



Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals

Sub-Committee of Experts on the Transport of Dangerous Goods

Sixty-first session

Geneva, 28 November-6 December 2022

Item 2 (a) of the provisional agenda

**Recommendations made by the Sub-Committee at its fifty-eighth, fifty-ninth and sixtieth sessions and pending issues:
review of draft amendments already adopted during the
biennium**

Consolidated list of draft amendments

Note by the secretariat*

This document contains a consolidated list of draft amendments adopted by the Sub-Committee of Experts at its fifty-eighth, fifty-ninth and sixtieth sessions, as follows:

- Part I Draft amendments to the twenty-second revised edition of the Recommendations on the Transport of Dangerous Goods, Model Regulations (ST/SG/AC.10/1/Rev.22)
- Part II Draft amendments to the seventh revised edition of the Manual of Tests and Criteria (ST/SG/AC.10/11/Rev.7 and Amend.1)

I. Draft amendments to the twenty-second revised edition of the Recommendations on the Transport of Dangerous Goods, Model Regulations (ST/SG/AC.10/1/Rev.22)

Data sheet to be submitted to the United Nations for new or amended classification of substances

[Section 9, item 9.6 Amend to read as follows:

“9.6 Filling ratio/degree of filling, as applicable”]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

Chapter 1.1

1.1.1.7 At the end, add a new note to read as follows:

* A/75/6 (Sect.20), para. 20.51

“**NOTE:** A standard provides details on how to meet the provisions of these Regulations and may include requirements in addition to those set out in these Regulations.”

(Reference document: ST/SG/AC.10/C.3/116, annex I)

Chapter 1.2

[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;”]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

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

(Reference document: ST/SG/AC.10/C.3/120, annex I)

Chapter 2.0

2.0.5.2 Amend to read as follows:

“2.0.5.2 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 transported 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.”

(Reference document: ST/SG/AC.10/C.3/120, annex I)

Chapter 2.3

2.3.1.4 In the last sentence, replace “UN 3357 and UN 3379” by “UN 3357, UN 3379 and UN 3555”.

(Reference document: ST/SG/AC.10/C.3/120, annex I)

Chapter 2.4

2.4.2.3.2.3 Replace “The formulations not listed in this provision” by “The formulations not listed in this sub-section”.

(Reference document: ST/SG/AC.10/C.3/116, annex I)

Chapter 2.5

2.5.3.2.4 Replace “The formulations not listed in this provision” by “The formulations not listed in this sub-section”.

In the table, for “DI-2,4-DICHLOROBENZOYL PEROXIDE”, concentration “ ≤ 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:

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

After the table, add the following new remarks:

“33) Available oxygen ≤ 10 %.

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

(Reference document: ST/SG/AC.10/C.3/116, annex I and ST/SG/AC.10/C.3/118, annex II)

Chapter 2.6

2.6.3.2.2.1 In the table, for UN 2814, in the entry for “Monkeypox virus”, at the end, add “(cultures only)”.

(Reference document: ST/SG/AC.10/C.3/120, annex I)

Chapter 2.9

2.9.2 After the section for “*Lithium batteries*”, add a new section to read as follows:

“*Sodium ion batteries*”

3551 SODIUM ION BATTERIES with organic electrolyte

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

(Reference document: ST/SG/AC.10/C.3/118, annex II)

2.9.2 Under “*Genetically modified micro-organisms (GMMOs) and genetically modified organisms (GMOs)*”, before the last paragraph, add the following new paragraph:

“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 these Regulations.”

(Reference document: ST/SG/AC.10/C.3/120, annex I)

2.9.4 (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 for lithium cells or batteries or equipment with installed lithium cells or batteries is accessible so that the consignor or other persons in the supply chain can confirm compliance.”

(Reference document: ST/SG/AC.10/C.3/120, annex I)

2.9.5 Add a new 2.9.5 to read as follows:

“**2.9.5 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 transported 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.
- (b) Each cell and battery incorporates a safety venting device or is designed to preclude a violent rupture under conditions normally encountered during transport;
- (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 program as prescribed under 2.9.4 (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.”

(Reference document: ST/SG/AC.10/C.3/118, annex II)

Chapter 3.2

3.2.1 In the descriptive text for column 5, first sentence, delete “article or”.

(Reference document: ST/SG/AC.10/C.3/120, annex I)

Chapter 3.2, dangerous goods list

For UN Nos. 0030, 0255, 0456, 0511, 0512 and 0513, in column (6), add “399”.

(Reference document: ST/SG/AC.10/C.3/116, annex I)

For UN 1010, in column (2), replace “40 %” by “20 %” [and in column (6), add “XXX”].

(Reference document: ST/SG/AC.10/C.3/116, annex I)

For UN 2028, in column (5), delete “II”.

(Reference document: ST/SG/AC.10/C.3/120, annex I)

For UN 2795, in column (6), add “401”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

For UN 2803, in column (6), add “365”.

(Reference document: ST/SG/AC.10/C.3/120, annex I)

For UN 2807, in column (5), delete “III”.

(Reference document: ST/SG/AC.10/C.3/116, annex I)

For UN 2870 (second entry), in column (5), delete “I”.

(Reference document: ST/SG/AC.10/C.3/120, annex I)

For UN 3165 in column (5), delete “I”.

(Reference document: ST/SG/AC.10/C.3/120, annex I)

For UN 3292, in column (2), replace “SODIUM” by “METALLIC SODIUM OR SODIUM ALLOY” (twice) and in column (6), add “401”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

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

(Reference document: ST/SG/AC.10/C.3/120, annex I)

Add the following new entries:

(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
3551	SODIUM ION BATTERIES with organic electrolyte	9			188 230 310 348 376 377 384 400 401	0	E0	P903 P908 P909 P910 P911 LP903 LP904 LP905 LP906			
3552	SODIUM ION BATTERIES with organic electrolyte CONTAINED IN EQUIPMENT or SODIUM ION BATTERIES with organic electrolyte PACKED WITH EQUIPMENT	9			188 230 310 348 360 376 377 384 400 401	0	E0	P903 P908 P909 P910 P911 LP903 LP904 LP905 LP906			
3553	DISILANE	2.1				0	E0	P200			
3554	GALLIUM CONTAINED IN MANUFACTURED ARTICLES	8			366	5 kg	E0	P003	PP90		
3555	TRIFLUOROMETHYLTETRAZOLE-SODIUM SALT IN ACETONE, with not less than 68 % acetone, by mass	3		II	28 132	0	E0	P303	PP26		

(Reference documents: ST/SG/AC.10/C.3/118, annex II and ST/SG/AC.10/C.3/120, annex I)

Chapter 3.3

SP 28 Before “Division 4.1”, add “Class 3 or” and before “2.4.2.4”, add “2.3.1.4 and”.

(Reference document: ST/SG/AC.10/C.3/120, annex I)

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

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

In (c), after “Each”, insert “lithium”, and after “(g)”, insert “or for sodium ion cells or batteries, the provisions of 2.9.5 (a), (e) and (f) shall apply”.

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

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

(Reference document: ST/SG/AC.10/C.3/118, annex II)

[SP 204 In the second paragraph, delete “, except that those manufactured before 31 December 2016 may be transported until 1 January 2019 without a “TOXIC” subsidiary hazard label”.]

(Reference document: ST/SG/AC.10/C.3/118, annex II)

SP 230 At the end, add the following new sentence “Sodium ion cells and batteries may be transported under this entry if they meet the provisions of 2.9.5.”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

SP 252 Amend to read as follows:

“252 (1) Ammonium nitrate hot concentrated solutions can be transported 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 transport temperature of the solution is 140 °C.

(2) Additionally, ammonium nitrate hot concentrate solutions are not subject to these Regulations 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 transport; and
- (d) The solution does not meet the criteria of any other class or division.”

(Reference document: ST/SG/AC.10/C.3/118, annex II)

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

(Reference document: ST/SG/AC.10/C.3/118, annex II)

SP 310 Amend to read as follows:

“310 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 transported for testing, shall meet the provisions of 2.9.4 with the exception of 2.9.4 (a), (e) (vii), (f) (iii) if applicable, (f) (iv) if applicable and (g).

NOTE: *“Transported 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.

The transport document shall include the following statement: “Transport in accordance with special provision 310”.

[Damaged or defective cells, batteries, or cells and batteries contained in equipment shall be transported in accordance with special provision 376.

Cells, batteries or cells and batteries contained in equipment transported for disposal or recycling may be packaged in accordance with special provision 377 and packing instruction P909 of 4.1.4.1.]”

Note by the secretariat: *this amendment was the result of merging three different proposals. The secretariat believes that in the process of merging these three proposals, the current last two paragraphs, in square brackets here, might have been accidentally deleted.*

(Reference document: ST/SG/AC.10/C.3/120, annex I)

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]”.

Note by the secretariat: *the words “CONTAINED IN EQUIPMENT” were not present in the original proposal or in the amendment as adopted in ST/SG/AC.10/C.3/118, annex II. The secretariat believes this might have been a mistake.*

(Reference document: ST/SG/AC.10/C.3/118, annex II)

SP 348 Replace “Batteries” by “Lithium batteries”. After “2011” insert “and sodium ion batteries manufactured after 31 December 2025”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

SP 360 In the first sentence, replace “lithium metal batteries or lithium ion batteries” by “lithium metal, lithium ion or sodium ion batteries”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

SP 363 In (f), first paragraph, amend the second sentence to read “However, lithium batteries shall meet the provisions of 2.9.4, except that 2.9.4 (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 transported for testing, are installed in machinery or engines.”.

(Reference document: ST/SG/AC.10/C.3/120, annex I)

SP 365 After “mercury”, add “or gallium”. Replace “UN 3506” by “UN Nos. 3506 or 3554, as appropriate”.

(Reference document: ST/SG/AC.10/C.3/120, annex I)

SP 366 In the first sentence, after “mercury”, add “or gallium”. [In the second sentence, after “mercury”, add “or gallium”.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

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 3480 and UN 3481” by “UN 3480, UN 3481, UN 3551 and UN 3552, as appropriate”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

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, after “2.9.4”, insert “or 2.9.5”.

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”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

SP 379 Replace “ISO 11114-1:2012 + A1:2017” by “ISO 11114-1:2020”.

Note by the secretariat: the amendment to SP 379 adopted in ST/SG/AC.10/C.3/120, annex I did not take into account the amendment already adopted in ST/SG/AC.10/C.3/116, annex I and has therefore been deleted.

(Reference document: ST/SG/AC.10/C.3/116, annex I)

[SP 384 Delete the note.]

(Reference document: ST/SG/AC.10/C.3/118, annex II)

SP 388 In the eighth paragraph, amend the second sentence to read “However, lithium batteries shall meet the provisions of 2.9.4, except that 2.9.4 (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 transported for testing, are installed in vehicles.”.

In the last paragraph, delete “or equipment” (twice).

(Reference document: ST/SG/AC.10/C.3/120, annex I)

SP 396 (f) Replace “and are marked” by “and marked”.

(Reference document: ST/SG/AC.10/C.3/116, annex I)

Add the following new special provisions:

“399 For articles that meet the definition for DETONATORS, ELECTRONIC as described in Appendix B and assigned to UN Nos. 0511, 0512 and 0513, the entries for DETONATORS, ELECTRIC (UN Nos. 0030, 0255 and 0456) may continue to be used until 30 June 2025.”

(Reference document: ST/SG/AC.10/C.3/116, annex I)

“400 Sodium-ion cells and batteries and sodium-ion cells and batteries contained in or packed with equipment, prepared and offered for transport, are not subject to other provisions of these Regulations 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 shall be easily verifiable (e.g., busbar between terminals);
- (b) Each cell or battery meets the provisions of 2.9.5 (a), (b), (d), (e) and (f);
- (c) Each package shall be marked according to 5.2.1.9;
- (d) Except when cells or batteries are installed in equipment, each package shall be 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 shall be protected from damage. When batteries are installed in equipment, the equipment shall be 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 component of a battery, shall only contain dangerous goods that are authorized to be transported in accordance with the provisions of Chapter 3.4, and the quantity of the dangerous goods in the cell shall not exceed the quantity specified in Chapter 3.2 Table A Column 7a.”

(Reference document: ST/SG/AC.10/C.3/118, annex II)

“401 Sodium ion cells and batteries with organic electrolyte shall be transported as UN 3551 or 3552 as appropriate, sodium-ion batteries with aqueous alkali electrolyte shall be transported as UN 2795 BATTERIES, WET, FILLED WITH ALKALI, electric storage.”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

[“XXX Substances transported 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.”]

(Reference document: ST/SG/AC.10/C.3/116, annex I)

Chapter 3.4

[3.4.7.2 Delete the note.]

(Reference document: ST/SG/AC.10/C.3/118, annex II)

[3.4.8.2 Delete the note.]

(Reference document: ST/SG/AC.10/C.3/118, annex II)

Chapter 3.5

[3.5.4.3 Delete the note.]

(Reference document: ST/SG/AC.10/C.3/118, annex II)

Alphabetical index

For “BATTERIES, CONTAINING SODIUM”, in the column for “Name and description”, replace “SODIUM” by “METALLIC SODIUM OR SODIUM ALLOY”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

For “BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED, containing more than 40 % butadienes”, replace “40 %” by “20 %”.

(Reference document: ST/SG/AC.10/C.3/116, annex I)

For “CELLS, CONTAINING SODIUM”, in the column for “Name and description”, replace “SODIUM” by “METALLIC SODIUM OR SODIUM ALLOY”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

Add the following new entries in alphabetical order:

Batteries, sodium nickel chloride, see	4.3	3292
Butylenes mixture, see	2.1	1012
DISILANE	2.1	3553
GALLIUM CONTAINED IN MANUFACTURED ARTICLES	8	3554
TRIFLUOROMETHYLTETRAZOLE-SODIUM SALT IN ACETONE, with not less than 68 % acetone, by mass	3	3555

(Reference documents: ST/SG/AC.10/C.3/118, annex II and ST/SG/AC.10/C.3/120, annex I)

Chapter 4.1

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

(Reference document: ST/SG/AC.10/C.3/120, annex I)

4.1.4.1, P003 In special packing provision PP90, replace “UN 3506” by “UN Nos. 3506 and 3554” and after “mercury”, add “or gallium, as appropriate,”.

(Reference document: ST/SG/AC.10/C.3/120, annex I)

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 transported for testing or production runs of not more than 100 lithium cells or batteries that are of a type that have 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 transport. 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 transported unpackaged under conditions specified by the competent authority. 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 transport, 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 transport.”

(Reference document: ST/SG/AC.10/C.3/120, annex I)

4.1.4.1 P200 In (4), replace “ISO 13088:2011” by “ISO 13088:2011 + Amd 1:2020”.

(Reference document: ST/SG/AC.10/C.3/116, annex I)

4.1.4.1, P200 In (5), special packing provision z, paragraphs 8 and 9, replace “(abs.)” by “(absolute)”.

(Reference document: ST/SG/AC.10/C.3/116, annex I)

4.1.4.1 P200 In table 2, for the third entry of UN 1010, in the column “Name and description”, replace “40 %” by “20 %”.

(Reference document: ST/SG/AC.10/C.3/116, annex I)

4.1.4.1, P200 In table 2, add the following new row:

UN No.	Name and description	Class or Division	Subsidiary hazard	LC ₅₀ (ml/m ³)	Cylinders	Tubes	Pressure drums	Bundles of cylinders	MEGCs	Test period (years)	Test pressure (bar)	Filling ratio	Special packing provisions
3553	DISILANE	2.1			X	X	X	X		10	225	0.39	q

(Reference document: ST/SG/AC.10/C.3/120, annex I)

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”, after the first sentence, add “For these gases, when used as a coolant, the requirements of 5.5.3 shall apply.”.

(Reference documents: ST/SG/AC.10/C.3/118, annex II and ST/SG/AC.10/C.3/120, annex I)

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

(Reference document: ST/SG/AC.10/C.3/116, annex I)

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”.

(Reference document: ST/SG/AC.10/C.3/120, annex I)

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.”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

4.1.4.1, P650 [In (4), delete the note.]

[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, add “and”.]

(Reference document: ST/SG/AC.10/C.3/118, annex II and ST/SG/AC.10/C.3/120, annex I)

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.”.

(Reference documents: ST/SG/AC.10/C.3/118, annex II and ST/SG/AC.10/C.3/120, annex I)

4.1.4.1, P803 At the end, add a new paragraph to read as follows:

“Packagings shall conform to the packing group II performance level.”

(Reference document: ST/SG/AC.10/C.3/120, annex I)

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.”

(Reference document: ST/SG/AC.10/C.3/118, annex II)

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”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

[4.1.4.1, P904 In (2), delete the note.]

(Reference document: ST/SG/AC.10/C.3/118, annex II)

4.1.4.1, P905 In additional requirement 1 (c), after “lithium batteries”, insert “and sodium-ion batteries”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

4.1.4.1, P908 In the first sentence, 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 5, replace “Non-combustibility” by “The non-combustibility of the thermal insulation material and the cushioning material”.

(Reference document: ST/SG/AC.10/C.3/116, annex I and ST/SG/AC.10/C.3/118, annex II)

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).

(Reference document: ST/SG/AC.10/C.3/118, annex II)

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”.

(Reference document: ST/SG/AC.10/C.3/116, annex I and ST/SG/AC.10/C.3/118, annex II)

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 (b), first sentence, delete “lithium” and replace “(rapidly disassemble)” by “(e.g. rapidly disassemble)”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

4.1.4.1 Add the following new packing instruction:

P303	PACKING INSTRUCTION	P303
This instruction applies to UN No. 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-removeable head (1H1) of maximum capacity 250 l.		
Additional requirement: The packagings shall be transported in an upright position.		
Special packing provision: PP26 For UN No. 3555, packagings shall be lead free.		

(Reference document: ST/SG/AC.10/C.3/120, annex I)

4.1.4.2, IBC03 Amend special packing provision B11 to read as follows:

“B11 Notwithstanding the provisions of the second paragraph of 4.1.1.10, UN 2672 ammonia solution in concentrations not exceeding 25 % may be transported in IBCs.”

(Reference document: ST/SG/AC.10/C.3/120, annex I)

4.1.4.2, IBC520 Replace “the formulations not listed in 2.4.2.3.2.3 and 2.5.3.2.4” by “the formulations not listed in 2.4.2.3.2.3 or 2.5.3.2.4”.

Amend the entry for UN No. 3119, “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 31HA1	1 250 1 000	+10 °C +10 °C	+15 °C +15 °C
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(Reference document: ST/SG/AC.10/C.3/116, annex I and ST/SG/AC.10/C.3/118, annex II)

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 transported for testing or production runs of not more than 100 lithium cells or batteries that are of a type that have 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 transport. 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.”

(Reference document: ST/SG/AC.10/C.3/120, annex I)

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 transport by:

- (1) its movement or placement within the large packaging;
- (2) contact with other cells, batteries or equipment within the large packaging; and
- (3) 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.”

(Reference documents: ST/SG/AC.10/C.3/118, annex II and ST/SG/AC.10/C.3/120, annex I)

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

In 5, replace “Non-combustibility” by “The non-combustibility of the thermal insulation material and the cushioning material”.

(Reference document: ST/SG/AC.10/C.3/116, annex I and ST/SG/AC.10/C.3/118, annex II)

4.1.4.3, LP905 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”.

(Reference document: ST/SG/AC.10/C.3/116, annex I and ST/SG/AC.10/C.3/118, annex II)

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

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

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

(Reference document: ST/SG/AC.10/C.3/116, annex I and ST/SG/AC.10/C.3/120, annex I)

4.1.6.1.8 The amendments to (a), (d) and (e) do not apply to the English version. Amend (b) and (c) to read as follows:

“(b) Valves are protected by caps or guards. Caps shall possess vent-holes of sufficient cross-sectional area to evacuate the gas if leakage occurs at the valves;

(c) Valves are protected by shrouds or permanent protective attachments;”

Amend the paragraph after the indents to read as follows:

“For pressure receptacles with valves as described in (b) the requirements of ISO 11117:1998, ISO 11117:2008 + Cor 1:2009 or ISO 11117:2019 shall be met. Requirements for shrouds and permanent protective attachments used as valve protection under (c), are given in the relevant pressure receptacle shell design standards, see 6.2.2.1. Valves with inherent protection used for refillable pressure receptacles shall meet the requirements of clause 4.6.2 of ISO 10297:2006 or clause 5.5.2 of ISO 10297:2014 or clause 5.5.2 of ISO 10297:2014 + Amd 1:2017, or in case of self-closing valves, of clause 5.4.2 of ISO 17879:2017. For valves with inherent protection used for non-refillable cylinders, the

requirements of clause 9.2.5 of ISO 11118:2015 or of clause 9.2.5 of ISO 11118:2015 + Amd 1:2019 shall be met.”

(Reference document: ST/SG/AC.10/C.3/116, annex I)

[4.1.7.0.1 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

Chapter 4.2

[4.2.1.9.2 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[4.2.1.9.3 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[4.2.1.9.5 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[4.2.1.9.5.1 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[4.2.1.9.6 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[4.2.1.13.13 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[4.2.1.16.2 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[4.2.1.19.2 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[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”.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[4.2.3.6.4 Replace “degree of filling” by “quantity of gas filled into the shell”.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[4.2.5.2.3 Replace “degree of filling” by “filling ratio”.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

4.2.5.2.6, T23 Replace “the formulations not listed in 2.4.2.3.2.3 and 2.5.3.2.4” by “the formulations not listed in 2.4.2.3.2.3 or 2.5.3.2.4”.

(Reference document: ST/SG/AC.10/C.3/116, annex I)

[4.2.5.2.6, T23 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[4.2.5.2.6, T50 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[4.2.5.3, TP1 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[4.2.5.3, TP2 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[4.2.5.3, TP3 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[4.2.5.3, TP4 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[4.2.5.3, TP5 Replace “degree of filling” by “restrictions on filling”.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

Chapter 5.2

[5.2.1.6.3 Delete note 2. Note 1 becomes “**NOTE**”.]

(Reference document: ST/SG/AC.10/C.3/118, annex II)

5.2.1.9 In the heading, after “**Lithium**”, insert “**or sodium ion**”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

5.2.1.9.1 After “lithium”, insert “or sodium ion”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

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 5.2.5, after “**Lithium**”, insert “**or sodium ion**”.

In the last paragraph, third sentence, replace “UN number” by “UN number(s)” and delete “for lithium ion or lithium metal batteries or cells”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

5.2.2.1.13.1 In the second sentence, replace “lithium batteries” by “lithium or sodium ion batteries”, “lithium ion batteries” by “lithium ion or sodium ion batteries” and “lithium battery” by “lithium or sodium ion battery”. In the third sentence, replace “lithium batteries” by “lithium or sodium ion batteries”, “lithium ion batteries” by “lithium ion or sodium ion batteries”, “the lithium battery label” by “the battery label” and “5.2.2.1.2” by “5.2.2.2”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

[5.2.2.2.1.1.3 Delete the note.]

(Reference document: ST/SG/AC.10/C.3/118, annex II)

Chapter 5.3

5.3.1.1.5.1 In the first sentence, after “SCO-I”, add “or SCO-III”.

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[5.3.1.2.1 Delete the note.]

(Reference document: ST/SG/AC.10/C.3/118, annex II)

[5.3.2.2 Delete the note.]

(Reference document: ST/SG/AC.10/C.3/118, annex II)

Chapter 5.5

[5.5.2.3.2 Delete the note.]

(Reference document: ST/SG/AC.10/C.3/118, annex II)

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

(Reference document: ST/SG/AC.10/C.3/120, annex I)

Chapter 6.1

6.1.3.1 In the first sentence, after “marks”, insert “on a non-removable component”.

After the first paragraph, add the following new note:

“NOTE: *The provisions of 6.1.3.1 of the twenty-second revised edition of the Recommendations on the Transport of Dangerous Goods, Model Regulations may continue to be applied until 31 December 2026. Packagings manufactured before 1 January 2027 according to the provisions applicable at the date of manufacture may continue to be used.”*

(Reference document: ST/SG/AC.10/C.3/120, annex I)

6.1.4.1.4 Replace the first sentence by “Drums may have rolling hoops, either expanded or separate.”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

6.1.4.2.3 Replace the first sentence by “Drums may have rolling hoops, either expanded or separate.”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

6.1.4.3.3 Replace the first sentence by “Drums may have rolling hoops, either expanded or separate.”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

6.1.4.12 Amend the heading to read:

“6.1.4.12 Fibreboard (including corrugated fibreboard) boxes”.

(Reference document: ST/SG/AC.10/C.3/118, annex II)

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

(Reference document: ST/SG/AC.10/C.3/116, annex I)

[6.1.5.5.4 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

Chapter 6.2

6.2.1.5.2 After (p), replace “closed cryogenic pressure receptacles” by “closed cryogenic receptacles”.

Insert the following note at the end:

“NOTE: *Closed cryogenic receptacles which were constructed in accordance with the initial inspection and test requirements of 6.2.1.5.2 applicable in the twenty-first revised edition of the Model Regulations but which do not however conform to the requirements of 6.2.1.5.2 relating to the initial inspection and test applicable in the twenty-second revised edition of the Model Regulations, may continue to be used.”*

(Reference document: ST/SG/AC.10/C.3/116, annex I and ST/SG/AC.10/C.3/120, annex I)

6.2.1.5.4 The amendment does not apply to the English version.

(Reference document: ST/SG/AC.10/C.3/116, annex I)

6.2.1.6.1 (d) 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”. Add the following new second sentence: “For a transitional period until 31 December 2026 the standard ISO 18119:2018 may be used for this same purpose”

(Reference document: ST/SG/AC.10/C.3/116, annex I and ST/SG/AC.10/C.3/120, annex I)

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.

Note by the secretariat: the draft amendment to 6.2.2.2 adopted in ST/SG/AC.10/C.3/120, annex I did not take into account the draft amendment already adopted in ST/SG/AC.10/C.3/116, annex I and has therefore been adapted.

(Reference document: ST/SG/AC.10/C.3/116, annex I and ST/SG/AC.10/C.3/120, annex I)

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”.

(Reference document: ST/SG/AC.10/C.3/120, annex I)

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 10461:2014 + Amd 1:2005”.

(Reference document: ST/SG/AC.10/C.3/120, annex I)

6.2.2.7.3 In (l) (ii), after “porous material”, add “(e.g.: name or trademark)”.

Insert the following note at the end:

NOTE: Acetylene cylinders constructed in accordance with the twenty-first revised edition of the Model Regulations which are not marked in accordance with 6.2.2.7.3 (k) or (l) applicable in the twenty-second revised edition of the Model Regulations, may continue to be used until the next periodic inspection and test two years after the coming into force of the twenty-third revised edition of the Model Regulation where they have to be marked according to the twenty-third revised edition of the Model Regulations or be taken out of operation.”

(Reference documents: ST/SG/AC.10/C.3/116, annex I and ST/SG/AC.10/C.3/120, annex I)

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

(Reference document: ST/SG/AC.10/C.3/116, annex I)

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

(Reference document: ST/SG/AC.10/C.3/116, annex I)

6.2.2.11 Insert the following note at the end:

NOTE: Closures of refillable pressure receptacles constructed manufactured before 1 January 2027 in accordance with the requirements applicable in the twenty-first revised edition of the Model Regulations which are not marked in accordance with the requirements of 6.2.2.11 applicable in the twenty second revised edition may continue to be used.”

(Reference document: ST/SG/AC.10/C.3/120, annex I)

Chapter 6.5

[6.5.5.1.7 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

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

(Reference document: ST/SG/AC.10/C.3/116, annex I)

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

(Reference document: ST/SG/AC.10/C.3/116, annex I)

[6.5.6.8.4.2 The amendment does not apply to the English version.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

Chapter 6.6

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

(Reference document: ST/SG/AC.10/C.3/116, annex I)

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

(Reference document: ST/SG/AC.10/C.3/116, annex I)

Chapter 6.7

[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”.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

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”.

Note by the secretariat: the draft amendment to 6.7.5.2.4 adopted in ST/SG/AC.10/C.3/120, annex I did not take into account the draft amendment already adopted in ST/SG/AC.10/C.3/116, annex I and has therefore been adapted.

(Reference document: ST/SG/AC.10/C.3/116, annex I and ST/SG/AC.10/C.3/120, annex I)

Chapter 6.9

6.9.2.2.3.14.1 Delete “of Class 3”.

(Reference document: ST/SG/AC.10/C.3/116, annex I)

Document ST/SG/AC.10/C.3/2022/2 with amendments to the Spanish version was adopted.

(Reference document: ST/SG/AC.10/C.3/120, annex I)

[Informal document INF.18 from the sixtieth session with additional amendments to the Spanish version was adopted.]

(Reference document: ST/SG/AC.10/C.3/120, annex I)

II. Draft amendments to the Manual of Tests and Criteria (ST/SG/AC.10/11/Rev.7 and Amend.1)

Section 10

[Figure 10.6 (a) In 8, replace “PROVISIONALLY ACCEPT INTO THIS CLASS” by “PROVISIONALLY CLASSIFY AS AN EXPLOSIVE”.]

[Figure 10.7 (a) In 12, replace “PROVISIONALLY ACCEPT INTO THIS CLASS” by “PROVISIONALLY CLASSIFY AS AN EXPLOSIVE”.]

Note by the secretariat: consequential amendments to ST/SG/AC.10/11/Rev.7/Amend.1.

Section 32

[32.2.2 In the first sentence, replace “60 °C” by “93 °C” and delete the rest of the sentence after that.

At the end of the paragraph, add the following text:

“For the purposes of transport, the following specifications apply in addition:

- (a) Substances are classified as flammable liquids only when their flash point is not more than 60 °C (flammable liquids Category 4 of the GHS is not implemented);
- (b) Additionally, substances transported or offered for transport at elevated temperatures, are classified as flammable liquids when they give off a flammable vapour at a temperature at or below the maximum transport temperature.”]

(Reference document: ST/SG/AC.10/C.3/120, annex IV)

Section 37

[37.1.2 In the last sentence, replace “classification” by “transport-classification”.]

(Reference document: ST/SG/AC.10/C.3/120, annex IV)

Section 38

38.3 In the heading, replace the “and” by a comma and after “lithium ion”, insert “and sodium ion”.

(Reference document: ST/SG/AC.10/C.3/118, annex IV)

38.3.1 Replace “lithium metal and lithium ion” by “lithium metal, lithium ion and sodium ion” and “3480 and 3481” by “3480, 3481, 3551 and 3552”.

At the end, add a new note to read as follows:

NOTE: *In this section the words “sodium ion cells or batteries” refer to sodium ion with organic electrolyte cells or batteries.”.*

(Reference document: ST/SG/AC.10/C.3/118, annex IV)

38.3.2.1 In the first sentence, before “cell types”, insert “lithium”. In the second sentence, before “battery types”, insert “lithium”. In the third sentence, before “battery types”, insert “lithium”. In the fourth sentence, before “batteries”, insert “lithium”. In the fifth sentence, before “cell”, insert “lithium”. In the sixth sentence, before “cell”, insert “lithium”. In the seventh sentence, before “cell”, insert “lithium”.

At the end, add a new paragraph to read as follows:

“All sodium ion cell types shall be subjected to tests T.1 to T.6. All rechargeable sodium ion battery types, including those composed of previously tested cells, shall be subjected to tests T.1 to T.5 and T.7. In addition, rechargeable single cell sodium ion batteries with overcharge protection shall be subjected to test T.7. A component sodium ion cell that is not transported separately from the battery it is part of needs only to be tested according to tests T.6. A component sodium ion cell that is transported separately from the battery shall be subjected to tests T.1 to T.6. A sodium ion cell or battery that is an integral part of the equipment it is intended to power that is transported only when installed in the equipment, may be tested in accordance with the applicable tests when installed in the equipment.”.

(Reference document: ST/SG/AC.10/C.3/118, annex IV)

38.3.2.2 At the beginning, replace “Lithium metal and lithium ion” by “Lithium metal, lithium ion and sodium ion”.

(Reference document: ST/SG/AC.10/C.3/118, annex IV)

38.3.2.3 In the definition for “*Large battery*”, delete “lithium metal battery or lithium ion”.

In the definition for “*Small battery*”, delete “lithium metal battery or lithium ion”.

Add a new definition to read as follows:

“*Sodium ion cell or battery* means a rechargeable electrochemical cell or battery where the positive and negative electrode are both intercalation or insertion compounds (intercalated sodium exists in an ionic or quasi-atomic form in the lattice of the electrode material) constructed with no metallic sodium (or sodium alloy) in either electrode and with an organic non-aqueous compound as electrolyte.”.

(Reference document: ST/SG/AC.10/C.3/118, annex IV)

38.3.3 Insert a new 38.3.3 to read as follows:

“38.3.3 *Number and condition of cells and batteries to be tested*

When a cell or battery type has to be tested under this sub section, the number and condition of cells and batteries of each type to be tested are as follows:”.

Renumber the current 38.3.3 as 38.3.3.1 and amend as follows:

- In (a), (b) and (c), before “cells”, insert “lithium”.
- In (d), before “batteries”, insert “lithium” (two times).
- In (e), before “cells and component cells”, insert “lithium”.
- In (f), before “battery assembly”, insert “lithium”.
- In (g), first paragraph, before “batteries”, insert “lithium”. In the paragraph after (iii), replace “assembled battery” by “assembled lithium battery”.

Insert a new 38.3.3.2 to read as follows:

“38.3.3.2 Testing of sodium ion cells and batteries:

- (a) When testing rechargeable sodium ion cells and batteries under tests T.1 to T.5 the following shall be tested in the quantity indicated:
 - (i) five cells at first cycle, in fully charged states;
 - (ii) five cells after 25 cycles ending in fully charged states;
 - (iii) four small batteries at first cycle, in fully charged states;
 - (iv) four small batteries after 25 cycles ending in fully charged states;
 - (v) two large batteries at first cycle, in fully charged states; and

- (vi) two large batteries after 25 cycles ending in fully charged states.
- (b) When testing rechargeable sodium ion cells or rechargeable single cell sodium ion batteries under test T.6, the following shall be tested in the quantity indicated:
 - (i) five cells or single cell batteries at first cycle, in fully charged states;
 - (ii) five cells or single cell batteries after 25 cycles ending in fully charged states; and
 - (iii) for component cells of rechargeable batteries, five cells at first cycle at 50 % of the design rated capacity and five cells after 25 cycles ending at 50 % of the design rated capacity.
- (c) When testing rechargeable sodium ion batteries or rechargeable single cell sodium ion batteries under test T.7, the following shall be tested in the quantity indicated:
 - (i) four small batteries at first cycle, in fully charged states;
 - (ii) four small batteries after 25 cycles ending in fully charged states;
 - (iii) two large batteries at first cycle, in fully charged states;
 - (iv) two large batteries after 25 cycles ending in fully charged states; and

Batteries or single cell batteries not equipped with battery overcharge protection that are designed for use only as a component in another battery or in equipment, which affords such protection, are not subject to the requirements of this test.

- (d) When testing a sodium ion battery assembly, with a Watt-hour rating of not more than 6 200 Wh, that is assembled from batteries that have passed all applicable tests, one assembled battery in a fully charged state shall be tested under tests T.3, T.4 and T.5, and, in addition, test T.7 in the case of a rechargeable battery.
- (e) When sodium ion batteries that have passed all applicable tests are electrically connected to form a battery, with a Watt-hour rating of more than 6 200 Wh, the assembled battery does not need to be tested if the assembled battery is of a type that has been verified as preventing:
 - (i) Overcharge;
 - (ii) Short circuits; and
 - (iii) Over discharge between the batteries.

For an assembled sodium ion battery not equipped with overcharge protection that is designed for use only as a component in another battery, in equipment, or in a vehicle, which affords such protection:

- the overcharge protection shall be verified at the battery, equipment or vehicle level, as appropriate, and
- the use of charging systems without overcharge protection shall be prevented through a physical system or process controls.”.

Renumber the current 38.3.3.1 as 38.3.3.3 and amend as follows:

- Replace “and 38.3.3” by “, 38.3.3.1 and 38.3.3.2” and replace “table” by “tables”.
- In the heading of table 38.3.2, before “primary”, insert “lithium”.
- In the heading of table 38.3.3, before “rechargeable”, insert “lithium”.
- After table 38.3.3, insert a new table 38.3.4 to read as follows:

“Table 38.3.4: Summary table of required tests for sodium ion rechargeable cells and batteries

Rechargeable cells and batteries										
		T.1	T.2	T.3	T.4	T.5	T.6	T.7 ^a	T.8	Sum ^d
Cells not transported separately from a battery	first cycle, 50 % charged state						5			10
	25th cycle, 50 % charged state						5			
Cells	first cycle, fully charged state	5					5			20
	25th cycle, fully charged state	5					5			
Single cell batteries ^b	first cycle, fully charged state	5					5	4		28
	25th cycle, fully charged state	5					5	4		
Small batteries	first cycle, fully charged state	4						4		16
	25th cycle, fully charged state	4						4		
Large batteries	first cycle, fully charged state	2						2		8
	25th cycle, fully charged state	2						2		
Batteries assembled with tested batteries ≤ 6 200 Wh	fully charged state			1				1		2
Batteries assembled with tested batteries > 6 200 Wh ^c										0

^a Batteries or single cell batteries not equipped with battery overcharge protection that are designed for use only as a component in another battery or in equipment, which affords such protection, are not subject to the requirements of this test;

^b Except for the T.7 Overcharge test, a single cell battery containing one tested cell does not require testing unless a change in cell design could result in the failure of any test;

^c If the assembled battery is of a type that has been verified as preventing:

- (i) Overcharge;
- (ii) Short circuits; and
- (iii) Over discharge between the batteries.

^d The sum represents the number of tests required, not the number of cells or batteries tested.”.

(Reference document: ST/SG/AC.10/C.3/118, annex IV)

38.3.5 In the heading, replace “**Lithium cell**” by “**Cell**”.

In the heading of the table, replace “**Lithium cell**” by “**Cell**”.

In (f) (i), replace “Lithium ion or lithium metal” by “Lithium ion, lithium metal or sodium ion”.

(Reference document: ST/SG/AC.10/C.3/118, annex IV)

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[41.3.4.4 At the end, add “The relevant dimensions of the portable tank or MEGC shall be measured after every impact to ensure conformity with the dimensional requirements regarding handling, securing and transfer from one means of transport to another.”.]

(Reference document: ST/SG/AC.10/C.3/118, annex IV)
