



WORKING PAPER

**DANGEROUS GOODS PANEL (DGP)
MEETING OF THE WORKING GROUP OF THE WHOLE**

Memphis, 30 April to 4 May 2007

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 2009/2010 Edition

2.3: Part 3 — Dangerous Goods List and Limited Quantities Exceptions

AMENDMENT OF SPECIAL PROVISION A45

(Presented by M. Rogers)

SUMMARY

This working paper presents an amendment to Special Provision A45 to apply only to batteries packed in or with equipment.

Action by the DGP-WG is in paragraph 2.

1. INTRODUCTION

1.1 The *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) provides a system to test, package, mark, label and ship dangerous goods, including a provision for notification to the pilot-in-command. Special Provision A45, however, exempts lithium metal and lithium ion batteries from the majority of these provisions.

1.2 Recent amendments to Special Provision A45 have resulted in a quasi-regulatory system, including a marking specific to lithium metal and lithium ion batteries, a telephone number for emergency response, a drop test, packaging requirements, and a quantity limitation. Unlike the dangerous goods not shipped under special provision, however, all of the markings are in English and differ from the internationally recognized diamond labels associated with dangerous goods. There is also no notification to the pilot-in-command.

1.3 In light of the number of incidents involving lithium metal and lithium ion batteries, it is felt that the quasi-regulatory treatment of these batteries is not justified. The batteries should be shipped fully in accordance with the provisions of the *Technical Instructions*, including marking, labelling, testing, packaging standards, and pilot notification. The only exception should be for batteries shipped in

or with equipment, where some level of protection to the batteries is afforded. Provisions for passengers and crew members remain unchanged.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to revise Special Provision A45 to read:

Part 3
DANGEROUS GOODS LIST
AND LIMITED QUANTITIES EXCEPTIONS

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Chapter 3
SPECIAL PROVISIONS

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Table 3-2. Special provisions

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A45 Lithium cells and batteries offered for transport are not subject to other provisions of these Instructions if they are contained in or packed with equipment and meet the following:

- a) For a lithium metal or lithium alloy cell, the lithium content is not more than 1 g, and for a lithium ion cell, the ~~lithium equivalent content is not more than 1.5 g~~ Watt-hour rating is not more than 20 Wh;
- b) For a lithium metal or lithium alloy battery, the aggregate lithium content is not more than 2 g, and for a lithium ion battery, the ~~aggregate lithium equivalent content is not more than 8 g~~ Watt-hour rating is not more than 100 Wh. Lithium ion batteries subject to this provision shall be marked with the Watt-hour rating on the outside case;
- c) Each cell or battery is of the type proved to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3;
- d) ~~Cells and batteries are separated so as to prevent short circuits and are packed in strong packagings, except when installed in equipment, and~~ shall be protected from damage and short-circuit, and the equipment shall be equipped with an effective means of preventing accidental activation. The equipment shall be packed in strong 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.
- e) ~~Except when installed in equipment, each package containing more than 24 lithium cells or 12 lithium batteries must in addition meet the following requirements~~ for packages containing no more than four cells installed in equipment or no more than two batteries installed in equipment, each package shall be marked with the following:
 - i) ~~Each package must be marked indicating that it contains lithium batteries and that~~

~~special procedures should be followed in the event that the package is damaged~~an indication that the package contains “lithium metal” or “lithium ion” cells or batteries, as appropriate;

- ii) ~~Each shipment must be accompanied with a document indicating that packages contain lithium batteries and that special procedures should be followed in the event a package is damaged~~an indication that the package shall be handled with care and that a flammability hazard exists if the package is damaged;
- iii) ~~Each package is capable of withstanding a 1.2 m drop test in any orientation without damage to cells or batteries contained therein, without shifting of the contents so as to allow battery to battery (or cell to cell) contact and without release of contents~~an indication that special procedures should be followed in the event the package is damaged, to include inspection and repacking if necessary;
and
- iv) ~~Except in the case of lithium batteries packed with equipment, packages may not exceed 30 kg gross mass~~a telephone number for additional information.

g) Each consignment of one or more packages marked in accordance with paragraph (e) shall be accompanied by a document which shall include the following:

- i) an indication that the package contains “lithium metal” or “lithium ion” cells or batteries, as appropriate;
- ii) an indication that the package shall be handled with care and that a flammability hazard exists if the package is damaged;
- iii) an indication that special procedures should be followed in the event that the package is damaged, to include inspection and repacking if necessary; and
- iv) a telephone number for additional information.

As used above and elsewhere in the Instructions, “lithium content” means the mass of lithium in the anode of a lithium metal or lithium alloy cell, ~~except in the case of a lithium ion cell the “lithium equivalent content” in grams is calculated to be 0.3 times the rated capacity in ampere-hours.~~

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