



**WORKING PAPER**

**DANGEROUS GOODS PANEL (DGP)**

**TWENTY-SECOND MEETING**

**Montréal, 5 to 16 October 2009**

**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 2011-2012 Edition**

**BATTERY POWERED EQUIPMENT (UN3171), LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT (UN3481) AND LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT (UN3091)**

(Presented by G. Leach)

**SUMMARY**

This working paper proposes to require lithium batteries, when contained in equipment, to be classified as either UN 3481 “Lithium ion batteries contained in equipment” or UN 3091 “Lithium metal batteries contained in equipment”.

**Action by the DGP:** The DGP is invited to add a new special provision, amend Table 3-1 and amend Packing Instruction 952 of the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) as presented in the appendix.

**1. INTRODUCTION**

1.1 In the last biennium the Technical Instructions have been amended significantly to take account of various issues relating to lithium batteries. The amendments include six specific proper shipping names, two of which are “**Lithium ion batteries contained in equipment**” (UN3481) and “**Lithium metal batteries contained in equipment**” (UN3091). The conditions relating to the shipment of these items were carefully crafted to address safety concerns following a number of well publicized incidents and include a net quantity limitation on the batteries contained in equipment and a prohibition on such equipment containing batteries which have been recalled by the manufacturer for safety reasons.

1.2 A recent request for advice in the United Kingdom revealed a loophole in the requirements whereby it is possible to ship lithium batteries (both ion and metal) under less onerous conditions than those specified for UN 3481 and UN 3090. This is because the entry for UN 3171 “**Battery-powered equipment**” provides for lithium (ion and metal) batteries to be shipped under this

entry despite it not having the safeguards referred to above, nor does it even require equipment to be packaged. Consequently, it is suggested that it should not be permissible for lithium batteries contained in equipment to be consigned for transport as UN 3171.

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APPENDIX

AMENDMENTS TO THE TECHNICAL INSTRUCTIONS

Part 3

**DANGEROUS GOODS LIST,  
SPECIAL PROVISIONS AND  
LIMITED AND EXCEPTED QUANTITIES**

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Chapter 2

**ARRANGEMENT OF THE  
DANGEROUS GOODS LIST (TABLE 3-1)**

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Table 3-1. Dangerous good list

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Add AXX to column 7 for:

UN 3171 **Battery-powered equipment**

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Chapter 3

**SPECIAL PROVISIONS**

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Table 3-2. Special provisions

*TIs*    *UN*

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<u>AXXX</u>	<u>Equipment containing lithium batteries must be classified as either UN 3091 or UN 3481</u>
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## Attachment 4

### REFORMATTED PACKING INSTRUCTIONS (APPLICABLE FROM 1 JANUARY 2011)

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#### Packing Instruction 952

Passenger and cargo aircraft for UN 3171 only  
(See Packing Instruction 950 for flammable liquid-powered vehicles and engines or  
Packing Instruction 951 for flammable gas-powered vehicles and engines)

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#### *Batteries*

All batteries must be installed and securely fastened in the battery holder of the vehicle, machine or equipment and must be protected in such a manner so as to prevent damage and short circuits. In addition:

- 1) if spillable batteries are installed, and it is possible for the vehicle, machine or equipment to be handled in such a way that batteries would not remain in their intended orientation, they must be removed and packed according to Packing Instruction 492 or 870 as applicable;
- 2) if lithium batteries are installed in a vehicle, they must be of a type that has successfully passed the tests specified in the UN *Manual of Tests and Criteria*, Part III, subsection 38.3, must be securely fastened in the vehicle, machinery or equipment and must be protected in such a manner so as to prevent damage and short circuits; and
- 3) if sodium batteries are installed they must conform to the requirements of Special Provision A94.

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