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

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Sub-Committee of Experts on the Transport of Dangerous Goods

Sixty-second session

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Item 4 (e) of the provisional agenda

Electric storage systems: Sodium ion batteries

Review of provisions for sodium ion batteries by the ICAO Dangerous Goods Panel

Submitted by the International Civil Aviation Organization (ICAO)

Introduction

1. A Dangerous Goods Panel (DGP) working group meeting was held in Rio de Janeiro, Brazil from 15 to 19 May 2023 (DGP-WG/23). The working group reviewed amendments proposed to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) (Technical Instructions) to harmonize with the 23rd revised edition of the Model Regulations. The twenty-ninth meeting of the Dangerous Goods Panel (DGP/29) will meet from 13 to 17 November 2023 to finalize the amendments.

2. DGP-WG/23 raised questions and discussed potential challenges related to the new provisions for sodium ion batteries. It requested they be brought to the attention of the Sub-Committee.

Special provision 400

3. Special provision 400 makes UN 3551 — SODIUM ION BATTERIES and UN 3552 — SODIUM ION BATTERIES CONTAINED IN EQUIPMENT or SODIUM ION BATTERIES PACKED WITH EQUIPMENT not subject to regulation provided certain conditions are met. One of the conditions is a requirement for the cell or battery to be short-circuited in a way that there is no electrical energy contained in the cell or battery. DGP-WG/23 raised the following issues:

(a) The implication that the risk was low enough to make these batteries not subject to regulation appears to contradict the need for the other conditions in the special provision.

(b) The special provision limits the type and quantity of dangerous goods contained in each cell, including those that are a component of a battery, to those permitted to be transported in accordance with the limited quantity provisions, including the quantity limitations established in the dangerous goods list. DGP-WG/23 questioned how anyone other than the cell manufacturer would know the types and quantities of dangerous goods contained in the cell.

(c) It will be challenging to implement quantity limitations based on the limited quantity provisions, as these are lower for the air mode than for other modes of transport.

Proposal for editorial revisions to the classification criteria for sodium ion batteries

4. The following editorial revisions to the classification criteria in Chapter 2.9, in particular 2.9.5 are suggested to improve readability and to make the grammatical structure of sub-paragraphs (e) and (f) consistent with the other list items. If agreed, they should also be made to Chapter 2.9, 2.9.4 i.e. (new text is underlined and in bold, deleted text is stricken-through):

"...

They may be transported under these entries ~~if they meet the following provisions~~
provided:

- (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~~ **are** 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 **available**."

Conclusion

5. The DGP Secretary was requested to raise the above issues to the Sub-Committee and to seek comments on the issues raised. DGP will consider final amendments to the Technical Instructions based on the comments of the Sub-Committee.
