



WORKING PAPER

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

Montréal, 15 to 19 April 2013

**Agenda Item 5: Review of provisions for the transport of lithium batteries including
5.2: Simplification and clarification of provisions**

LITHIUM BATTERY PACKING INSTRUCTION REQUIREMENTS

(Presented by G A Leach)

SUMMARY

This working paper highlights inconsistencies in some of the packing instructions applicable to lithium batteries and also differences with the provisions of the UN Recommendations on the Transport of Dangerous Goods.

Action by the DGP-WG is in paragraph 2.

1. INTRODUCTION

1.1 Over the last ten years, the requirements for lithium batteries have been amended several times, expanding from one packing instruction and two special provisions to six packing instructions and numerous special provisions. Whilst these changes have been necessary, over time it has resulted in some inconsistencies and differences between the sections within the packing instructions and also compared with the provisions in the UN Recommendations on the Transport of Dangerous Goods, as shown below.

1.2 Within Packing Instructions 965, 966, 968 and 969, Sections II and IB (where applicable) contain specific additional requirements concerning the testing of packagings. These include the requirement that the packages must be capable of withstanding drop tests without:

- a) damage to cells or batteries contained therein;
- b) shifting of the contents so as to allow battery-to-battery (or cell-to-cell) contact; and
- c) release of contents.

1.3 In the same packing instructions however, Sections I and IA (as applicable) require by reference to Part 4;1 that packagings meet the requirements of Part 6. Whilst Part 6 requires packagings to be of a type that have successfully passed particular tests, the criteria for passing those tests do not make any reference to damage to the cells or batteries, nor shifting of contents resulting in battery-to-battery (or cell-to-cell) contact. There is a requirement that the packaging must not exhibit any damage liable to affect safety during transport, but it is questioned whether this is specific enough for lithium batteries (and possibly other types of batteries). The same difference exists in Packing Instruction P903 and Special Provision 188 of the UN Recommendations.

1.4 It is noted that some lithium battery suppliers consign lithium cells/batteries in blister packs with two or more tightly in contact with each other, as seen in the example in the appendix to this working paper. This does not appear to meet the strict interpretation of the text referred to in 1.2 above for preventing 'battery-to-battery (or cell-to-cell) contact'. Additionally, UN Special Provision 188, paragraph (d) states that '*Cells and batteries... shall be packed in inner packagings that completely enclose the cell or battery*'. Use of the singular 'cell' and 'battery' suggests that each cell or battery must be individually packed in inner packagings. It is suggested that the arrangement of cells or batteries as in the example in appendix should be entirely acceptable since the terminals are protected from contact with each other.

1.5 Paragraph (2) in Packing Instruction P903 of the UN Recommendations provides for cells and batteries with a gross mass of 12 kg or more with strong impact resistant outer casings to be packed in strong outer packagings, in protective enclosures or on pallets or other handling devices, but requires that the terminals shall not support the weight of other superimposed elements. This equates to the additional packing requirements in Section I of Packing Instructions 965 and 968 which provide for such cells and batteries to be transported if approved by the State of Origin. However, whilst reference is made to strong outer packagings and protective enclosures, there is no reference to pallets or other handling devices, nor to the need for terminals not to support the weight of other superimposed elements.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to discuss:

- a) Whether Sections I and IA (where applicable) of Packing Instructions 965, 966, 968 and 969 should include the requirement for the packaging tests to take account of possible damage to cells or batteries and shifting of contents resulting in battery-to-battery or cell-to-cell contact;
- b) Whether the arrangement of cells in the example in the Appendix is acceptable, and therefore whether amendments are required to Sections II and IB (where applicable) of Packing Instructions 965, 966, 968 and 969 concerning the requirement for packages to be capable of withstanding drop tests without shifting of the contents so as to allow battery-to-battery (or cell-to-cell) contact and also whether it should be proposed that UN Special Provision 188, paragraph (d) be amended; and
- c) Whether additional text is required in Packing Instructions 965 and 968 for cells or batteries over 12 kg that need State of Origin approval concerning the need for terminals not to support the weight of other items and whether pallets or other handling devices should be allowed with the approval of the State of Origin.

2.2 Based on the outcome of these discussions, a working paper will be produced for DGP/24 and it is proposed that the relevant matters should be drawn to the attention of the UNSCOE.

APPENDIX

PROPOSED AMENDMENT TO THE TECHNICAL INSTRUCTIONS



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