

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

27 November 2023

Sixty-third session

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Item 7 of the provisional agenda

**Global harmonization of transport of dangerous goods
regulations with the Model Regulations**

Information on recommendations for amendment to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* made by the ICAO Dangerous Goods Panel (DGP/29)

Submitted by the International Civil Aviation Organization (ICAO)

I. Introduction

1. The twenty-ninth meeting of the Dangerous Goods Panel (DGP/29) was held in Montréal from 13 to 17 November 2023. The panel made a final review of amendments proposed to the Technical Instructions to harmonize with the 23rd revised edition of the UN *Model Regulations* and to address issues specific to air transport. Amendments agreed by DGP/29 are subject to Council approval. They will first be reviewed by the Air Navigation Commission (ANC) for onward submission to the Council during the first quarter of 2024. The full report of DGP/29 including all amendments agreed will be available for download from <http://www.icao.int/safety/DangerousGoods/Pages/DGP29.aspx> once it is approved by the panel.

2. This information paper highlights issues which DGP/29 determined should be brought to the attention of the sixty-third session of the Sub-Committee.

II. Amendments related to sodium ion batteries

3. The DGP is recommending that a conservative approach be taken with respect to the requirements for transporting sodium ion batteries as cargo by air, at least until more is known about the risks posed. The agreed limitations therefore align with the limitations for UN 3480 — **Lithium ion batteries**, including a prohibition on their transport as cargo on passenger aircraft. The panel agreed that the exception provided through special provision SP 400 of the *Model Regulations* should not be adopted for the air mode, at least until the challenges identified in document ST/SG/AC.10/C.3/2023/56 and informal document INF.24 of the sixty-second session are addressed. The panel concluded that a conservative approach is the best way forward, at least until more experience is gained and more data is collected. Relief from regulation could be considered in the future.

III. Reference to the lithium or sodium ion battery mark

4. The DGP agreed to an amendment to refer to the “lithium or sodium ion battery mark” as simply the “battery mark”. It considers the longer name cumbersome and unnecessary. It considered not making any changes unless changes are made to the *Model Regulations* but concluded that there would be no consequences in renaming it in the Technical Instructions. The name has no regulatory impact since it is not required to be referred to on any documentation.

IV. Reduced state of charge

5. ICAO remains concerned with respect to the risks posed by lithium batteries. It has added various new restrictions on the transport of lithium batteries over the years, including a requirement for UN 3480 — **Lithium ion batteries** to be shipped at a state of charge not exceeding 30 per cent of their rated capacity. The panel considers this an effective mitigation measure given that it significantly reduces the consequences of thermal runaway for commonly transported cells and the likelihood of cell propagation. DGP/29 is recommending that this be extended:

- as a requirement for UN 3481 — **Lithium ion batteries packed with equipment**;
- as a recommendation for UN 3481 — **Lithium ion batteries contained in equipment**; and
- as a requirement for UN 3556 — **Vehicle, lithium ion battery powered**, UN 3557 — **Vehicle, lithium metal battery powered** when the battery is rechargeable, and UN 3558 — **Vehicle, sodium ion battery powered**.

6. The panel agreed to add the ability to ship cells and batteries packed with equipment or vehicles powered by lithium ion, rechargeable lithium metal or sodium ion batteries at a state of charge greater than 30 percent of their rated capacity through the approval by the State of Origin and the State of the Operator.

7. The panel recognizes practical challenges with respect to establishing a reduced state of charge for anyone other than the original manufacturer of the battery, which is especially challenging for batteries contained in equipment or installed in vehicles. The panel is therefore recommending that options for complying be provided by either ensuring that the state of charge of the battery or cell does not exceed 30 per cent of its rated capacity or the indicated battery capacity does not exceed 25 per cent.

8. The panel also recognizes that it will take manufacturers some time to adapt to the new requirements. Accordingly, a twelve-month transition period is offered so that the mandatory requirements do not have to be implemented until 1 January 2026.

V. Recommendations for additional mitigation measures

9. The panel developed other recommendations that are outside its scope but which the UN Sub-Committee may wish to consider, i.e.:

- (a) To address the risk of invalid UN 38.3 test results: Include a requirement in the UN *Model Regulations* for competent authority approval of laboratories conducting UN38.3 testing; and
- (b) To address the risk that cell and battery manufacturers do not develop and adhere to a quality management system: Develop detailed requirements for quality assessments including third-party verification for inclusion in the UN *Model Regulations*.

10. A formal working paper will be prepared for the next session of the Sub-Committee if there is support for these recommendations.

VI. Amendment to ICAO Annex 18

11. The most substantial amendment developed by the panel was to ICAO Annex 18 — *The Safe Transport of Dangerous Goods by Air*. Annex 18 was originally intended to provide broad provisions for the safe transport of dangerous goods by air with the more detailed requirements in the Technical Instructions. While this is necessary for day-to-day operational use, the panel identified the need for more detailed requirements in Annex 18 for States to effectively manage dangerous goods safety. The panel believes the amendment will result in a more robust and safe system. The amendment will be subject to a preliminary review by the Air Navigation Commission (ANC) during the fourth quarter of 2024 and then sent to

ICAO's Contracting States and relevant international organizations for consultation, if deemed mature enough by the ANC. The ANC will conduct a final review following State consultation before submitting to the ICAO Council for adoption.

VII. Inconsistencies identified by translators

12. Questions were raised with respect to the translation of certain words into French in the UN *Model Regulations* and whether apparent inconsistencies are necessary or an oversight. The translation for sodium ion batteries in the dangerous goods list is "*Accumulateurs au sodium ionique*", while for lithium ion batteries and lithium metal batteries it is "*Piles au lithium ionique*" and "*Piles au lithium metal*". However, P903 makes no mention of "accumulateurs" but instead references "piles".

13. An inconsistency between the English and French version was identified in the note under 6.2.2.11 whereby the English version states "which are not marked in accordance with ..." and the French version states "which are marked in accordance with ...".
