



**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

**Report of the Sub-Committee of Experts on the Transport of
Dangerous Goods on its fifty-ninth session**

held in Geneva from 29 November to 8 December 2021

Addendum

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Annex I

Corrections to the seventh revised edition of the Manual of Tests and Criteria (ST/SG/AC.10/11/Rev.7 and Amend.1)

Section 1, table 1.1, first row, column “Hazard classes in the GHS”

For Explosives, Divisions 1.1 to 1.6 read Explosives, Category 2

(Reference document: informal document INF.25)

Section 11, 11.5.1.2.2, fourth sentence

For apparent density 0.96 ± 0.02 read density 0.96 ± 0.02 g/cm³

(Reference document: ST/SG/AC.10/C.3/2021/34, proposal 1)

Section 12, 12.5.1.2.2, fourth sentence

For apparent density 0.96 ± 0.02 read density 0.96 ± 0.02 g/cm³

(Reference document: ST/SG/AC.10/C.3/2021/34, proposal 1)

Section 18, 18.6.1.2.2, third sentence

For apparent density 0.96 ± 0.02 read density 0.96 ± 0.02 g/cm³

(Reference document: ST/SG/AC.10/C.3/2021/34, proposal 1)

Section 25, 25.4.1.2.2, fourth sentence

For apparent density 0.96 ± 0.02 read density 0.96 ± 0.02 g/cm³

(Reference document: ST/SG/AC.10/C.3/2021/34, proposal 1)

Section 25, 25.4.2.2.2, fourth sentence

For apparent density 0.96 ± 0.02 read density 0.96 ± 0.02 g/cm³

(Reference document: ST/SG/AC.10/C.3/2021/34, proposal 1)

Section 25, 25.4.3.3.1, second sentence

For apparent density 0.96 ± 0.02 read density 0.96 ± 0.02 g/cm³

(Reference document: ST/SG/AC.10/C.3/2021/34, proposal 1)

Section 28, 28.3.6, second sentence

For apparent density 0.96 ± 0.02 read density 0.96 ± 0.02 g/cm³

(Reference document: ST/SG/AC.10/C.3/2021/34, proposal 1)

Section 28, 28.4.2.3.1 (a) (i), second sentence

For apparent density 0.96 ± 0.02 read density 0.96 ± 0.02 g/cm³

(Reference document: ST/SG/AC.10/C.3/2021/34, proposal 1)

Appendix 10, A10.2.3.8, second formula

Delete = $C_{\text{NaOH}} \times 0.224$

(Reference document: ST/SG/AC.10/C.3/2021/34, proposal 2)

Appendix 10, A10.2.3.8, third formula

For the existing formula *substitute*

$$V_{NO} = \frac{C_{NaOH} \times 2.24}{m_{NC}}$$

(Reference document: ST/SG/AC.10/C.3/2021/34, proposal 2)

Annex II

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)

Chapter 2.5

2.5.3.2.4 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)
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.3/2021/33 and Corr.1, as amended, and informal document INF.21, as amended)

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.3/2021/55 and informal document INF.40)

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

“Pharmaceutical products (such as vaccines) that are ready for use, including those in clinical trials, and that contain GMMOs or GMOs are not subject to these Regulations.”.

(Reference document: ST/SG/AC.10/C.3/2021/38)

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.3/2021/55 and informal document INF.40)

Chapter 3.2, dangerous goods list

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

(Reference document: ST/SG/AC.10/C.3/2021/55 and informal document INF.40)

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

(Reference document: ST/SG/AC.10/C.3/2021/55 and informal document INF.40)

Add the following two new entries:

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			

(Reference document: ST/SG/AC.10/C.3/2021/55 and informal document INF.40)

Chapter 3.3

- 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.3/2021/55 and informal document INF.40)

- [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: informal document INF.10)

- 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.3/2021/55 and informal document INF.40)

- 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: informal document INF.38, proposal 2, as amended)

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

(Reference document: ST/SG/AC.10/C.3/2021/55 and informal document INF.40)

- SP 310 After the first paragraph, add the following note:

“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.”.*

(Reference documents: ST/SG/AC.10/C.3/2021/47 and informal document INF.27, as amended)

SP 328 In the last paragraph, replace “lithium metal or lithium ion” by “lithium metal, lithium ion or sodium ion” and replace the “or” before “UN 3481” by a coma. At the end of the sentence, add “or UN 3552 SODIUM ION BATTERIES”.

(Reference document: ST/SG/AC.10/C.3/2021/55 and informal document INF.40)

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.3/2021/55 and informal document INF.40)

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.3/2021/55 and informal document INF.40)

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.3/2021/55 and informal document INF.40)

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.3/2021/55 and informal document INF.40)

[SP 384 Delete the note.]

(Reference document: informal document INF.16)

Add the following new special provisions:

“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.

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.3/2021/55 and informal document INF.40)

Chapter 3.4

[3.4.7.2 Delete the note.]

(Reference document: informal document INF.4)

[3.4.8.2 Delete the note.]

(Reference document: informal document INF.4)

Chapter 3.5

[3.5.4.3 Delete the note.]

(Reference document: informal document INF.4)

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.3/2021/55 and informal document INF.40)

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.3/2021/55 and informal document INF.40)

Add the following new entry in alphabetical order:

Batteries, sodium nickel chloride, see	4.3	3292
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(Reference document: ST/SG/AC.10/C.3/2021/55 and informal document INF.40)

Chapter 4.1

4.1.4.1, P203 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 document: ST/SG/AC.10/C.3/2021/43, proposal 4)

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.3/2021/43, proposal 1, as amended)

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

(Reference document: informal document INF.4)

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.”.

(Reference document: ST/SG/AC.10/C.3/2021/43, proposal 2, as amended)

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.3/2021/43, proposal 3)

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.3/2021/55 and informal document INF.40)

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

(Reference document: informal document INF.4)

(Reference document: ST/SG/AC.10/C.3/2021/55 and informal document INF.40)

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.3/2021/55 and informal document INF.40)

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.”.

(Reference document: ST/SG/AC.10/C.3/2021/55 and informal document INF.40)

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.3/2021/55 and informal document INF.40)

4.1.4.1, P910 In the first sentence, replace “3480 and 3481” by “3480, 3481, 3551 and 3552”.

(Reference document: ST/SG/AC.10/C.3/2021/55 and informal document INF.40)

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.3/2021/55 and informal document INF.40)

4.1.4.2, IBC520 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.3/2021/33 and Corr.1)

4.1.4.3, LP903 In the first sentence, replace “3480 and 3481” by “3480, 3481, 3551 and 3552”.

(Reference document: ST/SG/AC.10/C.3/2021/55 and informal document INF.40)

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

(Reference document: ST/SG/AC.10/C.3/2021/55 and informal document INF.40)

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

(Reference document: ST/SG/AC.10/C.3/2021/55 and informal document INF.40)

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, delete “lithium”.

(Reference document: ST/SG/AC.10/C.3/2021/55 and informal document INF.40)

Chapter 5.2

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

(Reference document: informal document INF.4)

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

(Reference document: ST/SG/AC.10/C.3/2021/55 and informal document INF.40)

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

(Reference document: ST/SG/AC.10/C.3/2021/55 and informal document INF.40)

5.2.1.9.2 In the first paragraph, first sentence, replace the “or” before “UN 3480” by a comma and at the end 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 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.3/2021/55 and informal document INF.40)

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.3/2021/55 and informal document INF.40)

[5.2.2.2.1.1.3 Delete the note.]

(Reference document: informal document INF.4)

Chapter 5.3

[5.3.1.2.1 Delete the note.]

(Reference document: informal document INF.4)

[5.3.2.2 Delete the note.]

(Reference document: informal document INF.4)

Chapter 5.5

[5.5.2.3.2 Delete the note.]

(Reference document: informal document INF.4)

Chapter 6.1

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.3/2021/40)

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.3/2021/40)

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.3/2021/40)

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.3/2021/50, as amended)

Annex III

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

Chapter 4.1, 4.1.4.1, P200, table 2, UN No. 1008, second row, column “Special packing provisions”

Insert a

(Reference document: ST/SG/AC.10/C.3/2021/32)

Chapter 4.1, 4.1.4.1, P200, table 2, UN No. 1859, second row, column “Special packing provisions”

Insert a

(Reference document: ST/SG/AC.10/C.3/2021/32)

Chapter 4.1, 4.1.4.1, P200, table 2, UN No. 2189, second row, column “Special packing provisions”

Insert a

(Reference document: ST/SG/AC.10/C.3/2021/32)

Chapter 5.4, 5.4.1.5.12, heading

For entries read information

(Reference document: informal document INF.25)

Chapter 5.4, 5.4.1.5.12, paragraph following the heading

Not applicable to English.

(Reference document: informal document INF.25)

Chapter 6.2, 6.2.1.5.2 (d) and (e)

For code read technical code

(Reference document: informal document INF.25)

Chapter 6.2, 6.2.2.5.1, second sentence

For 6.2.1.4.3 read 6.2.1.4.4

(Reference document: informal document INF.25)

Chapter 6.2, 6.2.2.7.2, note after (e), first sentence

For 6.2.1.4.3 (b) read 6.2.1.4.4 (b)

(Reference document: informal document INF.25)

Chapter 6.5, 6.5.5.1.6 (a), at the end

Insert C = capacity in litres;

(Reference document: informal document INF.25)

Chapter 6.9, 6.9.2.2.2.3 (f)

For parallel-shell specimen read parallel shell-sample

(Reference document: informal document INF.25)

Chapter 6.9, 6.9.2.3.4, penultimate paragraph, first sentence

For the plies in the shell read the stresses in the plies in the shell

(Reference document: informal document INF.25)

Informal document INF.41 (correction to the Spanish version) was adopted.

Annex IV

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

Section 38

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

(Reference document: ST/SG/AC.10/C.3/2021/55 and informal document INF.40)

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.3/2021/55 and informal document INF.40)

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.3/2021/55 and informal document INF.40)

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.3/2021/55 and informal document INF.40)

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.3/2021/55 and informal document INF.40)

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
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^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.3/2021/55 and informal document INF.40)

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.3/2021/55 and informal document INF.40)

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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: informal document INF.6)