International Civil Aviation Organization

DGP-WG/26-WP/23
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WORKING PAPER

DANGEROUS GOODS PANEL (DGP) WORKING GROUP MEETING (DGP-WG/26)

Centurion, South Africa, 26 to 30 October 2026

Agenda Item 4: Managing safety risks posed by the carriage of energy storage devices by air (Ref: Job Card DGP.006)

BLACK HATCHING OPTION FOR THE BATTERY MARK

(Presented by B. Firkins)

SUMMARY

This working paper informs the working group of the outcome of discussions at the 68th session of the UNSCETDG meeting concerning formal document ST/SG/AC.10/C.3/2026/35 (see Appendix A to this working paper), which proposes permitting either red or black hatching on the lithium and sodium battery mark. The proposed amendment was adopted in square brackets pending confirmation at the fourth session of the biennium. A formal proposal has been submitted to not take up the amendment (see Appendix B to this working paper).

Action by the DGP-WG is in paragraph 4.

1. INTRODUCTION

1.1 At its 68th session, the United Nations Sub-Committee of Experts on the Transport of Dangerous Goods (UNSCETDG) considered formal document ST/SG/AC.10/C.3/2026/35 (see Appendix A to this working paper), submitted by the Portable Rechargeable Battery Association (PRBA), which proposed amending 5.2.1.9.2 of the UN Model Regulations to permit the hatching surrounding the lithium and sodium battery mark to be either red or black.

1.2 The proposal was intended to facilitate print-on-demand production methods, particularly thermal printing systems which generally operate only in monochrome, thereby reducing printing costs and simplifying logistics.

1.3 The International Air Transport Association (IATA) has submitted a formal proposal to retain the existing “red only” hatching on the battery mark for consideration at the 69th Session of the UN Subcommittee of Experts on the Transport of Dangerous Goods (see Appendix B to this working paper).

2. DISCUSSION AT THE UN SUB-COMMITTEE

2.1 PRBA explained that the current requirement for red hatching limits the use of common thermal printing technologies and requires the maintenance of separate pre-printed labels.

2.2 While International Civil Aviation Organization (ICAO), IATA and the expert from Brazil spoke against the proposal, the Sub-Committee agreed, by a significant majority, to adopt the proposed amendment within square brackets for confirmation at the fourth session of the biennium. IATA has submitted a formal document for consideration at the 69th session of UNSCETDG on the subject (see ST/SG/AC.10/C.3/2026/63).

3. IMPLICATIONS FOR AIR TRANSPORT

3.1 The battery mark originated in the air transport mode through work undertaken by ICAO and IATA in response to the rapid increase in the transport of lithium batteries and the associated safety concerns. The color of the hatching was specifically debated at DGP/21 when the mark was developed and has been in existence since the 2009-2010 Edition of the Technical Instructions.

3.2 It was recognized that packages bearing the battery mark would contain dangerous goods that were excepted from many of the normal dangerous goods requirements and, because the mark would often be the only external indication that a package contained lithium batteries, it was agreed that it should incorporate red hatching on a contrasting background to maximize its visibility and recognition throughout the transport chain. These considerations formed part of the original safety rationale for the current design.

3.3 The red hatching on the battery mark is widely recognised by employees in the aviation as an indicator of a package that requires additional care and inspection when handling, and occurrence management considerations should the packaging be damaged during the transportation process.

3.4 Should the amendment be confirmed at the 69th session and incorporated into the 25th edition of the UN Model Regulations, consideration will need to be given to whether harmonization with the UN text, allowing the usage of black hatching on the battery mark, is appropriate for air transport, or whether the existing red-hatched battery mark should be retained within the ICAO Technical Instructions in recognition of its original safety purpose and enhanced visual conspicuity.

4. ACTION BY THE DGP-WG

4.1 The DGP-WG is invited to:

a) provide their views, both for and against the black hatching option on the battery mark, in order for the DGP Secretary to take an informed position to the 69th Session of the UN SCETDG as presented in Appendix B to this working paper.

b) consider whether the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) should harmonize with the UN Model Regulations if the black hatching option for the battery mark is adopted.

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APPENDIX A

PROPOSAL CONSIDERED AT THE 68TH SESSION OF THE UNITED NATIONS SUB-COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS (UNSCETDG)

United Nations ST/SG/AC.10/C.3/2026/35

Secretariat

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Original: English

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-eighth session
Geneva, 30 June-8 July 2026
Item 6 (a) of the provisional agenda
Miscellaneous proposals for amendments to the Model Regulations on the Transport of Dangerous Goods: Marking and labelling

Black hatching option for the battery handling mark

Transmitted by The Rechargeable Battery Association (PRBA)*

I. Introduction

1. The battery handling mark conveys the presence and type of lithium or sodium batteries in transport and serves as an indication that the package conforms to Special Provision 188 of the *Model Regulations*. The battery handling mark consists of a damaged battery pictogram, the UN number (as appropriate), and red hatching in the form of a rectangle or square. To support print-on-demand options, it is proposed to allow a black hatching option.

II. Discussion

2. The battery handling mark is unique by having two colors (red and black) present. All other non-bulk package marks may be black and white (e.g., marine pollutant mark, orientation arrows), and the Class 9 lithium battery label (referred to as the Class 9A label) is black on a contrasting background (white). While the battery handling mark pictogram was developed by the Sub-Committee, the red hatching has origins in the air mode of transport. The red hatching is often used as a border for the transport document, the excepted quantity mark, and the ICAO radioactive material excepted package mark (Note: for the excepted quantity and radioactive material excepted package marks, the hatching may also be black). While the red hatching provides more visual contrast, it is questionable whether this is a necessity given that the Class 9A label is black and white.

3. The color red is often used on marks and labels to convey a flammability hazard. When such a flammability hazard is present, either the pictogram is red (e.g. elevated temperature mark) or the background is red (e.g., flammable liquid and gas labels), not just the border. Although lithium and sodium batteries have a flammability hazard, both sodium and lithium are Class 4.3 substances (Substances which, in contact with water, emit

* A/80/6 (Sect. 20), table 20.7.

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flammable gases). This special type of flammability hazard is typically highlighted using the color blue (water-reactive) or black (miscellaneous), not red. In this regard, the battery handing mark hatching can be red or black without diminishing the intent of the battery handling mark.

4. The battery handling mark may be used for multiple UN number (s), six (6) in total (3090, 3480, 3551, 3091, 3481 and 3552]. As new battery types become available, it is reasonable to assume that in the future additional UN numbers will also be authorized to use this mark. The current battery handling mark requires two colors (red and black), pre-printed rolls are typically used, and this means having six different pre-printed mark variants on hand. Allowing a black hatching option would help facilitate switching to lower cost print-on-demand options. In high-speed, high-through put environments, thermal printing methods using heat-sensitive paper (requiring no ink, toner, or ribbons) are very common and are usually capable of only printing in monochrome (black or white). The current requirement for red hatching makes it impractical to use such printing methods.

5. Allowing a black hatching option for the battery handling mark will not degrade or reduce safety for lithium and sodium batteries. This proposal does not affect or change packaging, nor any other safety provisions currently required for lithium and sodium batteries in the *Model Regulations*.

6. For reference, please see the current battery handling mark with red hatchings, along with the proposed battery handling mark with black hatchings, below:



Current battery handling mark with red hatchings, along with the proposed battery handling mark with black hatchings.

III. Proposal

5.2.1.9.2 Amend the second paragraph, as follows (new text **bold and underlined**):

"The mark shall be in the form of a rectangle or a square with hatched edging. The dimensions shall be a minimum of 100 mm × 100 mm high and the minimum width of the hatching shall be 5 mm. The symbol (group of batteries, one damaged and emitting flame, above the UN number(s)) shall be black on white or suitable contrasting background. The hatching shall be red **or black**. If the size of the package so requires, the dimensions may be reduced to not less than 100 mm wide x 70 mm high. Where dimensions are not specified, all features shall be in approximate proportion to those shown."

APPENDIX B

FORMAL DOCUMENT SUBMITTED FOR CONSIDERATION AT THE 69TH SESSION, THE UNITED NATIONS SUB-COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS (UNSCETDG)

United Nations ST/SG/AC.10/C.3/2026/63

Secretariat

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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-ninth session
Geneva, 23 November-1 December 2026
Item 7 (a) of the provisional agenda
Miscellaneous proposals for amendments to the Model Regulations on the Transport of Dangerous Goods: Marking and labelling

Retention of the existing battery mark design

Transmitted by the International Air Transport Association (IATA)*

Introduction

1. Document ST/SG/AC.10/C.3/2026/35 proposes amending 5.2.1.9.2 of the *Model Regulations* to permit the hatching surrounding the battery mark to be either red or black, primarily to facilitate print-on-demand production methods and reduce printing costs.

2. While recognizing the operational efficiencies identified in the proposal, the present document questions whether sufficient evidence has been presented to demonstrate that the proposed amendment would maintain the existing level of safety intended by the *Model Regulations.*

Discussion

3. The battery mark originated in the air transport mode through work undertaken by the International Civil Aviation Organization (ICAO) and IATA in response to the rapid increase in the transport of lithium batteries and the associated safety concerns. During the discussion of the original proposal, the ICAO representative reported that the colour of the hatching had been specifically debated when the mark was developed. It was recognised that packages bearing the battery mark would contain dangerous goods that were excepted from many of the normal dangerous goods requirements and, because the mark would often be the only external indication that a package contained lithium batteries, it was agreed that it should incorporate red hatching on a contrasting background to maximise its visibility and recognition throughout the transport chain. These considerations formed part of the original safety rationale for the current design.

4. Lithium batteries continue to represent one of the most significant safety risks in air transport owing to the potential for thermal runaway, fire and difficult-to-extinguish battery

* A/80/6 (Sect. 20), table 20.7.

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fires and given the continuing focus on lithium battery fires in aviation and maritime transport, any proposal that could reduce the conspicuity of hazard communication should only be adopted where equivalent safety has been objectively demonstrated.

5. The primary purpose of transport marks and labels is to communicate safety information quickly and effectively to employees throughout the transport chain. Effectiveness depends primarily in the ability to attract attention and be readily recognized during routine handling activities.

6. The battery mark is primarily applied to batteries shipped under special provision 188, which are excepted from many of the requirements otherwise applicable to dangerous goods. It is frequently the only obvious external indication that a package contains lithium or sodium batteries requiring appropriate handling during transport.

7. The existing red hatching provides a high level of visual contrast that assists personnel in rapidly identifying packages containing batteries among large volumes of cargo, particularly where packages are stacked, partially obscured or viewed from a distance, or where packages contain numerous other black printed markings or labels.

8. Although the battery pictogram and UN number remain unchanged, replacing the red hatching with black reduces the immediate visual prominence of the mark, particularly where it appears on brown fibreboard packaging printed with other black markings and shipping information.

9. For packages transported under special provision 188, where the battery mark may be the only external indication of the presence of batteries, preserving the conspicuity of the mark is particularly important. Adopting the “or black” addition in the proposal therefore risks reducing the speed with which packages containing batteries can be identified during routine handling operations.

Proposal

10. The Sub-Committee is invited to:

(a) Note the important safety function performed by the existing battery mark, particularly for packages transported under special provision 188;

(b) Retain the existing text of 5.2.1.9.2 without amendment.