



WORKING PAPER

**DANGEROUS GOODS PANEL (DGP)
WORKING GROUP MEETING (DGP-WG/16)**

Montreal, 17 to 21 October 2016

Agenda Item 2: Development of recommendations for amendments to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284)* for incorporation in the 2019-2020 Edition

2.4: Part 4 — Packing Instructions

SPECIAL MARKING REQUIREMENTS FOR LITHIUM BATTERIES

(Presented by B. Carrara)

SUMMARY

This working paper invites the DGP-WG to consider revising lithium batteries marking requirements for Section II of Packing Instructions 965 to 970 and Section IB of Packing Instructions 965 and 968.

Action by the DGP-WG: The DGP-WG is invited to review the provisions related to the special marking requirements for lithium batteries contained in the packing instructions related to lithium batteries. If considered necessary, the DGP-WG is invited to amend Packing Instructions 965 to 970 as shown in the appendix to this working paper.

1. INTRODUCTION

1.1 The twenty-fifth meeting of the Dangerous Goods Panel (DGP/25, Montreal, 19 to 30 October 2015) agreed to include new section 2.4.16 in Part 5 of the Technical Instructions, which is related to special marking requirements for lithium batteries.

1.2 These requirements are applicable to lithium batteries prepared in accordance with Section II of Packing Instructions 965 to 970 and Section IB of Packing Instructions 965 and 968.

1.3 However, the new provisions in the packing instructions applicable to lithium batteries refer to the mark depicted in Figure 5-3 instead of referring to the actual marking provisions in Part 5;2.4.16.

1.4 The relief from full regulation provided by Section II to the lithium battery packing instructions and the absence of a reference to actual marking provisions in 5.2.4.1.16 could be interpreted to mean that the actual provisions do not apply and that the only requirement is to apply the Figure 5-3 mark.

1.5 The corresponding provision in paragraph (f) of Special Provision 188 of the UN Model Regulations refers to the full provisions for the lithium battery mark, which includes a reference to the figure, as reproduced here:

“(f) Each package shall be marked with the appropriate lithium battery mark, as illustrated at 5.2.1.9.”

1.6 Thereby, we believe there is a gap in the applicability of marking provisions for lithium batteries that should be fixed by an amendment to the Technical Instructions.

1.7 Despite not being affected by this gap, the provisions for Section IB should be fixed as well in order to maintain the same consistency.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to review the provisions related to the special marking requirements for lithium batteries contained in the packing instructions related to lithium batteries.

2.2 If considered necessary, the DGP-WG is invited to amend Packing Instructions 965 to 970 as shown in the appendix to this working paper.

APPENDIX

PROPOSED AMENDMENT TO PART 4 OF THE TECHNICAL INSTRUCTIONS

Part 4

PACKING INSTRUCTIONS

Chapter 11

CLASS 9 — MISCELLANEOUS DANGEROUS GOODS

11.1 PACKING INSTRUCTIONS

Packing Instruction 965

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IB. SECTION IB

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IB.2 Additional requirements

- Cells and batteries must be packed in inner packagings that completely enclose the cell or battery then placed in a strong rigid outer packaging.
- Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit.
- Each package must be capable of withstanding a 1.2 m drop test in any orientation without:
 - damage to cells or batteries contained therein;
 - shifting of the contents so as to allow battery to battery (or cell to cell) contact;
 - release of contents.
- Each package must be marked with the appropriate lithium battery mark (Figure 5-3), in accordance with Part 5:2.4.16, in addition to the appropriate Class 9 hazard label (Figure 5-26) and the cargo aircraft only label (Figure 5-28).

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II. SECTION II

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II.2 Additional requirements

- Cells and batteries must be packed in inner packagings that completely enclose the cell or battery then placed in a strong rigid outer packaging.
- Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit.
- Each package must be capable of withstanding a 1.2 m drop test in any orientation without:
 - damage to cells or batteries contained therein;
 - shifting of the contents so as to allow battery to battery (or cell to cell) contact;
 - release of contents.
- Each package must be marked with the appropriate lithium battery mark (Figure 5-3), in accordance with Part 5:2.4.16, and the cargo aircraft only label (Figure 5-28).

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Packing Instruction 966

Passenger and cargo aircraft for UN 3481 (packed with equipment) only

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II. SECTION II

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II.2 Additional requirements

- The equipment must be secured against movement within the outer packaging and must be equipped with an effective means of preventing accidental activation.
- The number of cells or batteries in each package must not exceed the appropriate number for the equipment's operation, plus two spares.
- Each package of cells or batteries, or the completed package, must be capable of withstanding a 1.2 m drop test in any orientation without:
 - damage to cells or batteries contained therein;
 - shifting of the contents so as to allow battery to battery (or cell to cell) contact;
 - release of contents.
- Each package must be marked with the appropriate lithium battery mark (Figure 5-3), [in accordance with Part 5;2.4.16](#).

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Packing Instruction 967

Passenger and cargo aircraft for UN 3481 (contained in equipment) only

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II. SECTION II

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II.2 Additional requirements

- The equipment must be secured against movement within the outer packaging and must be equipped with an effective means of preventing accidental activation.
- Cells and batteries must be protected so as to prevent short circuits.
- The equipment must be packed in strong rigid 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.
- Each package must be marked with the appropriate lithium battery mark (Figure 5-3), [in accordance with Part 5;2.4.16](#). The package must be of such size that there is adequate space to affix the mark on one side without the mark being folded.

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Packing Instruction 968

Cargo aircraft only for UN 3090

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IB. SECTION IB

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IB.2 Additional requirements

- Cells and batteries must be packed in inner packagings that completely enclose the cell or battery then placed in a strong rigid outer packaging.
- Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit.
- Each package must be capable of withstanding a 1.2 m drop test in any orientation without:
 - damage to cells or batteries contained therein;
 - shifting of the contents so as to allow battery to battery (or cell to cell) contact;
 - release of contents.
- Each package must be marked with the appropriate lithium battery mark (Figure 5-3), [in accordance with Part 5:2.4.16](#), in addition to the appropriate Class 9 hazard label (Figure 5-26) and the cargo aircraft only label (Figure 5-28).

Note.— The provisions for a lithium battery handling label as contained in the 2015-2016 Edition of these Instructions (Part 5;3.5.2 and Figure 5-32 of the 2015-2016 Edition) may continue to be used in lieu of the lithium battery mark until 31 December 2018.

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II. SECTION II

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II.2 Additional requirements

- Cells and batteries must be packed in inner packagings that completely enclose the cell or battery, then placed in a strong rigid outer packaging.
- Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit.
- Each package must be capable of withstanding a 1.2 m drop test in any orientation without:
 - damage to cells or batteries contained therein;
 - shifting of the contents so as to allow battery to battery (or cell to cell) contact;
 - release of contents.
- Each package must be marked with the appropriate lithium battery mark (Figure 5-3), [in accordance with Part 5:2.4.16](#), and the cargo aircraft only label (Figure 5-28).
 - the package must be of such size that there is adequate space to affix the mark on one side without the mark being folded.
 - the cargo aircraft only label must be located on the same surface of the package near the lithium battery mark, if the package dimensions are adequate.

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Packing Instruction 969

Passenger and cargo aircraft for UN 3091 (packed with equipment) only

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II. SECTION II

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II.2 Additional requirements

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- The equipment must be secured against movement within the outer packaging and must be equipped with an effective means of preventing accidental activation.
- The number of cells or batteries in each package must not exceed the appropriate number for the equipment's operation, plus two spares.
- Each package of cells or batteries, or the completed package, must be capable of withstanding a 1.2 m drop test in any orientation without:
 - damage to cells or batteries contained therein;
 - shifting of the contents so as to allow battery to battery (or cell to cell) contact;
 - release of contents.
- Each package must be marked with the appropriate lithium battery mark (Figure 5-3), [in accordance with Part 5:2.4.16](#).
 - the package must be of such size that there is adequate space to affix the mark on one side without the mark being folded.

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Packing Instruction 970

Passenger and cargo aircraft for UN 3091 (contained in equipment) only

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II. SECTION II

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II.2 Additional requirements

- The equipment must be secured against movement within the outer packaging and must be equipped with an effective means of preventing accidental activation.
- Cells and batteries must be protected so as to prevent short circuits.
- The equipment must be packed in strong rigid 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.
- Each package must be marked with the appropriate lithium battery mark (Figure 5-3), [in accordance with Part 5:2.4.16](#). The package must be of such size that there is adequate space to affix the mark on one side without the mark being folded.
 - This requirement does not apply to:
 - packages containing only button cell batteries installed in equipment (including circuit boards); and
 - packages containing no more than four cells or two batteries installed in equipment, where there are not more than two packages in the consignment.

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