



WORKING PAPER

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

The Hague, 3 to 7 November 2008

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

2.3: Part 3 — Dangerous Goods List, Special Provisions and Limited and Excepted Quantities

2.4: Part 4 — Packing Instructions

SHIPPING PROTOTYPE AND LOW PRODUCTION LITHIUM BATTERIES

(Presented by Portable Battery Association (PRBA))

SUMMARY

This paper invites the working group to consider the requirements applicable to prototype and low production lithium batteries.

Action by the DGP-WG is in paragraph 2.

1. INTRODUCTION

1.1 As a result of the proliferation of lithium ion batteries and lithium metal batteries in portable electronic equipment, hybrid and electric vehicles, aerospace, and military applications, the need to ship “prototype” and “low production” batteries has increased significantly over the past five years.

1.2 “Prototype” lithium batteries are generally recognized as batteries that have not been subject to the UN testing requirements and are still in the early design stages. They are often shipped for testing in the field or in labs. “Low production” lithium batteries are generally recognized as batteries with a limited annual production (i.e. less than 100), have not been subject to UN testing requirements and manufactured from final designs and specifications. The military and aerospace industry frequently require limited numbers of expensive and highly sophisticated low production batteries that can cost as much as \$600 000 each. For example, lithium batteries designed for use in satellites are manufactured in very low quantities due to the high cost and limited demand for such batteries. To complete the UN lithium battery tests currently requires 24 batteries. Therefore, it is impractical to manufacture 24 batteries at a cost of \$600 000 each simply to complete the UN tests.

1.3 Special Provision A88 authorizes shipments of prototype batteries provided the shipper secures an approval from the appropriate authority in the State of Origin. However, the Technical Instructions do not provide a means for shipping low production batteries, which is inconsistent with the provisions in the UN Model Regulations and IMDG Code. Special Provision 310 in the UN Model Regulations and IMDG Code authorize shipments of prototype and low production batteries provided the shipper uses very robust Packing Group I packaging. (SP 310 refers to low production as “production runs consisting of not more than 100 lithium cells and batteries.”) PRBA is proposing that Special Provision A88 in the Technical Instructions be amended to harmonize with the UN Model Regulations and IMDG Code to authorize shipments of low production batteries provided an approval is secured from the appropriate authority in the State of Origin.

1.4 The current Technical Instructions also do not provide for shipments of prototype and low production batteries in equipment or vehicles. With the applications for lithium ion batteries expanding rapidly, shippers often need to ship prototype and low production batteries in equipment or vehicles. Special Provision A88 only authorizes battery shipments. PRBA is proposing to add Special Provision A88 to Column 7 of the Dangerous Goods List for the entries “Lithium ion batteries contained in equipment” and “Lithium metal batteries contained in equipment.” In addition, PRBA is proposing to amend Packing Instruction 900 to authorize shipments of prototype or low production batteries in vehicles. In both cases an approval from the appropriate authority in the State of Origin still would be required.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to amend Special Provision A88 as follows:

Part 3

DANGEROUS GOODS LIST, SPECIAL PROVISIONS AND LIMITED AND EXCEPTED QUANTITIES

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Chapter 3

SPECIAL PROVISIONS

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A88 Prototype or low production (i.e. annual production runs consisting of not more than 100 lithium batteries or cells) lithium batteries and cells ~~to be tested that are packed, including batteries or cells contained in equipment,~~ with not more than 24 cells or 12 batteries per packaging that have not been tested to the requirements in subsection 38.3 of the UN *Manual of Tests and Criteria* may be transported ~~aboard cargo aircraft~~ if approved by the appropriate authority of the State of Origin and the following requirements are met:

- a) the cells and batteries or equipment must be transported in an outer packaging that is a metal, plastic or plywood drum or a metal, plastic or wooden box and that meets the criteria for Packing Group I packagings; and

- b) each cell and battery or equipment must be individually packed in an inner packaging inside an outer packaging and surrounded by cushioning material that is non-combustible, and non-conductive. Cells and batteries must be protected against short circuiting.

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2.2 The DGP-WG is invited to amend the Dangerous Goods List by adding a reference to Special Provision A88 in Column 7 in the entries for Lithium ion batteries contained in equipment (UN 3481) and Lithium metal batteries contained in equipment (UN 3091);

2.3 The DGP-WG is invited to amend Packing Instruction 900 h) as follows:

Part 4

PACKING INSTRUCTIONS

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Chapter 11

CLASS 9 — MISCELLANEOUS DANGEROUS GOODS

| 900 | PACKING INSTRUCTION 900 | 900 |
|---|-------------------------|-----|
| Vehicles, machines or equipment containing internal combustion engines or batteries must meet the following requirements: | | |
| ... | | |
| h) if lithium batteries are installed, 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, <u>unless approved by the appropriate authority in the State of Origin,</u> 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 | | |
| ... | | |

— END —