



**WORKING PAPER**

**DANGEROUS GOODS PANEL (DGP)**

**TWENTY-FOURTH MEETING**

**Montréal, 28 October to 8 November 2013**

**Agenda Item 5.1: Review of provisions for the transport of lithium batteries**

**TRANSPORT OF DAMAGED OR DEFECTIVE LITHIUM BATTERIES**

(Presented by G A Leach)

**SUMMARY**

This working paper seeks clarification on the degree to which lithium cells and batteries, which have the potential of producing a dangerous evolution of heat, fire or short circuit, are forbidden.

**Action by the DGP:** The DGP is invited to amend Special Provision A154 and Packing Instruction 965 as presented in the appendices to this working paper.

**1. INTRODUCTION**

1.1 Packing Instructions 965 to 970 all contain the following introductory text:

“Cells and batteries, identified by the manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport (e.g. those being returned to the manufacturer for safety reasons).”

It is not clear from this text whether “forbidden” is meant to be forbidden unless exempted or forbidden under any circumstances.

1.2 The above text reflects that in Special Provision A154, which was added by way of an addendum to the 2007-2008 Technical Instructions, following discussion at the 2006 Working Group meeting in Beijing. The relevant extract of the report is as follows:

“4.16.1 The subject of transporting defective lithium batteries was discussed. Although it was recognized that manufacturers have attempted to ensure that such batteries, when subjected to a recall, be transported by ground, it was proposed they be forbidden for air transport unless approved by the appropriate authority.

4.16.2 All members supported the intent of the proposal but suggested clarification was needed regarding the meaning of the word “recall”. It was further agreed the prohibition should apply to those batteries being returned to the manufacturer for safety reasons. It was agreed that the Universal Postal Union should be informed of the safety issue as mail services in many states routinely use aircraft for transport. An expansion of the discussion to include articles other than lithium batteries which had the potential to cause a fire then ensued. It was noted the text of 1;2.1 should be aligned with the equivalent text in the UN Model Regulations so that articles as well as substances would be forbidden.”

1.3 With the reference to Part 1;2.1 it seems the intent was to make damaged lithium batteries, with a potential for a dangerous evolution of heat, forbidden under any circumstances, meaning no exemption from the Technical Instructions is possible. However, there is a subtle difference between the text of Special Provision A154 and Part 1;2.1 in that the latter forbids any article or substance which, *as presented for transport*, is liable to .....produce a flame or dangerous evolution of heat....”

1.4 There may be occasions where there is an urgent need for damaged or defective lithium batteries to be transport by air (e.g. in connection with an aircraft accident) and such batteries, whilst they may in themselves be capable of a dangerous evolution of heat, can be transported safely if appropriate precautions are taken (e.g. by packing in sand in a metal drum). It is suggested that aligning the wording of Special Provision A154 and the Packing Instructions with that in Part 1;2.1, coupled with a requirement for approval from the States of origin and of the operator, would provide for an appropriate level of safety and flexibility.

1.5 It is also queried why only such cells and batteries “identified by the manufacturer” as being defective for safety reasons etc. are forbidden i.e. presumably an entity other than the manufacturer e.g. a laboratory following an incident could also determine that cells or batteries may be defective reasons; perhaps the manufacturer should appear as an example of an entity able to make such a determination rather than the only one.

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APPENDIX A

PROPOSED AMENDMENT TO PART 3 OF THE TECHNICAL INSTRUCTIONS

Part 3

DANGEROUS GOODS LIST,  
SPECIAL PROVISIONS AND  
LIMITED AND EXCEPTED QUANTITIES

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Chapter 3

SPECIAL PROVISIONS

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Table 3-2. Special provisions

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A154

Lithium cells and batteries, identified by the manufacturer as being defective for safety reasons, (e.g. those being returned to the manufacturer for safety reasons), or that have been damaged that, as presented for transport, ~~that~~ have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport by air under any circumstance ~~(e.g. those being returned to the manufacturer for safety reasons).~~

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APPENDIX B

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

Passenger and cargo aircraft for UN 3480

2. Lithium batteries forbidden from transport

The following applies to all lithium ion cells and batteries in this packing instruction:

Cells and batteries, identified ~~by the manufacturer~~ as being defective for safety reasons (e.g. those being returned to the manufacturer for safety reasons), or that have been damaged ~~that, that~~ as presented for transport, have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport by air under any circumstance ~~(e.g. those being returned to the manufacturer for safety reasons)~~.

Cells and batteries, identified as being defective for safety reasons (e.g. those being returned to the manufacturer for safety reasons), or that have been damaged that, as presented for transport do not have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for air transport unless approved by the appropriate national authority of the State of Origin and the State of the Operator.

Waste lithium batteries and lithium batteries being shipped for recycling or disposal are forbidden from air transport unless approved by the appropriate national authority of the State of Origin and the State of the Operator.

## Packing Instruction 966

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

### 2. Lithium batteries forbidden from transport

The following applies to all lithium ion cells and batteries in this packing instruction:

Cells and batteries, identified ~~by the manufacturer~~ as being defective for safety reasons (e.g. those being returned to the manufacturer for safety reasons), or that have been damaged ~~that, that as presented for transport~~, have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport by air under any circumstance ~~(e.g. those being returned to the manufacturer for safety reasons)~~.

Cells and batteries, identified as being defective for safety reasons (e.g. those being returned to the manufacturer for safety reasons), or that have been damaged that, as presented for transport do not have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for air transport unless approved by the appropriate national authority of the State of Origin and the State of the Operator.

Waste lithium batteries and lithium batteries being shipped for recycling or disposal are forbidden from air transport unless approved by the appropriate national authority of the State of Origin and the State of the Operator.

## Packing Instruction 967

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

### 2. Lithium batteries forbidden from transport

The following applies to all lithium ion cells and batteries in this packing instruction:

Cells and batteries, identified ~~by the manufacturer~~ as being defective for safety reasons (e.g. those being returned to the manufacturer for safety reasons), or that have been damaged ~~that, that as presented for transport~~, have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport by air under any circumstance ~~(e.g. those being returned to the manufacturer for safety reasons)~~.

Cells and batteries, identified as being defective for safety reasons (e.g. those being returned to the manufacturer for safety reasons), or that have been damaged that, as presented for transport do not have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for air transport unless approved by the appropriate national authority of the State of Origin and the State of the Operator.

Waste lithium batteries and lithium batteries being shipped for recycling or disposal are forbidden from air transport unless approved by the appropriate national authority of the State of Origin and the State of the Operator.

## Packing Instruction 968

Passenger and cargo aircraft for UN 3090

### 2. Lithium batteries forbidden from transport

The following applies to all lithium metal cells and batteries in this packing instruction:

Cells and batteries, identified ~~by the manufacturer~~ as being defective for safety reasons (e.g. those being returned to the manufacturer for safety reasons), or that have been damaged ~~that, that~~ as presented for transport, have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport by air under any circumstance ~~(e.g. those being returned to the manufacturer for safety reasons)~~.

Cells and batteries, identified as being defective for safety reasons (e.g. those being returned to the manufacturer for safety reasons), or that have been damaged that, as presented for transport do not have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for air transport unless approved by the appropriate national authority of the State of Origin and the State of the Operator.

Waste lithium batteries and lithium batteries being shipped for recycling or disposal are forbidden from air transport unless approved by the appropriate national authority of the State of Origin and the State of the Operator.

## Packing Instruction 969

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

### 2. Lithium batteries forbidden from transport

The following applies to all lithium metal cells and batteries in this packing instruction:

Cells and batteries, identified ~~by the manufacturer~~ as being defective for safety reasons (e.g. those being returned to the manufacturer for safety reasons), or that have been damaged ~~that, that~~ as presented for transport, have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport by air under any circumstance ~~(e.g. those being returned to the manufacturer for safety reasons)~~.

Cells and batteries, identified as being defective for safety reasons (e.g. those being returned to the manufacturer for safety reasons), or that have been damaged that, as presented for transport do not have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for air transport unless approved by the appropriate national authority of the State of Origin and the State of the Operator.

Waste lithium batteries and lithium batteries being shipped for recycling or disposal are forbidden from air transport unless approved by the appropriate national authority of the State of Origin and the State of the Operator.

## Packing Instruction 970

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

### 2. Lithium batteries forbidden from transport

The following applies to all lithium metal cells and batteries in this packing instruction:

Cells and batteries, identified ~~by the manufacturer~~ as being defective for safety reasons (e.g. those being returned to the manufacturer for safety reasons), or that have been damaged ~~that, that~~ as presented for transport, have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport by air under any circumstance ~~(e.g. those being returned to the manufacturer for safety reasons)~~.

Cells and batteries, identified as being defective for safety reasons (e.g. those being returned to the manufacturer for safety reasons), or that have been damaged that, as presented for transport do not have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for air transport unless approved by the appropriate national authority of the State of Origin and the State of the Operator.

Waste lithium batteries and lithium batteries being shipped for recycling or disposal are forbidden from air transport unless approved by the appropriate national authority of the State of Origin and the State of the Operator.

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