- At the end, add the following new paragraph:
- “Alternatively, for sodium ion battery powered vehicles, see special provision 404.”
- SP 667 Amend (a) to read as follows:
- “(a) (*Deleted*)”
- In sub-paragraph (b), replace “2.2.9.1.7” by “2.2.9.1.7.1 and 2.2.9.1.7.2” and replace “lithium cells or batteries” by “lithium cells or batteries or sodium ion cells or batteries”.
- In (b)(ii), replace “the lithium cell or battery” by “the lithium cell or battery or the sodium ion cell or battery”.
- In sub-paragraph (c), replace “lithium cells or batteries” by “lithium cells or batteries or sodium ion cells or batteries”.
- SP 668 Amend the introductory sentence to read as follows:
- “Substances for the purpose of applying road markings and bitumen or similar products for the purpose of repairing cracks and crevices in existing road surfaces, carried at elevated temperature, are not subject to the other requirements of ADR, provided that the following conditions are met:”.
- SP 669 Replace “UN numbers 3166 or 3171” by “UN No. 3166, 3171, 3556, 3557 or 3558, as appropriate”.
- SP 670 Amend as follows:
- In sub-paragraph (a):

In the first paragraph, after “Lithium cells and batteries” add “and sodium ion cells and batteries” and replace “376 and 2.2.9.1.7” by “376, 2.2.9.1.7.1 and 2.2.9.1.7.2”;

In (ii), after “other lithium cell or battery” add “or sodium ion cell or battery”;

In sub-paragraph (b):

In the first paragraph, after “lithium cells and batteries” add “and sodium ion cells and batteries” and replace “376 and 2.2.9.1.7” by “376, 2.2.9.1.7.1 and 2.2.9.1.7.2”;

In (ii), after “lithium cells or batteries” add “and sodium ion cells and batteries”;

In the note under (ii), replace “*lithium cells and batteries in the equipment*” by “lithium cells and batteries and sodium ion cells and batteries contained in equipment”;

In (iii), amend the first sentence to read “Packages are marked “LITHIUM BATTERIES FOR DISPOSAL”, “LITHIUM BATTERIES FOR RECYCLING”, “SODIUM ION BATTERIES FOR DISPOSAL” or “SODIUM ION BATTERIES FOR RECYCLING”, as appropriate.”. In the second sentence, after “lithium cells or batteries” add “or sodium ion cells or batteries”.

Add the following new special provisions:

“28 This substance may be carried under the provisions of Class 3 or Class 4.1 only if it is so packed that the percentage of diluent will not fall below that stated, at any time during carriage (see 2.2.3.1.1 and 2.2.41.1.18). In cases where the diluent is not stated, the substance shall be packed so that the amount of explosive substance does not exceed the stated value.”

“399 (*Reserved*)”

“400 Sodium ion cells and batteries and sodium ion cells and batteries contained in or packed with equipment, prepared and offered for carriage, are not subject to other provisions of ADR if they meet the following:

- (a) The cell or battery is short-circuited, in a way that the cell or battery does not contain electrical energy. The short-circuiting of the cell or battery is easily verifiable (e.g. busbar between terminals);
- (b) Each cell or battery meets the provisions of 2.2.9.1.7.2 (a), (b), (d), (e) and (f);
- (c) Each package is marked according to 5.2.1.9;
- (d) Except when cells or batteries are installed in equipment, each package is capable of withstanding a 1.2 m drop test in any orientation without damage to cells or batteries contained therein, without shifting of the contents so as to allow battery to battery (or cell to cell) contact and without release of contents;
- (e) Cells and batteries, when installed in equipment are protected from damage. When batteries are installed in equipment, the equipment is packed in strong outer packagings constructed of suitable material of adequate strength and design in relation to the packaging’s capacity and its intended use unless the battery is afforded equivalent protection by the equipment in which it is contained;
- (f) Each cell, including when it is a component of a battery, only contains dangerous goods that are authorized to be carried in accordance with the provisions of Chapter 3.4 and in a quantity not exceeding the quantity specified in column (7a) of Table A of Chapter 3.2.”



- “401 Sodium ion cells and batteries with organic electrolyte shall be carried as UN No. 3551 or 3552, as appropriate. Sodium ion cells and batteries with aqueous alkali electrolyte shall be carried as UN No. 2795. Batteries containing metallic sodium or sodium alloy shall be carried as UN No. 3292.”
- “402 Substances carried under this entry shall have a vapour pressure at 70 °C not exceeding 1.1 MPa (11 bar) and a density at 50 °C not lower than 0.525 kg/l.”
- “403 Nitrocellulose membrane filters covered by this entry with nitrocellulose content not exceeding 53 g/m<sup>2</sup> and a nitrocellulose net mass not exceeding 300 g per inner packaging, are not subject to the requirements of ADR if they meet the following conditions:
- (a) They are packed with paper separators of minimum 80 g/m<sup>2</sup> placed between each layer of nitrocellulose membrane filters;
  - (b) They are packed to maintain the alignment of the nitrocellulose membrane filters and the paper separators in any of the following configurations:
    - (i) Rolls tightly wound and packed in plastic foil of minimum 80 g/m<sup>2</sup> or aluminium pouches with an oxygen permeability of equal or less than 0.1 % in accordance with standard ISO 15105-1:2007;
    - (ii) Sheets packed in cardboard of minimum 250 g/m<sup>2</sup> or aluminium pouches with an oxygen permeability of equal or less than 0.1 % in accordance with standard ISO 15105-1:2007;
    - (iii) Round filters packed in disc holders or cardboard packaging of minimum 250 g/m<sup>2</sup> or single packed in pouches of paper and plastic material of total minimum 100 g/m<sup>2</sup>.”
- “404 Vehicles powered by sodium ion batteries, containing no other dangerous goods, are not subject to other provisions of ADR, if the battery is short-circuited in a way that the battery does not contain electrical energy. The short-circuiting of the battery shall be easily verifiable (e.g. busbar between terminals).”
- “405 (Reserved)”
- “406 Substances under this entry may be carried in accordance with the limited quantity provisions of Chapter 3.4 when carried in pressure receptacles containing not more than 1 000 ml. The pressure receptacles shall meet the requirements of packing instruction P200 of 4.1.4.1 and have a test pressure capacity product not exceeding 15.2 MPa·l (152 bar·l). The pressure receptacles shall not be packed together with other dangerous goods.”
- “407 Fire suppressant dispersing devices are articles which contain a pyrotechnic substance, which are intended to disperse a fire extinguishing agent (or aerosol) when activated, and which do not contain any other dangerous goods. These articles, as packaged for carriage, shall fulfil the criteria for Division 1.4, Compatibility Group S, when tested in accordance with test series 6 (c) of Section 16 of Part I of the *Manual of Tests and Criteria*. The device shall be carried with either the means of activation removed or equipped with at least two independent means to prevent accidental activation.
- Fire suppressant dispersing devices shall only be assigned to Class 9, UN No. 3559 if the following additional conditions are met:
- (a) The device meets the exclusion criteria in 2.2.1.1.8.2 (b), (c) and (d);
  - (b) The suppressant is deemed safe for normally occupied spaces in compliance with international or regional standards (e.g. the United States of America National Fire Protection Association standard for fixed aerosol fire-extinguishing systems NFPA 2010);

- (c) The article is packaged in a manner such that when activated, temperatures of the outside of the package do not exceed 200 °C;
- (d) This entry is used only with the approval of the competent authority of the country of manufacture<sup>3</sup>.

This entry does not apply to "SAFETY DEVICES, electrically initiated" described in special provision 280 (UN No. 3268)."

Footnote 3 reads:

<sup>3</sup> *If the country of manufacture is not a Contracting Party to ADR, the approval shall be recognized by the competent authority of a Contracting Party to ADR."*

In Chapter 3.3, renumber the existing footnotes 3 to 5 as footnotes 4 to 6.

- "408 This entry applies only to aqueous solutions comprised of water, tetramethylammonium hydroxide (TMAH), and no more than 1 % of other constituents. Other formulations containing tetramethylammonium hydroxide shall be assigned to an appropriate generic or N.O.S. entry (e.g. UN 2927 TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S.), except as follows:
- (a) Other formulations containing a surfactant in a concentration > 1 % and with not less than 8.75 % tetramethylammonium hydroxide shall be assigned to UN 2927 TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S., PG I; and
  - (b) Other formulations containing a surfactant in a concentration > 1 % and with more than 2.38 % but less than 8.75 % tetramethylammonium hydroxide shall be assigned to UN 2927 TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S., PG II."
- "677 Cells and batteries which, in accordance with special provision 376, are identified as damaged or defective and liable to rapidly disassemble, dangerously react, produce a flame or a dangerous evolution of heat or a dangerous emission of toxic, corrosive or flammable gases or vapours under normal conditions of carriage, shall be assigned to transport category 0. In the transport document, the words "Carriage in accordance with special provision 376" shall be supplemented by the words "Transport category 0"."
- "678 Waste consisting of objects and materials contaminated with free asbestos (UN Nos. 2212 and 2590), which is not fixed or immersed in a binder in such a way that no emission of hazardous quantities of respirable asbestos can occur, may be carried under the provisions of chapter 7.3 provided the following provisions are complied with:
- (a) The waste is carried only from the site where it is generated to a final disposal facility. Between these two types of sites, only intermediate storage operations, without unloading or transferring the container-bag, are authorized;
  - (b) The waste belongs to one of these categories:
    - (i) Solid waste from roadworks, including asphalt milling waste contaminated with free asbestos and its sweeping residues;
    - (ii) Soil contaminated with free asbestos;
    - (iii) Objects (for example, furniture) contaminated with free asbestos from damaged structures or buildings;
    - (iv) Materials from damaged structures or buildings contaminated with free asbestos which, because of their volume or mass, cannot be packed in accordance with the packing instruction applicable to the UN number used (UN No. 2212 or 2590, as appropriate); or
    - (v) Construction site waste contaminated with free asbestos from demolished or rehabilitated structures or buildings which, because

of their size or mass, cannot be packed in accordance with the packing instruction applicable to the UN number used (UN No. 2212 or 2590, as appropriate);

- (c) Waste covered by these provisions shall not be mixed or loaded with other asbestos-containing waste or any other hazardous or non-hazardous waste;
- (d) Each shipment shall be considered a full load as defined in 1.2.1; and
- (e) The transport document shall be in conformity with 5.4.1.1.4.”

## Chapter 3.4

3.4.1 In (h), at the beginning, add “Part 8, 8.2.3,”.

## Chapter 4.1

4.1.1.4 The amendment does not apply to the English version.

4.1.1.5 Add a new 4.1.1.5.3 as follows:

“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.”

4.1.1.10 (a) The amendment does not apply to the English version.

4.1.1.21.6 In table 4.1.1.21.6, for UN No. 1779, in column (3b), replace “C3” by “CF1”.

4.1.1.21 Add a new 4.1.1.21.7 as follows:

“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.”

4.1.3.6.5 Replace “level of filling” by “degree of filling”.

4.1.4.1, P003 In special packing provision PP90, replace “UN No. 3506” by “UN Nos. 3506 and 3554” and after “mercury”, add “or gallium, as appropriate,”.

4.1.4.1, P006 At the end, add a new (5) to read as follows:

“(5) Articles containing pre-production prototype lithium cells or batteries when these prototypes are carried for testing or production runs of not more than 100 lithium cells or batteries that are of a type that has not met the testing requirements of the *Manual of Tests and Criteria*, 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.”

4.1.4.1, P200 In (7) (a), renumber the list with bullets as (i) to (v). In (iv), replace “degree or pressure of filling” by “filling ratio or pressure of filling”.

In (10), in special packing provision p, amend as follows:

- In the second paragraph, delete “fitted with pressure relief devices or”.
- Delete the last paragraph.

In (10), in special packing provision s, renumber the list with bullets as (a) to (b).

In (11), sixth line of the table, replace “EN ISO 13088:2011” by “EN ISO 13088:2012 + A1:2020”.

In (13), 2.4, replace “EN ISO 11114-1:2020” by “EN ISO 11114-1:2020 + A1:2023” and replace “EN ISO 11114-2:2013” by “EN ISO 11114-2:2021”.

In the tables, place the footnotes directly below the packing instruction, on those pages on which they appear.

In table 2, renumber footnotes <sup>b</sup> to <sup>d</sup> as <sup>c</sup> to <sup>e</sup>.

In table 2, in all entries with multiple test pressures, separate each row with a dashed line spanning the last three columns. For UN Nos. 1010, 1012, 1060, 1078, 1965 and 2073, separate the different entries with a different “name and description” with a dashed line spanning all columns except the first one.

In table 2, for UN 1012 BUTYLENE (1-Butylene), UN 1012 BUTYLENE (cis-2-Butylene) and UN 1012 BUTYLENE (trans-2-Butylene), in the last column, insert “ra”.

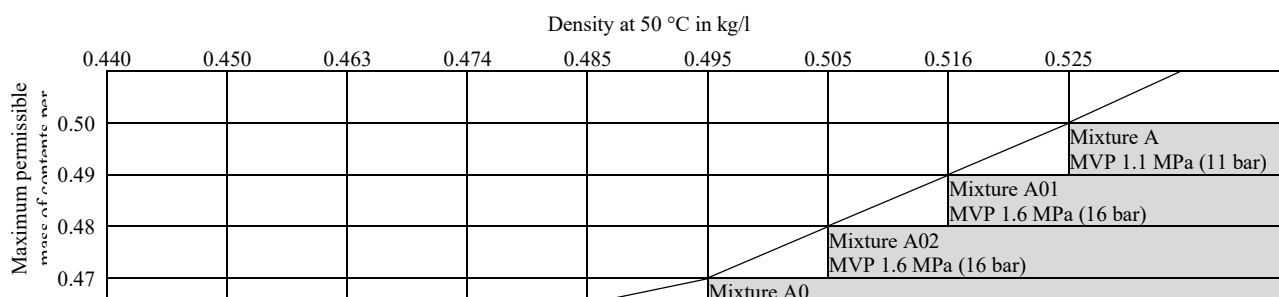
In table 2, for UN 1078 REFRIGERANT GAS, N.O.S., in the rows for “Mixture F1”, “Mixture F2” and “Mixture F3”, in the last column, insert “ra, z”.

In table 2, for UN 1965 HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S., in the rows for “Mixture A”, “Mixture A01”, “Mixture A02”, “Mixture A0”, “Mixture A1”, “Mixture B1”, “Mixture B2”, “Mixture B” and “Mixture C”, in the last column, insert “ra, ta, v, z”.

In table 2, add the following new row:

UN No.	Name and description	Classification code	LC <sub>50</sub> (ml/m <sup>3</sup> )	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>a</sup>	Test pressure, bar	Filling ratio	Special packing provisions
3553	DISILANE <sup>d</sup>	2F		X	X	X	X	10	225	0.39	q

In footnote renumbered as <sup>e</sup> under table 2, replace the figure by :



0.46				MVP 1.6 MPa (16 bar)
0.45				Mixture A1 MVP 2.1 MPa (21 bar)
0.44				Mixture B1 MVP 2.6 MPa (26 bar)
0.43				Mixture B2 MVP 2.6 MPa (26 bar)
0.42				Mixture B MVP 2.6 MPa (26 bar)
				Mixture C MVP 3.1 MPa (31 bar)

MVP = Maximum vapour pressure at 70 °C

In table 3, renumber footnote <sup>b</sup> (minimum ullage) as footnote <sup>f</sup> (entries for UN Nos. 1745, 1746 2495, as well as the footnote itself).

4.1.4.1, P203 Under “Requirements for closed cryogenic receptacles”, in (5), amend the heading to read “(5) Filling”. In the last paragraph, replace “degree of filling” by “gas filled into the receptacle”.

Under “Requirements for open cryogenic receptacles”, at the end of the first paragraph, add “For these gases, when used as a coolant, the requirements of 5.5.3 shall apply.”. In (9), renumber the list with bullets as (a) to (e).

4.1.4.1, P206 In special provision PP89, replace “ISO 11118:1999” by “clause 1 of ISO 11118:2015 + Amd 1:2019”.

4.1.4.1, P301 In the second row after the heading, first sentence, replace “**4.1.1**” by “**4.1.1.1, 4.1.1.2, 4.1.1.4, 4.1.1.5, 4.1.1.6**”.

4.1.4.1, P404 Amend the second row under the heading to read as follows:

The following packagings are authorized, provided that the general provisions of **4.1.1** and **4.1.3** are met:

(1) Combination packagings:

Outer packagings:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2).

Inner packagings:

Metal receptacles with a maximum net mass of 15 kg each. Inner packagings shall be hermetically sealed;

Glass receptacles, with a maximum net mass of 1 kg each, having closures with gaskets, cushioned on all sides and contained in hermetically sealed metal cans.

Outer packagings shall have a maximum net mass of 125 kg.

Inner packagings shall have threaded closures or closures physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during carriage.

(2) Metal packagings:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2);

Jerricans (3A1, 3A2, 3B1, 3B2).

Maximum gross mass: 150 kg

(3) Composite packagings:

Plastics receptacle in a steel or aluminium drum (6HA1 or 6HB1).

Maximum gross mass: 150 kg

(4) Pressure receptacles, provided that the general provisions of 4.1.3.6 are met.

4.1.4.1, P405 In (1) (a), after “Outer packagings:”, start a new line (indented) and add “Boxes”.

4.1.4.1, P410 Amend the formatting as needed to display composite packagings as a category of single packagings.

4.1.4.1, P501 Under "Combination packagings", before "Boxes", delete "(1)" and before "Fibreboard", delete (2).

4.1.4.1, P505 Amend rows 3 to 4 under the heading to read as follows:

		Maximum capacity/maximum net mass	
Combination packagings			
Inner packagings		Outer packagings	
glass	5 l	<b>Boxes</b>	
plastics	5 l	aluminium (4B)	125 kg
metal	5 l	natural wood, ordinary (4C1)	125 kg
		natural wood, sift-proof walls (4C2)	125 kg
		plywood (4D)	125 kg
		fibreboard (4G)	125 kg
		plastics, solid (4H2)	125 kg
		<b>Drums</b>	
		aluminium, removable head (1B2)	125 kg
		fibre (1G)	125 kg
		other metal, removable head (1N2)	125 kg
		plastics, removable head (1H2)	125 kg
		plywood (1D)	125 kg
		<b>Jerricans</b>	
		aluminium, removable head (3B2)	125 kg
		plastics, removable head (3H2)	125 kg

In the fifth row, delete "Maximum capacity" in the second column and place "Single packagings" in a heading row above this fifth row.

4.1.4.1, P520 Place the footnotes directly below the packing instruction, on those pages on which they appear.

In (1), replace ", jerricans" by "and jerricans".

Amend the table under (3) to read as follows:

...								
The maximum quantities per packaging/package for packing methods OP1 to OP8 are:								
	OP1	OP2 <sup>a</sup>	OP3	OP4 <sup>a</sup>	OP5	OP6	OP7	OP8
Maximum net mass (kg) for solids and for combination packagings (liquid and solid)	0.5	0.5/10	5	5/25	25	50	50	400 <sup>b</sup>
Maximum contents in litres for liquids <sup>c</sup>	0.5	-	5	-	30	60	60	225 <sup>d</sup>

In PP94, renumber 1. to 5. as (a) to (e). In PP95, renumber 1. to 6. as (a) to (f).

4.1.4.1, P600 Amend the second row under the heading to read as follows:

The following packagings are authorized, provided that the general provisions of **4.1.1** and **4.1.3** are met:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2).

Outer packagings shall meet the packing group II performance level.

Articles shall be individually packaged and separated from each other using partitions, dividers, inner packagings or cushioning material to prevent inadvertent discharge during normal conditions of carriage.

Maximum net mass: 75 kg

4.1.4.1, P601 In (1), renumber the list with bullets as (a) to (c).

4.1.4.1, P602 In (1), renumber the list with bullets as (a) to (c).

4.1.4.1, P603 Add a new additional requirement reading “4. In the case of fissile-excepted material, limits specified in 2.2.7.2.3.5 shall be met.”. Delete the entire row for special packing provision.

4.1.4.1, P620 In additional requirement 1, at the end, add “When dry ice or other refrigerants presenting a risk of asphyxiation are used as a coolant, the requirements of 5.5.3 shall apply.”.

In additional requirement 2 (b), after the third sentence, add “When dry ice or other refrigerants presenting a risk of asphyxiation are used as a coolant, the requirements of 5.5.3 shall apply.”.

In additional requirement 2 (c), after the first sentence, add “When liquid nitrogen is used as a coolant, the requirements of 5.5.3 shall apply.”.

4.1.4.1, P650 In the first sentence, after “This”, delete “packing”.

Amend (6) to read as follows:

“(6) The completed package shall be capable of withstanding a 1.2 m drop in any orientation without leakage from the primary receptacle(s), which shall remain protected by absorbent material, when required, in the secondary packaging.

**NOTE:** *Capability may be demonstrated by testing, assessment or experience.”*

In (7) (d), at the end, add “and”.

Under (7) (e), add the following new note:

**NOTE:** *Capability may be demonstrated by testing, assessment or experience.”*

In (8) (c), at the end, add “and”.

In (9) (a), at the end, replace the full stop by “; and”.

4.1.4.1, P800 In special packing provision PP41, after the first sentence, add “When dry ice or other means of refrigeration presenting a risk of asphyxiation are used as a coolant, the requirements of 5.5.3 shall apply.”. At the end, add the following new sentence: “Interior supports shall be provided to prevent movement after the dissipation of the refrigerant.”.

4.1.4.1, P803 Amend the second row under the heading to read as follows:

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, 4H2).

Packagings shall conform to the packing group II performance level.

Articles shall be individually packaged and separated from each other using partitions, dividers, inner packagings or cushioning material to prevent inadvertent discharge during normal conditions of carriage.

Maximum net mass: 75 kg.



- 4.1.4.1, P804 In (1), renumber the list with bullets as (a) to (c).
- 4.1.4.1, P901 At the end (before the additional requirement), add a new paragraph to read:  
“If dry ice is used as a coolant, the requirements of 5.5.3 shall apply.”
- 4.1.4.1, P902 In the first row under the heading, replace “UN No. 3268” by “UN Nos. 3268 and 3559”.
- In the second row under the heading, insert “(1)” before “**Packaged articles:**” and remove the boldface, and insert “(2)” before “**Unpackaged articles:**” and remove the boldface.
- Under “(2) Unpackaged articles:”, amend the beginning of the sentence to read “Except for UN 3559, the articles...”.
- 4.1.4.1, P903 In the first sentence, replace “3480 and 3481” by “3480, 3481, 3551 and 3552”.
- In the second sentence, delete “lithium”.
- 4.1.4.1, P904 In the additional requirement, delete the first line reading “Ice, dry ice and liquid nitrogen”.
- 4.1.4.1, P905 In additional requirement 1 (c), after “lithium batteries”, insert “and sodium ion batteries”.
- 4.1.4.1, P908 In the first row under the heading, delete “lithium ion”, delete “and damaged or defective lithium metal cells and batteries” and replace “3480 and 3481” by “3480, 3481, 3551 and 3552”.
- In the second row under the heading, before the numbered list, insert a new paragraph reading “Packagings shall also meet the following requirements:”. In the list, renumber 1. to 5. as (a) to (e). In (e) (old 5.), replace “Non-combustibility” by “The non-combustibility of the thermal insulation material and the cushioning material”.
- 4.1.4.1, P909 In the first sentence, replace “3480 and 3481” by “3480, 3481, 3551 and 3552”.
- In (2), after “lithium ion”, insert “or sodium ion” (two times).
- In additional requirement 2, renumber the list with bullets as (a) to (d).
- 4.1.4.1, P910 In the first sentence, replace “3480 and 3481” by “3480, 3481, 3551 and 3552”.
- In (1) (e), replace “Non-combustibility” by “The non-combustibility of the thermal insulation material and the cushioning material”.
- In (2) (d), replace “Non-combustibility” by “The non-combustibility of the cushioning material”.
- In the additional requirement, at the end of the first sentence, replace the semicolon by a full stop and delete the paragraph break so that the first two sentences are displayed in a single paragraph. Renumber the list with bullets as (a) to (d).
- 4.1.4.1, P911 In the first sentence, replace “3480 and 3481” by “3480, 3481, 3551 and 3552”.
- In table note a, sub-paragraph (a), replace “2.2.9.1.7” by “2.2.9.1.7.1”.
- In table note a, sub-paragraph (b), first sentence, delete “lithium” and replace “(rapidly disassemble)” by “(e.g. rapidly disassemble)”.
- 4.1.4.1, R001 Place footnote a directly below the packing instruction.

## 4.1.4.1 Add the following new packing instructions:

P303	PACKING INSTRUCTION	P303
This instruction applies to UN 3555.		
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 as well as 4.1.5.12 are met:  Plastics drum non-removable head (1H1) of maximum capacity 250 l.		
<b>Special packing provision</b>		
<b>PP26</b> For UN 3555, packagings shall be lead free.		

P912	PACKING INSTRUCTION	P912
This instruction applies to UN Nos. 3556, 3557 and 3558.		
The vehicle shall be secured in a strong, rigid outer packaging constructed of suitable material, and of adequate strength and design in relation to the packaging capacity and its intended use. It shall be constructed in such a manner as to prevent accidental operation during carriage. Packagings need not meet the requirements of 4.1.1.3. The vehicle shall be secured by means capable of restraining the vehicle in the outer packaging to prevent any movement during carriage which would change the orientation or cause the battery in the vehicle to be damaged.		
Vehicles carried in a packaging may have some parts of the vehicle, other than the battery, detached from its frame to fit into the packaging.		
<i>NOTE: The packagings may exceed a net mass of 400 kg (see 4.1.3.3).</i>		
Vehicles with an individual net mass of 30 kg or more:		
(a) may be loaded into crates or secured to pallets;		
(b) may be carried unpackaged providing that the vehicle is capable of remaining upright during carriage without additional support and the vehicle provides adequate protection to the battery so that no damage to the battery can occur; or		
(c) where they have the potential to topple over during carriage (e.g. motor cycles), may be carried unpackaged in a cargo transport unit fitted out with the means to prevent toppling in carriage, such as by the use of bracing, frames or racking.		

4.1.4.2, IBC02, IBC03, IBC05, IBC06, IBC07, IBC08, IBC100 Delete the numbers in front of the list in the row below the heading, or, for IBC100, in the second row below the heading.

4.1.4.2, IBC520 For UN 3119, amend the entry for “Di-(3,5,5-trimethylhexanoyl) peroxide, not more than 52 %, stable dispersion, in water” to read as follows:

	Di-(3,5,5-trimethylhexanoyl) peroxide, not more than 52 %, stable dispersion, in water	31A	1 250	+10 °C	+15 °C
		31HA1	1 000	+10 °C	+15 °C

4.1.4.3, LP02 Place the footnotes directly below the packing instruction, on those pages on which they appear.

4.1.4.3, LP03 Add a new (4) to read as follows:

“(4) Articles containing pre-production prototype lithium cells or batteries when these prototypes are carried for testing or production runs of not more than 100 lithium cells or batteries that are of a type that has not met the testing requirements of the *Manual of Tests and Criteria*, 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.”

4.1.4.3, LP902 In the second row under the heading, insert “(1)” before “**Packaged articles:**” and remove the boldface, and insert “(2)” before “**Unpackaged articles:**” and remove the boldface.

4.1.4.3, LP903 Amend the first sentence under the heading to read: “This instruction applies to large cells with a gross mass of more than 500 g, large batteries with a gross mass of more than 12 kg, and equipment containing large cells or large batteries of UN Nos. 3090, 3091, 3480, 3481, 3551 and 3552.”.

In the second line, first paragraph, replace “for a single battery and for a single item of equipment containing batteries” by “for cells, batteries and equipment containing cells or batteries”.

In the second line, modify the last paragraph to read as follows:

“Cells, batteries or equipment shall be placed in inner packagings or separated by other suitable means, such as placement in trays or by dividers, to ensure protection against damage that may be caused under normal conditions of carriage by:

- (a) its movement or placement within the large packaging;
- (b) contact with other cells, batteries or equipment within the large packaging; and
- (c) any loads arising from the superimposed weight of cells, batteries, equipment and packaging components above the cell, battery or equipment within the large packaging.

When multiple cells, batteries or items of equipment, are packed in the large packaging, bags (e.g. plastics) alone shall not be used to satisfy these requirements.”

4.1.4.3, LP904 In the first row under the heading, replace “3480 and 3481” by “3480, 3481, 3551 and 3552”.

In the second row under the heading, before the numbered list, insert a new paragraph reading “Large packagings shall also meet the following requirements:”. In the list, renumber 1. to 5. as (a) to (e). In (e) (old 5.), replace “Non-combustibility” by “The non-combustibility of the thermal insulation material and the cushioning material”.

4.1.4.3, LP905 In the first row under the heading, replace “3480 and 3481” by “3480, 3481, 3551 and 3552”.

In (1) (e), replace “Non-combustibility” by “The non-combustibility of the thermal insulation material and the cushioning material”.

In (2) (d), replace “Non-combustibility” by “The non-combustibility of the cushioning material”.

4.1.4.3, LP906 In the first row under the heading, replace “3480 and 3481” by “3480, 3481, 3551 and 3552”.

In table note <sup>a</sup>, sub-paragraph (a), replace “2.2.9.1.7” by “2.2.9.1.7.1”.

In table note a, sub-paragraph (b), first sentence, replace “lithium batteries (rapidly disassemble,” by “batteries (e.g. rapidly disassemble,”.

4.1.6.8 The amendments to (b) and (d) do not apply to the English version.

- 4.1.6.15 In table 4.1.6.15.1, for 4.1.6.2, replace “EN ISO 11114-1:2020” by “EN ISO 11114-1:2020 + A1:2023” and replace “EN ISO 11114-2:2013” by “EN ISO 11114-2:2021”.
- 4.1.7.0.1 The amendment does not apply to the English version.

## Chapter 4.2

- 4.2.1.9 The amendment does not apply to the English version.
- 4.2.1.9.2 The amendment does not apply to the English version.
- 4.2.1.9.3 The amendment does not apply to the English version.
- 4.2.1.9.5 The amendment does not apply to the English version.
- 4.2.1.9.5.1 The amendment does not apply to the English version.
- 4.2.1.9.6 The amendment does not apply to the English version.
- 4.2.1.13.13 The amendment does not apply to the English version.
- 4.2.1.16.2 The amendment does not apply to the English version.
- 4.2.1.19.2 The amendment does not apply to the English version.
- 4.2.2.8 In sub-paragraph (a), replace “an ullage condition” by “a filling condition”.
- 4.2.3.6.2 In the first sentence, replace “degree of filling” by “quantity of gas filled into the shell”. In the second sentence, replace “degree of filling of the shell” by “quantity of gas filled into the shell”.
- 4.2.3.6.4 Replace “degree of filling” by “quantity of gas filled into the shell”.
- 4.2.3.8 In sub-paragraph (a), replace “an ullage condition” by “a filling condition”.
- 4.2.5.2.3 In the second sentence, replace “filling density” by “filling ratio”.
- 4.2.5.2.6 Amend the second sentence to read “Portable tank instructions T1 to T22 specify the applicable minimum test pressure, the minimum shell thickness (in mm reference steel) or the minimum shell thickness for fibre reinforced plastics (FRP) portable tanks, and the pressure-relief and bottom-opening requirements.”.
- 4.2.5.2.6, T23 The amendment does not apply to the English version.
- 4.2.5.3, TP1 The amendment does not apply to the English version.
- 4.2.5.3, TP2 The amendment does not apply to the English version.
- 4.2.5.3, TP3 The amendment does not apply to the English version.
- 4.2.5.3, TP4 The amendment does not apply to the English version.
- 4.2.5.3, TP5 Replace “degree of filling” by “restrictions on filling”.
- 4.2.5.3 Add the following new portable tank special provision:  
“TP42 Portable tanks are not authorized for the carriage of caesium or rubidium dispersions.”

## Chapter 4.3

- 4.3.2.1.7 At the end, add the following new note:  
“**NOTE:** *The tank record may alternatively be maintained in electronic form.*”
- 4.3.2.2 The amendment does not apply to the English version.
- 4.3.2.2.1 The amendment does not apply to the English version.

4.3.2.2.3 Amend to read as follows:

“4.3.2.2.3 The provisions of 4.3.2.2.1 (a) to (d) above shall not apply to tanks carrying liquids at a temperature above 50 °C.

The degree of filling of:

- (a) liquid substances carried at a temperature above 50 °C;
- (b) liquid substances filled below 50 °C but intended to be heated above 50 °C during the carriage operation, and
- (c) solid substances carried above their melting point,

shall at the outset be such that the tank is not more than 95 % full at any time during carriage.

The maximum degree of filling shall be determined by the following formula:

$$\text{Degree of filling} = 95 \frac{d_r}{d_f} \% \text{ of capacity}$$

in which  $d_f$  and  $d_r$  are the densities of the substance at the mean temperature during filling and the maximum mean bulk temperature during carriage respectively.

Tanks with a heating device shall have the temperature so regulated that the maximum degree of filling of 95 % of capacity is not exceeded at any time during carriage.”

4.3.3.2.4 Delete “allowable” (twice).

4.3.3.2.5 At the end of the title, delete “indicating the minimum test pressure for tanks and as far as applicable the filling ratio”.

In the first paragraph, replace “filling ratio” by “filling condition”.

4.3.3.5 In the right column, last paragraph, at the end, add the following new sentence: “The requirements of 4.3.3.5 need not be complied with for empty, uncleaned tank-containers.”.

4.3.3.6 In the right column, in sub-paragraph (a), replace “an ullage condition” by “a filling condition”. Between (d) and (e), add “and for refrigerated liquefied gases:”. In (e), delete “refrigerated liquefied”. In (g), at the end, replace the period by a semicolon. At the end, add a new sub-paragraph to read as follows:

“(h) When empty, uncleaned, unless the pressure has been reduced to a level that ensures that the pressure relief devices will not activate during carriage<sup>4</sup>.”

4.3.4.1.2 Amend the table as follows:

For LGBV, after the row for class 5.1, O1, packing group III, insert a new row for class 5.1, OT1, packing group III.

For L1.5BN, delete the second row (class 3, F1, packing group III, flashpoint < 23 °C, viscous, vapour pressure at 50 °C > 1.1 bar, boiling point > 35°C).

For L4BN, class 3, F1, in the “Packing group” column, delete “III, boiling point ≤ 35 °C”.

For L4BN, class 5.1, O1, in the “Packing group” column, delete “I”.

For L4BN, class 5.1, OT1, in the “Packing group” column, replace “I” by “II”.

For L4BN, class 8, CT1, packing groups II, III, in column “Classification code”, after “CT1”, add a call to note <sup>a</sup> under the table. The note reads: “<sup>a</sup> Substances except hydrofluoric acid and hydrogen difluoride solutions shall be assigned to this tank code.”.

For L4DH, class 8, CT1, packing groups II, III, in column “Classification code”, after “CT1”, add a call to note <sup>b</sup> under the table. The note reads: “<sup>b</sup> Hydrofluoric acid and hydrogen difluoride solutions shall be assigned to this tank code.”.

For L10BH, class 8, CT1, packing group I, in column “Classification code”, after “CT1”, add a call to note <sup>c</sup> under the table. The note reads: “<sup>c</sup> Substances except those containing hydrofluoric acid shall be assigned to this tank code.”.

For L10DH, class 8, CT1, packing group I in column “Classification code”, after “CT1”, add a call to note <sup>c</sup> under the table. The note reads: “<sup>c</sup> Substances containing hydrofluoric acid shall be assigned to this tank code, with the exception of hydrofluoric acid with more than 85 % hydrogen fluoride.”.

In the rest of the table, renumber notes \* and \*\* as <sup>d</sup> and <sup>f</sup> respectively and place them directly below the table, on those pages on which they appear.

For L21DH, in column “Classification code”, replace “SW” by “SW1”.

- 4.3.4.2.1 Replace “tank” by “shell, excluding openings and their closures,”
- 4.3.5 The amendments to TU16, TU18 and TU21 do not apply to the English version.
- In special provisions TU23, TU24 and TU25, in the first sentence, replace “degree of filling” by “filling”.
- The amendments to TU26 and TU36 do not apply to the English version.

## Chapter 4.4

- 4.4 Amend the title of Chapter 4.4 to read as follows: “USE OF FIBRE-REINFORCED PLASTICS (FRP) FIXED TANKS (TANK-VEHICLES) AND DEMOUNTABLE TANKS”.

## Chapter 5.2

- 5.2.1.9 In the heading, after “Lithium battery”, insert “or sodium ion battery”.
- 5.2.1.9.1 After “lithium cells or batteries”, insert “or sodium ion cells or batteries”. Replace “special provision 188” by “special provisions 188 or 400”.
- 5.2.1.9.2 In the first paragraph, first sentence, replace the “or” before “UN 3480” by a comma and at the end of the sentence, add “, or UN 3551” for sodium ion cells or batteries”. In the second sentence, delete “lithium” and replace “UN 3091” or “UN 3481” by “UN 3091”, “UN 3481” or “UN 3552”. In the third sentence, delete “lithium”.
- In the heading of figure 5.2.1.9.2, after “**Lithium battery**”, insert “**or sodium ion battery**”.
- In the last paragraph, third sentence, replace “UN number” by “UN number(s)” and delete “for lithium ion or lithium metal batteries or cells”.
- 5.2.2.1.12.1 Replace “lithium batteries” by “lithium batteries or sodium ion batteries”, and “lithium battery mark” by “lithium battery or sodium ion battery mark”.

## Chapter 5.3

- 5.3 Under the chapter title, add a new note to read as follows:
- “**NOTE 3:** *Removable skips not conforming to chapter 6.11 are considered as containers under this chapter.*”
- 5.3.1.4 In the heading, replace “**Placarding of vehicles for carriage in bulk**” by “**Placarding of vehicles when used for carriage in bulk**”.
- 5.3.2.3.2 Delete the line “78 radioactive material, corrosive”.

## Chapter 5.4

- 5.4.0.2 At the end, add the following new sentence: “The information prescribed in this chapter related to the dangerous goods carried shall be available during carriage in such a way that the goods per vehicle and the vehicle can be identified in the documentation.”
- 5.4.1.1.1 In (c), third indent, delete “lithium” and replace “and 3481” by “, 3481, 3551 and 3552 as well as for battery-powered vehicles of UN Nos. 3556, 3557 and 3558”.
- The amendment to (g) in the French version does not apply to the English text.
- 5.4.1.1.3.2 The amendment to (b) does not apply to the English version.
- In the second dashed bullet, after “2.1.3.5.3”, insert “(with the exception of UN 3291 clinical waste, unspecified, n.o.s. or (bio)medical waste, n.o.s. or regulated medical waste, n.o.s. in packaging conforming to packing instruction P621)”.
- 5.4.1.1.3 Add a new 5.4.1.1.3.3 as follows:
- “5.4.1.1.3.3 Special provisions for the carriage of waste in inner packagings packed together in an outer packaging
- For carriage in accordance with 4.1.1.5.3, a statement shall be included in the transport document, as follows "Carriage in accordance with 4.1.1.5.3". The additional statement prescribed in 5.4.1.1.3.2 is not necessary. For example:
- "UN 1993 WASTE FLAMMABLE LIQUID, N.O.S., 3, III, (E); CARRIAGE IN ACCORDANCE WITH 4.1.1.5.3".
- Information in the transport document in accordance with 5.4.1.1, shall be based on the entry or entries assigned to the outer packaging in accordance with 4.1.1.5.3 (d). The technical name, as prescribed in chapter 3.3, special provision 274, need not be added.”
- 5.4.1.1.4 Amend to read as follows:
- “5.4.1.1.4 *Special provisions for wastes contaminated with free asbestos (UN Nos. 2212 and 2590)*
- When special provision 678 of Chapter 3.3 is applied, the following statement shall be included in the transport document "Carriage under special provision 678".
- The description of wastes carried in accordance with special provision 678 (b) of Chapter 3.3 shall be added to the description of dangerous goods required in 5.4.1.1.1 (a) to (d) and (k). The transport document shall also be accompanied by the following documents:
- (a) A copy of the technical data sheet for the type of container-bag used, on the manufacturer’s or distributor’s letterhead, giving the dimensions of the packaging and its maximum mass;
- (b) A copy of the unloading procedure in accordance with special provision CV38 of 7.5.11, if applicable.”
- 5.4.1.1.21 Amend to read as follows:
- “5.4.1.1.21 *Information required in specific cases defined in other parts of ADR*
- Where in accordance with provisions in chapters 3.3, 3.5, 4.1, 4.2, 4.3 and 5.5 information is necessary, this information shall be included in the transport information.”

## Chapter 5.5

- 5.5.3.3.1 Replace “P650, P800, P901 or P904” by “P650 or P800”.

## Chapter 6.1

- 6.1.3.1 In the first sentence, after “marks”, insert “on a non-removable component”.
- 6.1.4.1.4 Replace the first sentence by “Drums may have rolling hoops, either expanded or separate.”.
- 6.1.4.2.3 Replace the first sentence by “Drums may have rolling hoops, either expanded or separate.”.
- 6.1.4.3.3 Replace the first sentence by “Drums may have rolling hoops, either expanded or separate.”.
- 6.1.4.12 Amend the heading to read:  
**“6.1.4.12 Fibreboard boxes (including corrugated fibreboard boxes)”.**
- 6.1.4.12.1 In the second sentence, replace “ISO 535:1991” by “ISO 535:2014”.
- 6.1.5.5.4 The amendment does not apply to the English version.

## Chapter 6.2

- 6.2.1.6.1 In note 2, replace “ISO 16148:2016” by “ISO 16148:2016 + Amd 1:2020”.
- In note 3, first sentence, after “ISO 18119:2018”, add “+ Amd 1:2021”.
- 6.2.2.1.1 In the table, in the row for ISO 9809-4:2014, replace “Until further notice” by “Until 31 December 2028”. Add a new row beneath this row as follows:

ISO 9809-4:2021	Gas cylinders – Design, construction and testing of refillable seamless steel gas cylinders and tubes – Part 4: Stainless steel cylinders with an Rm value of less than 1 100 MPa  <i>NOTE: Small quantities are a batch of cylinders not exceeding 200.</i>	Until further notice
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- 6.2.2.1.1 and 6.2.2.1.2 In the table:

- In the row for ISO 11119-1:2012, replace “Until further notice” by “Until 31 December 2028”. Add a new row beneath this row as follows:

ISO 11119-1:2020	Gas cylinders — Design, construction and testing of refillable composite gas cylinders and tubes — Part 1: Hoop wrapped fibre reinforced composite gas cylinders and tubes up to 450 l	Until further notice
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- In the row for ISO 11119-2:2012 + Amd 1:2014, replace “Until further notice” by “Until 31 December 2028”. Add a new row beneath this row as follows:

ISO 11119-2:2020	Gas cylinders — Design, construction and testing of refillable composite gas cylinders and tubes — Part 2: Fully wrapped fibre reinforced composite gas cylinders and tubes up to 450 l with load-sharing metal liners	Until further notice
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- In the row for ISO 11119-3:2013, replace “Until further notice” by “Until 31 December 2028”. Add a new row beneath this row as follows:



ISO 11119-3:2020	Gas cylinders — Design, construction and testing of refillable composite gas cylinders and tubes — Part 3: Fully wrapped fibre reinforced composite gas cylinders and tubes up to 450 l with non-load-sharing metallic or non-metallic liners or without liners	Until further notice
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6.2.2.1.4 The amendment does not apply to the English version.

6.2.2.1.9 In the table, in the row for “ISO 11118:2015 +Amd.1:2019”, replace “+Amd.1” by “+ Amd 1”.

6.2.2.2 In the table, replace “ISO 11114-1:2012 + A1:2017” by “ISO 11114-1:2020” and replace “ISO 11114-2:2013” by “ISO 11114-2:2021”.

The second amendment does not apply to the English version.

6.2.2.3 In the first table, replace “ISO 10297:2014 + A1:2017” by “ISO 10297:2014 + Amd 1:2017” and replace “ISO 14246:2014 + A1:2017” by “ISO 14246:2014 + Amd 1:2017”.

Add the following new row at the end of the first table

ISO 23826:2021	Gas cylinders – Ball valves – Specification and testing	Until further notice
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6.2.2.4 In the first table, in the row for ISO 18119:2018, replace “Until further notice” by “Until 31 December 2026”. Add a new row beneath this row as follows:

ISO 18119:2018 + Amd 1:2021	Gas cylinders – Seamless steel and seamless aluminium-alloy gas cylinders and tubes — Periodic inspection and testing	Until further notice
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For ISO 10461:2005 + A1:2006, replace “ISO 10461:2005 + A1:2006” by “ISO 10461:2005 + Amd 1:2006”.

6.2.2.7.4 (p) Replace “ISO 11114-1:2012 + A1:2017” by “ISO 11114-1:2020”.

6.2.2.9.2 (j) Replace “ISO 11114-1:2012 + A1:2017” by “ISO 11114-1:2020”.

6.2.4.1 Amend the table, under “*for design and construction of pressure receptacles or pressure receptacle shells*” as follows:

After the row for standard EN ISO 9809-3:2019, insert the following new row:

(1)	(2)	(3)	(4)	(5)
EN ISO 9809-4:2022	Gas cylinders – Design, construction and testing of refillable seamless steel gas cylinders and tubes – Part 4: Stainless steel cylinders with an Rm value of less than 1 100 MPa <i>NOTE: Small quantities are a batch of cylinders not exceeding 200.</i>	6.2.3.1 and 6.2.3.4	Until further notice	

In the row for standard EN 13110:2012, in column (4), replace “Until further notice” by “Between 1 January 2013 and 31 December 2026”. Add a new row beneath this row as follows:

(1)	(2)	(3)	(4)	(5)
EN 13110:2022	LPG equipment and accessories – Transportable refillable welded aluminium cylinders for liquefied petroleum gas (LPG) – Design and construction	6.2.3.1 and 6.2.3.4	Until further notice	

Amend the table “*for design and construction of closures*” as follows:

At the end, insert the following new row:

(1)	(2)	(3)	(4)	(5)
EN 13799:2022	LPG equipment and accessories – Contents gauges for Liquefied Petroleum Gas (LPG) pressure vessels	6.2.3.1 and 6.2.3.3	Until further notice	

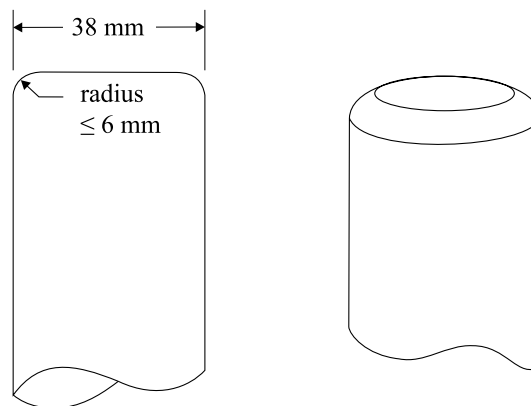
6.2.4.2 Amend the table as follows:

In the row for EN ISO 11623:2015, in column (3), replace “Until further notice” by “Until 31 December 2026”. Add a new row beneath this row as follows:

EN ISO 11623:2023	Gas cylinders – Composite cylinders and tubes – Periodic inspection and testing	Until further notice
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## Chapter 6.3

6.3.5.4.2 Amend Figure 6.3.5.4.2 to read as follows:



## Chapter 6.4

6.4.15.5 (a) At the end, delete “and”.

## Chapter 6.5

6.5.5.1.7 The amendment does not apply to the English version.

6.5.5.4.16 In the second sentence, replace “ISO 535:1991” by “ISO 535:2014”.

6.5.5.5.3 In the second sentence, replace “ISO 535:1991” by “ISO 535:2014”.

6.5.6.8.4.2 The amendment does not apply to the English version.

## Chapter 6.6

6.6.4.4.1 Replace “ISO 535:1991” by “ISO 535:2014”.

6.6.5.3.2.4 In (a), replace “Metal and rigid plastics” by “All types of large packagings other than flexible”.

## Chapter 6.7

- 6.7.2.1 In the definition of “Portable tank”, last sentence, after “non-metallic tanks”, insert “(except FRP portable tanks, see Chapter 6.9)”.
- 6.7.4.15.1 In (i) (iv), replace “Degree of filling” by “Maximum allowable mass of gas filled”.
- In figure 6.7.4.15.1, under “HOLDING TIMES”, last column, replace “Degree of filling” by “Maximum allowable mass of gas filled”.
- 6.7.5.2.4 In (a), replace “ISO 11114-1:2012 + A1:2017” by “ISO 11114-1:2020” and replace “ISO 11114-2:2013” by “ISO 11114-2:2021”.

## Chapter 6.8

- 6.8.2.1.17 At the end of the definition for “P<sub>C</sub>”, add “or in the table of 4.3.3.1.1”.
- 6.8.2.1.20 In the left-hand column, in paragraph (b) 1., in the first paragraph, replace “strengthening members” by: “strengthening elements”.
- In the left-hand column, in paragraph (b) 1., in the last paragraph, after “surge-plates”, insert: “that are used as strengthening elements”.
- 6.8.2.1.23 After the first sub-paragraph, insert the following Note:
- “NOTE:** *When 6.8.5 is applicable, the impact-strength tests carried out for the qualifications of the welding processes shall comply with the requirements of 6.8.5.3.”*
- 6.8.2.1.27 In the left column, last sentence, replace the earth ground symbol by  $\perp$ .
- 6.8.2.2.11 Amend to read as follows:
- “6.8.2.2.11 Level-gauges shall neither be part of, nor fitted to shells, if they incorporate transparent material which can, at any time, come into direct contact with the substance carried in the shell.”
- 6.8.2.5.1 In the last sentence, after “maximum working pressure” delete “allowed” and, at the end, add “(for Class 2, see 6.8.3.5)”.
- 6.8.2.5.2 Replace “plates” by “panels” (twice in the left column, once in the right column).
- 6.8.2.6.1 In the table, under “*For design and construction of tanks*”:
- In the row for EN 14025:2018 + AC:2020, in column (4), replace “Until further notice” by “Between 1 January 2021 and 31 December 2026”. Add a new row beneath this row as follows:

EN 14025:2023	Tanks for the transport of dangerous goods – Metallic pressure tanks – Design and construction <b>NOTE:</b> <i>Materials of shells shall at least be attested by a type 3.1 certificate issued in accordance with standard EN 10204.</i>	6.8.2.1 and 6.8.3.1	Until further notice	
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Delete the line for EN 12972:2018.

In the table, under “*For equipment*”:

In the row for EN 14432:2014, in column (4), replace “Until further notice” by “Between 1 January 2019 and 31 December 2026”. Add a new row beneath this row as follows:

EN 14432:2023	Tanks for the transport of dangerous goods – Tank equipment for the transport of liquid chemicals and liquefied gases – Product discharge and air inlet valves <i>NOTE: This standard may also be used for gravity discharge tanks.</i>	6.8.2.2.1, 6.8.2.2.2 and 6.8.2.3.1	Until further notice	
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In the row for EN 14433:2014, in column (4), replace “Until further notice” by “Between 1 January 2019 and 31 December 2026”. Add a new row beneath this row as follows:

EN 14433:2023	Tanks for the transport of dangerous goods – Tank equipment for the transport of liquid chemicals and liquefied gases – Foot valves <i>NOTE: This standard may also be used for gravity discharge tanks.</i>	6.8.2.2.1, 6.8.2.2.2 and 6.8.2.3.1	Until further notice	
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In the row for EN 12252:2005 + A1:2008, in column (3), before “6.8.3.2”, add “6.8.2.2,”;

In the row for EN 12252:2014, in column (3), before “6.8.3.2”, add “6.8.2.2,”.

Insert the following new row after the last row.

EN 13799:2022	LPG equipment and accessories – Contents gauges for Liquefied Petroleum Gas (LPG) pressure vessels	6.8.2.2.1 and 6.8.2.2.11	Until further notice	
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6.8.2.6.2 In the table

In the row for EN 12972:2018, in column (3), before “6.8.2.4”, add “6.8.2.3,”.

In the row for EN 14334:2014, in column (4), replace “Until further notice” by “Until 31 December 2026”. Add a new row beneath this row as follows:

EN 14334:2023	LPG equipment and accessories – Inspection and testing of LPG road tankers <i>NOTE: This standard shall not be applied for tanks constructed in accordance with EN 14025.</i>	6.8.2.4 and 6.8.3.4.9	Until further notice	
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6.8.3.5.4 In the first indent, after “maximum working pressure” delete “allowed”.

6.8.3.5.6 Replace “plates” by “panels” (once in each column).

6.8.4 (d), TT11 In the first paragraph after the table, replace “EN 14025:2018” by “EN 14025:2023”.

## Chapter 6.9

6.9.2.6.4.2 The amendment does not apply to the English version.

## Chapter 6.13

6.13.2.5 The amendment does not apply to the English version.

6.13.4.3.2 The amendment does not apply to the English version.

## Chapter 7.1

7.1.7.2 The amendment does not apply to the English version.

## Chapter 7.2

7.2.4, V14 After “Aerosols”, add “and gas cartridges”.

## Chapter 7.3

7.3.1.1 In the last paragraph, before the note, replace “this mode of carriage is not explicitly prohibited by other provisions of ADR.” by “the dangerous goods they have contained are allowed for this mode of carriage.” and add a new sentence at the end to read: “The instructions for carriage in bulk mentioned in columns (10) or (17) of table A of chapter 3.2 for these goods shall be applied.”.

7.3.3.2.7 Add the following new AP11:

“AP11 In accordance with VC3 in 7.3.3.1, for the purpose of carriage in bulk of molten aluminium, "standards specified by the competent authority of the country of origin" means that the following requirements shall be met.

1. General requirements
  - 1.1 *Vat* means a containment intended for the carriage of molten aluminium of UN No. 3257, including its shell, refractory lining and service and structural equipment.
  - 1.2 Vats shall be insulated so as not to exceed a surface temperature of 130 °C during carriage and shall be so positioned that the means of containment cannot be touched by other road users under normal conditions of carriage. The surface temperature shall in no case have a detrimental effect on the functioning of the vehicle, particularly the brake pipes and electric cables.
  - 1.3 The vats shall be secured on the vehicle in accordance with the load securing principles of 7.5.7.1.
  - 1.4 Vats need not be affixed with placards and markings in accordance with chapter 5.3 if these placards and markings have been affixed to the vehicle.

2. Fire and explosion protection

The risk of fire by the thermal influence of the molten aluminium on the vat, the vehicle or load securing aids, and the risk of explosion resulting from escaping vapours or chemical reaction of gases that have evolved, shall be prevented (e.g. by using inert gases).

3. Construction of vats

Vats shall be made of steel. Vats shall be designed and manufactured for a test pressure of 4 bar in accordance with EN 13445-3:2014. In the course of construction, the manufacturer shall specify the weld seams that are subject to the highest stresses. The hydrostatic pressure and surge effect of the molten aluminium shall be taken into account when deciding the dimensions of the vats and their attachment to the vehicle. The forces in 6.8.2.1.2 shall be taken into account.

The vat closures shall be designed in accordance with EN 13445-3:2014 and shall remain leakproof if a vat with contents (lateral position and top of the vat) overturns.

The filling and discharge openings shall be protected by the construction of the vat, e.g. by collars, deflectors, cages or equivalent constructions.

The protective device on the top of the vat shall be designed so as to withstand, without permanent deformation, a static load, applied vertically on the filling cover, equal to twice the maximum permissible mass of the vat (2g).

The refractory lining shall be suitable to withstand the contents and it shall be suitable as insulation material.

The refractory lining shall be so designed that its leakproofness remains intact, whatever the deformation liable to occur in normal conditions of carriage (see 6.8.2.1.2).

The inspection body performing inspections in accordance with 6.8.2.4.1 or 6.8.2.4.4, shall verify and confirm the ability of the manufacturer or the maintenance or repair shop to perform welding operations and the operation of a weld quality assurance system. Welding work on the sheet metal jacket, in particular on load-bearing parts, may only be carried out by approved welding companies.

Seals on vat covers and closures shall be selected and applied so that they prevent molten aluminium from flowing out if a full vat overturns.

#### 4. Inspection and tests of vats

The inspections and tests described in 4.1 to 4.5 shall be carried out by an inspection body approved by the competent authority. The inspections and tests shall be carried out in accordance with the applicable requirements of EN 12972:2018. Test reports on the results of the tests performed shall be issued.

##### 4.1 Type examination of vats

The construction design and workmanship shall be tested as part of a type examination procedure to ensure that the vats comply with the construction requirements of EN 13445-3:2014. The weld seams subject to the highest stresses shall be identified in the type examination report.

##### 4.2 Initial inspection

Vats shall be tested and inspected before they are placed in service.

The test shall at least include:

- (a) A check to ensure that the vat is in line with the type examination documents;
- (b) A check of conformity to the type;
- (c) An examination of the external condition;
- (d) A hydraulic pressure test at a test pressure of 4 bar; at this stage, the vats shall not have a refractory lining;
- (e) An examination of the internal condition (visual inspection of the internal metal surface of the vat before the refractory lining is fitted and visual inspection of the refractory lining);
- (f) A check of satisfactory operation of the equipment.

The hydraulic pressure test can also be carried out with an alternative seal.

#### 4.3 Intermediate inspection

Vats shall undergo an intermediate inspection no later than six years after the initial inspection and each periodic inspection.

The intermediate inspection shall at least include:

- (a) An examination of the documents;
- (b) An examination of the external condition, including the integrity of the flange and cover connections;
- (c) Measurement of the wall thickness to check the required minimum wall thickness;
- (d) Non-destructive testing of weld seams that are subject to the highest stresses by magnetic particle testing, penetration testing, ultrasonic testing or radiographic testing;
- (e) An examination of the internal condition (visual inspection of the refractory lining) by an expert under the responsibility of the operator;
- (f) A check of satisfactory operation of the equipment.

These intermediate inspections may be performed within three months before the specified date, without any influence on the time frame of other inspections according to 4.3 and 4.4.

#### 4.4 Periodic inspection

Each time the refractory lining is renewed, or no later than twelve years after the initial or most recent periodic inspection, a periodic inspection shall be carried out.

The periodic inspection shall at least include:

- (a) An examination of the documents;
- (b) An examination of the external condition, including the integrity of the flange and cover connections;
- (c) An examination of the internal condition (visual inspection of the internal metal surface of the vat before the refractory lining is fitted and visual inspection of the refractory lining);
- (d) Non-destructive testing of all weld seams that are subject to the highest stresses shall be carried out by magnetic particle testing, penetration testing, ultrasonic testing or radiographic testing;
- (e) Measurement of the wall thickness to check the required minimum wall thickness;
- (f) Hydraulic pressure test at a test pressure of 4 bar, at this stage, the vats shall not have a refractory lining;
- (g) A check of satisfactory operation of the equipment.

The hydraulic pressure test can also be carried out with an alternative seal.

#### 4.5 Exceptional inspection of vats

When the safety of the vat or of its equipment may have been impaired as a result of repairs, alterations or accident, an exceptional inspection shall be carried out on the parts affected by the repairs or alterations. If the exceptional inspection

fulfilling the requirements of 4.4 has been performed, then the exceptional inspection may be considered to be a periodic inspection. If an exceptional inspection fulfilling the requirements of 4.3 has been performed, then the exceptional inspection may be considered to be an intermediate inspection. The inspection body shall decide the detailed scope of the exceptional inspection, taking into account EN 12972:2018, Table A1.

5. Marking of vats

Vats shall be marked with a plate by analogy with 6.8.2.5.1, except the approval number and external design pressure. For the tests and inspections in accordance with 4.2 and 4.4, the marking shall be followed by "P". For the tests and inspections in accordance with 4.3, the marking shall be followed by "L".

6. Requirements for operation

The owner or the operator shall keep a copy of the type examination report, the results of the initial tests and inspections and all subsequent tests and inspections in the vat file.

Every renewal and repair of the refractory lining shall be recorded by the operator or manufacturer.

Seals shall be checked with each filling and renewed if necessary.

7. Vehicles

The following additional requirements apply to vehicles for carriage by road:

- (a) Vehicles used for carriage shall be fitted with a vehicle stability function approved in accordance with UN Regulation No. 13<sup>1</sup>.
- (b) Vats shall be positioned on the vehicles in such a way that the discharge openings face or are opposite to the direction of travel.

8. Training of driver

In addition to the basic course in accordance with 8.2.1.2, drivers shall receive supplementary training from a competent person about the detailed risk of the carriage of molten aluminium in vats.

This training shall include the following main points:

- (a) The particular handling behaviour of vehicles carrying vats,
- (b) General driving physics (driving stability/overtaking behaviour, particularly centre of gravity height, surge effects),
- (c) Limits of electronic stability control and
- (d) Special measures to be taken in the event of an accident.

The carrier shall document this training in writing or electronically, giving the date, duration and main topics covered."

Insert a footnote <sup>1</sup> to read "UN Regulation No. 13 (Uniform provisions concerning the approval of vehicles of categories M, N and O with regards to braking)."

7.3.3.2.7 Add the following new provision AP12:

"AP12 The waste may be carried in bulk provided that it is contained in a bag of the size of the load compartment, referred to as a "container-bag".



The container-bag is intended to be loaded only when placed inside a bulk load compartment with rigid walls. It is not intended for handling or to be used alone outside of this compartment.

For the purposes of this provision, container-bags shall have at least two liners.

The inner lining shall be dust-tight to prevent the release of dangerous quantities of asbestos fibres during carriage. The inner lining shall be a polyethylene or polypropylene film.

The outer lining shall be polypropylene and shall be fitted with a zipper system. It shall ensure the mechanical resistance of a container-bag loaded with waste to the shocks and stresses in normal conditions of carriage, in particular when a load compartment loaded with container-bags is transferred between vehicles and storage facilities.

Container-bags shall:

- (a) Be designed to resist perforation or tearing by contaminated waste or objects due to their angles or roughness;
- (b) Have a zipper system that is sufficiently tight to prevent the release of dangerous quantities of asbestos fibres during carriage. Laced or flapped fasteners are not authorized.

The load compartment shall have rigid metal walls of sufficient strength for its intended use. The walls shall be sufficiently high to completely contain the container-bag. Provided the container-bag offers similar protection, the sheeting of the vehicle can be omitted when using the VC1 provision.

Objects contaminated with free asbestos from damaged structures or buildings, as well as construction site waste contaminated with free asbestos from demolished or rehabilitated structures or buildings as mentioned in special provision 678 (b) (iii), (iv) and (v), shall be carried in a container-bag placed inside a second container-bag of the same type. The total mass of the contained waste shall not exceed 7 tonnes.

In all cases, the maximum mass of the waste shall not exceed the capacity specified by the container-bag manufacturer.”

## Chapter 7.5

7.5.11 Add a new CV29 to read:

“CV29 Packages shall be stored upright.”

Replace “CV29 to CV32 (*Reserved*)” by “CV30 to CV32 (*Reserved*)”.

Add a new CV38 to read:

“CV38 The load compartments shall have no sharp internal edges (internal steps, etc.) capable of tearing container-bags during unloading. They shall be inspected before any loading operation.

The container-bags shall be placed in the load compartments for carriage prior to any filling. The outer lining of the container-bags shall be positioned so that the slider of the zipper is placed on the front side of the load compartment when closed. After filling, the container-bags shall be closed in accordance with the manufacturer’s instructions.

Once loaded, the container-bags shall not be lifted or transferred from one load compartment to another. Multiple filled container-bags shall not be loaded into the same load compartment.

After any filling operation and after closing, the outer surfaces of the container-bags shall be decontaminated.

Container-bags carried in removable load compartments shall be unloaded with the latter placed on the ground.

The unloading of container-bags filled with roadworks waste or with soil contaminated with free asbestos by tipping the load compartment is authorized, provided that an unloading protocol agreed jointly between the carrier and the consignee is respected to prevent the container-bags from tearing during unloading. The protocol shall ensure that the container-bags do not fall or tear during the unloading operation.”

## Chapter 8.1

- 8.1.2.1 In the first sentence, replace “on the transport unit” by “on the driver’s cab of the transport unit”.
- 8.1.2.2 In the first sentence, replace “on the transport unit” by “on the driver’s cab of the transport unit”.

## Chapter 9.1

- 9.1.3.3 At the end of the first paragraph, add the following text:

“It may include additional security features such as a hologram, UV printing, guilloche patterns or barcode.

Contracting Parties that have introduced additional security features in the certificate of approval shall provide the UNECE secretariat with an example of the national model for any certificate intended for issue in accordance with this section. Contracting Parties shall also provide explanatory notes to enable the verification of conformity of certificates against the examples provided. The secretariat shall make this information available on its website.”

## Chapter 9.2

- 9.2.1.1 In the table, for 9.2.2.8, in the second column, replace “Battery master switch” by “De-energizing electrical circuits”.
- 9.2.2.2.2 In the third paragraph, replace “ISO 19642-8, ISO 19642-9 or ISO 19642:10:2019” by “ISO 19642-8:2019, ISO 19642-9:2019 or ISO 19642-10:2019”.
- 9.2.2.8 Amend to read as follows (including a reference to existing footnote 1):
- “9.2.2.8 *De-energizing electrical circuits***
- 9.2.2.8.1 Features to enable the de-energization of the electrical circuits for all voltage levels shall be placed as close to the energy sources as practicable. In the case the feature interrupts only one lead from the energy source, it shall interrupt the supply lead.
- 9.2.2.8.2 A control device to facilitate the de-energizing shall be installed in the driver’s cab. It shall be readily accessible to the driver and be distinctively marked. It shall be protected against inadvertent operation either by adding a protective cover, by using a dual movement control device or by other suitable means. Additional control devices may be installed provided they are distinctively marked and protected against inadvertent operation. If the control devices are electrically operated, the circuits of the control devices are subject to the requirements of 9.2.2.9.
- 9.2.2.8.3 Features to enable the de-energization of the electrical circuits shall be designed so that they can be operated when the vehicle is stationary. The de-energization shall be completed within 30 seconds after the activation of the control device.

- 9.2.2.8.4 The feature shall be installed in such a way that protection IP65 in accordance with IEC 60529 is complied with.
- 9.2.2.8.5 *Cable connections on the feature*
- Systems with a voltage that exceed 25 V AC or 60 V DC and systems under the scope of UN Regulation No. 100<sup>1</sup>, shall comply with the requirements of the said regulation.
- Systems with a voltage up to 25 V AC or 60 V DC shall have a protection degree IP 54 in accordance with IEC 60529. However, this does not apply if these connections are contained in a housing, which may be the battery box. In this case, it is sufficient to insulate the connections against short circuits, for example by a rubber cap.”
- 9.2.2.9.1 In (a), first sentence, replace “when the battery master switch is open” by “when the feature to de-energize the electrical circuits is activated”.
- 9.2.2.9.2 Replace “connections to the battery master switch” by “connections to the feature to de-energize the electrical circuits”, replace “must” by “shall” and replace “when the battery master switch is open” by “when the feature is activated”.

## Chapter 9.7

- 9.7.8 At the end of the heading, add “**on FL vehicles**”.
- 9.7.8.3 In the first sentence, after the first instance of “electrical equipment”, add “on FL vehicles”.

## Chapter 9.8

- 9.8.4 In the first sentence, after the phrase in parentheses, insert “of the axle with greatest width”.
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