



International Civil Aviation Organization

WORKING PAPER

DGP/29-WP/19

1/8/23

Addendum

2/10/23

English only

DANGEROUS GOODS PANEL (DGP)

TWENTY-NINTH MEETING

Montréal, 13 to 17 November 2023

Agenda Item 1: Harmonizing ICAO dangerous goods provisions with UN Recommendations on the Transport of Dangerous Goods (Ref: REC-A-DGS-2025)

1.3: Develop proposals, if necessary, for amendments to the *Supplement to the Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284SU)* for incorporation in the 2025-2026 Edition

AMENDMENTS TO THE SUPPLEMENT TO THE TECHNICAL INSTRUCTIONS DEVELOPED BY DGP-WG/22 AND DGP-WG/23

(Presented by the Rapporteur of the DGP Working Group on UN Harmonization
(DGP-WG/UN Harmonization))

SUMMARY

The DGP Working Group on UN Harmonization (DGP-WG/UN Harmonization) conducted a review of the amendments proposed to the Supplement to the Technical Instructions developed by DGP-WG/22 and DGP-WG/23 contained in DGP/29-WP/19. DGP-WG/UN Harmonization determined the need for revisions to the amendments proposed.

Action by the DGP: The DGP is invited to consider the amendments to the Supplement to the Technical Instructions contained in this working paper in conjunction with the amendments to the Supplement proposed in DGP/29-WP/19.

Amend DGP/29-WP/19 as follows:

Page 3, Table S-3-1, for UN 3551:

- First column, *delete* “I” before “**Sodium ion batteries** with organic electrolyte”;
- Seventh column, *delete* “A201” and *add* “A331” and “A334”; and
- Twelfth and thirteenth columns, *amend* to read “See 976”.

Page 3, Table S-3-1, for UN 3555:

- Twelfth column, *replace* “3XX” with “[380]”;
- Thirteenth column, *replace* “xx L” with “[30 L]”; and
- Twelfth and thirteenth columns, *insert* “[FORBIDDEN]” under [380] and [30 L].

Page 5:

Chapter title:

- *Replace* “Chapter 4” with “Chapter 5”; and
- *Replace* “CLASS 2 — GASES” with “CLASS 3 — FLAMMABLE LIQUIDS”.

Packing Instruction 3XX:

- *Amend* “Packing Instruction 3XX” to read ““Packing Instruction 380”.
- *Amend* “250 L” to read “30 L” in the third paragraph.

Page 7:

Packing Instruction 910 under heading for “General requirements”:

- Second paragraph, *amend* to read “Lithium ion cells and batteries and sodium ion cells and batteries (UN 3480 and UN 3551), including when packed with or contained in equipment (UN 3481 and UN 3552) ...”

Insert the attached page 4 and renumber succeeding pages accordingly.

Insert the attached page 10.

Chapter 6

SPECIAL PROVISIONS

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Table S-3-4. Special Provisions

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Amendments to battery provisions

A331 Lithium ion [or sodium ion] cells or batteries may be offered for transport, on cargo aircraft only, at a state of charge greater than 30 per cent of their rated capacity with the approval of the State of Origin and the State of the Operator under the written conditions established by those authorities. When considering an approval, at a minimum, the following criteria should be considered to mitigate risks posed by a lithium [ion or sodium ion] cell or battery heat, smoke or fire event inside a package at the cell, battery or package level:

...

A334 a) In instances where other forms of transport (including cargo aircraft) are impracticable, lithium cells or batteries [or sodium ion] cells or batteries may be transported on passenger aircraft with the prior approval of the authority of the State of Origin, the State of the Operator and the State of Destination under the written conditions established by those authorities, provided that the quantities per package do not exceed:

1) for lithium metal cells or batteries:

- i) up to 2 batteries with a lithium content more than 0.3 g but not more than 2 g per battery; or
- ii) up to 8 cells with a lithium content more than 0.3 g but not more than 1 g per cell; or
- iii) up to 2.5 kg of cells and/or batteries with a lithium content not more than 0.3 g per cell or battery; or

2) for lithium [ion or sodium] ion cells or batteries:

- i) up to 2 batteries with a Watt-hour (Wh) rating more than 2.7 Wh but not more than 100 Wh per battery; or
- ii) up to 8 cells with a Watt-hour rating more than 2.7 Wh but not more than 20 Wh per cell; or
- iii) up to 2.5 kg of cells and/or batteries with a Watt-hour rating not more than 2.7 Wh per cell or battery.

b) When considering an approval, at a minimum, the following criteria should be considered to mitigate risks posed by a lithium cell or battery or sodium ion cell or battery heat, smoke or fire event inside a package at the cell, battery or package level:

- 1) no amount of flame is allowed outside the package;
- 2) the external surface temperature of the package cannot exceed the amount that would ignite adjacent packing material or cause batteries or cells in adjacent packages to go into thermal runaway;
- 3) no fragments can exit the package, and the package must maintain structural integrity;
- 4) the quantity of flammable vapour emitted must be less than the amount of gas that when mixed with air and ignited could cause a pressure pulse that could dislodge the overpressure panels of the aircraft cargo compartment or damage the aircraft cargo compartment liners; and
- 5) when the package or overpack is exposed to an external fire (e.g. five-minute oil burner flame penetration resistance test) or elevated temperature environment (e.g. oven thermal resistance test), any hazardous effects caused by thermal runaway of the lithium cell or battery [or sodium ion] cell or battery must be contained within the package.

Adequate information and documentation on the above criteria (b1) through 5)) must be provided to the appropriate authority of the State issuing the approval upon request.

Amendments to battery provisions

Packing Instruction 974

Cargo aircraft only

Introduction

This packing instruction applies to UN Nos. 3090, 3091, 3480 ~~and~~, 3481, 3551 and 3552 where the ~~lithium~~ cell or battery has a mass exceeding 35 kg.

General requirements

Part 4;1 requirements of the Technical Instructions must be met.

Lithium ion cells and batteries and sodium ion cells and batteries (UN 3480 and UN 3551), including when packed with or contained in equipment (UN Nos. 3481 and 3552), must be offered for transport at a state of charge not exceeding 30 per cent of their rated capacity unless a higher state of charge is specifically approved by the State of Origin and the State of the Operator.

Each cell or battery must meet the provisions of Part 2;9.3 of the Technical Instructions.

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