



**WORKING PAPER**

**DANGEROUS GOODS PANEL (DGP)  
WORKING GROUP MEETING (DGP-WG/17)**

**Montreal, 24 to 28 April 2017**

**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**

**INFORMATION TO THE PILOT-IN-COMMAND ON LITHIUM BATTERIES SECTION II**

(Presented by B. Carrara)

**SUMMARY**

This working paper proposes to apply notification to the pilot in command requirements for lithium batteries transported in accordance with Section II of Packing Instructions 965 and 968.

**Action by the DGP-WG:** The DGP is invited to revise Section II of Packing Instructions 965 and 968 and Table 7-9 of the Technical Instructions as presented in the appendix to this working paper.

**1. INTRODUCTION**

1.1 In 2014, DGP-WG/LB/2 recommended a ban on the transport of lithium metal batteries as cargo on passenger aircrafts considering their unacceptable risk for air transport.

1.2 In 2015, three of the main aircraft manufacturers published documents related to the risks presented by lithium metal and lithium ion batteries transported by air and recommended that their customers conduct risk assessments on their transport, considering among other factors the capabilities of the aircraft cargo compartments in which the batteries are to be carried. One manufacturer also recommended the identification and notification of all shipments of lithium batteries, especially Section II, and to consider establishing a policy to notify the flight crew of all lithium battery shipments.

1.3 At the Third International Multidisciplinary Lithium Battery Transport Coordination Meeting, tests showed that lithium ion batteries transported by air even in small quantities can cause damage to the cargo compartment systems of the aircrafts. Among other conclusions, the group of experts

at the meeting concluded that information on the types and quantities of lithium batteries and cells being transported would need to be considered to perform an acceptable safety assessment.

1.4 At the twenty-fifth meeting of the Dangerous Goods Panel (DGP/25, Montreal, 19 to 30 October 2015), many discussions occurred on the same topic of lithium batteries and some mitigation measures were adopted to try to reduce the risk posed by those batteries. In February 2016, lithium ion batteries were also banned as cargo from passenger aircrafts.

1.5 Some measures were taken for reducing the risk imposed by Section II lithium batteries along those years. However, the applicable packing instructions still provide certain relief from the provisions of the Technical Instructions, such as from the dangerous goods transport document, application of the class hazard label, acceptance checks and notification to the pilot-in-command.

1.6 The relief provided by Section II contradicts the high risk posed by lithium batteries. The lack of notification to the pilot in command can result in the application of inappropriate emergency procedures by the pilot-in-command in case of an incident involving lithium batteries in the cargo compartment. Additionally, this relief makes it infeasible to determine the quantity of batteries in a cargo compartment.

1.7 At DGP/25 and also at DGP-WG/16, there were different proposals to eliminate Section II from Packing Instructions 965 and 968, but the groups agreed that those provisions should be maintained.

1.8 Having said that, this working paper suggests that there is no reason to maintain Section II lithium batteries (UN 3090 and UN 3480) in Table 7-9 — Dangerous goods not required to appear in the information to the pilot-in-command and, consequently, the notification to the pilot in command requirements should be applied to Section II of Packing Instructions 965 and 968.

## 2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to revise the requirements applicable to Section II lithium batteries in Packing Instructions 965 and 968 and also to amend Table 7-9 as shown in the appendix to this working paper.

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APPENDIX

PROPOSED AMENDMENT TO PART 4 OF THE TECHNICAL INSTRUCTIONS

Part 4

PACKING INSTRUCTIONS

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Chapter 11

CLASS 9 — MISCELLANEOUS DANGEROUS GOODS

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Packing Instruction 965

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II. SECTION II

Lithium ion cells and batteries, when complying with Section II of this packing instruction, are only subject to the following additional provisions of these Instructions:

- Part 1;2.3 (General — Transport of dangerous goods by post);
- Part 5;1.1 g) and j) (Shipper's responsibilities — General requirements);
- + — Part 7;2.1 (Operator's responsibilities — Loading restrictions on the flight deck and for passenger aircraft);
- ~~Part 7;4.1 (Operator's responsibilities — Information to the pilot-in-command).~~
- + — Part 7;2.4.1 (Operator's responsibilities — Loading of cargo aircraft);
- Part 7;4.4 (Operator's responsibilities — Reporting of dangerous goods accidents and incidents);
- Part 8;1.1 (Provisions concerning passengers and crew — Dangerous goods carried by passengers or crew); and
- Paragraphs 1 and 2 of this packing instruction.

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Packing Instruction 968

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II. SECTION II

Lithium metal or lithium alloy cells and batteries, when complying with Section II of this packing instruction, are only subject to the following additional provisions of these Instructions:

- Part 1;2.3 (General — Transport of dangerous goods by post);
- Part 5;1.1 g) and j) (Shipper's responsibilities — General requirements);
- Part 7;2.1 (Operator's responsibilities — Loading restrictions on the flight deck and for passenger aircraft);
- Part 7;2.4.1 (Operator's responsibilities — Loading of cargo aircraft);
- ~~Part 7;4.1 (Operator's responsibilities — Information to the pilot-in-command).~~
- Part 7;4.4 (Operator's responsibilities — Reporting of dangerous goods accidents and incidents);
- Part 8;1.1 (Provisions concerning passengers and crew — Dangerous goods carried by passengers or crew); and
- Paragraphs 1 and 2 of this packing instruction.

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## Part 7

# OPERATOR'S RESPONSIBILITIES

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## Chapter 4

### PROVISION OF INFORMATION

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#### 4.1 INFORMATION TO THE PILOT-IN-COMMAND

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Table 7-9. Dangerous goods not required to appear in the information to the pilot-in-command

<i>UN Number</i>	<i>Item</i>	<i>Reference</i>
n/a	Dangerous goods packed in excepted quantities	3;5.1.1
UN 2807	<b>Magnetized material</b>	Packing Instruction 953
UN 2908	<b>Radioactive material, excepted package — empty packaging</b>	1;6.1.5.1 a)
UN 2909	<b>Radioactive material, excepted package — articles manufactured from natural uranium or depleted uranium or natural thorium</b>	1;6.1.5.1 a)
UN 2910	<b>Radioactive material, excepted package — limited quantity of material</b>	1;6.1.5.1 a)
UN 2911	<b>Radioactive material, excepted package — instruments or articles</b>	1;6.1.5.1 a)
UN 3090	<del><b>Lithium metal batteries</b> (including lithium alloy batteries) when meeting the requirements of Packing Instruction 968, Section II</del>	<del>Packing Instruction 968, Section II</del>
UN 3091	<b>Lithium metal batteries contained in equipment</b> (including lithium alloy batteries) when meeting the requirements of Packing Instruction 970, Section II	Packing Instruction 970, Section II
UN 3091	<b>Lithium metal batteries packed with equipment</b> (including lithium alloy batteries) when meeting the requirements of Packing Instruction 969, Section II	Packing Instruction 969, Section II
UN 3245	<b>Genetically modified micro-organisms</b>	Packing Instruction 959
UN 3245	<b>Genetically modified organisms</b>	Packing Instruction 959
UN 3373	<b>Biological substance, Category B</b>	Packing Instruction 650, sub-paragraph 11
UN 3480	<del><b>Lithium ion batteries</b> (including lithium ion polymer batteries) when meeting the requirements of Packing Instruction 965, Section II</del>	<del>Packing Instruction 965, Section II</del>
UN 3481	<b>Lithium ion batteries contained in equipment</b> (including lithium ion polymer batteries) when meeting the requirements of Packing Instruction 967, Section II	Packing Instruction 967, Section II
UN 3481	<b>Lithium ion batteries packed with equipment</b> (including lithium ion polymer batteries) when meeting the requirements of Packing Instruction 966, Section II	Packing Instruction 966, Section II

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