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Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals

Sub-Committee of Experts on the Transport of Dangerous Goods

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Geneva, 1 – 9 December 2014
Item 7 of the provisional agenda
New proposals for amendments to the Model Regulations on the Transport of Dangerous Goods

Requirements for packaging damaged or defective lithium batteries

Transmitted by the Dangerous Goods Advisory Council (DGAC)[1]

Introduction

1. P908 and LP904 provide packaging requirements for damaged or defective lithium cells and batteries including those contained in equipment. Each of these packing instructions requires packagings to conform to a packing group II performance level.

2. Paragraph 2 of each of these packing instructions requires each inner packaging to be surrounded by sufficient non-combustible and non-conductive thermal insulation material to protect against a dangerous evolution of heat.

3. Paragraph 4 of each of these packing instructions requires appropriate measures be taken to minimize the effects of vibrations and shocks and to prevent movement of the cells or batteries that may lead to further damage and a dangerous condition during transport. Each of these packing instructions permits the consignor to meet this provision by the use of cushioning material, and requires that the cushioning material used be non-combustible and non-conductive.

4. Experience developing packaging for the transport of damaged or defective batteries has shown that cushioning material that is combustible can be used effectively without contributing to the severity of a thermal runaway involving a lithium ion or metal battery or

[1] In accordance with the programme of work of the Sub-Committee for 2013-2014 approved by the Committee at its sixth session (refer to ST/SG/AC.10/C.3/84, para. 86 and ST/SG/AC.10/40, para. 14).

the ability of a thermally insulated packaging to contain a thermal runaway. Packagings have been developed and successfully tested using combustible cushioning material such as paper, fiberboard separators and sealed air bubble wrap.

5. In many instances damaged lithium batteries need to be transported from locations where non-combustible cushioning is not readily available. There are limited non-combustible cushioning materials available that can be used for shipping damaged lithium batteries. The most important design feature related to packagings intended for the transport of damaged or defective batteries is the thermal insulation that is specified in paragraph 2 of P908 and LP904.

Proposal

6. It is proposed to amend P908 and LP904 as follows:

Alternative 1

Replace the sentence in paragraph 4 that reads: "Cushioning material that is non-combustible and non-conductive may also be used to meet this requirement." with the sentence: "Appropriate non-conductive cushioning material may be used to meet this requirement.".

Alternative 2

Add the following sentence to the end of paragraph 4: "Cushioning material need not be non-combustible if through testing it can be demonstrated that combustible cushioning materials can be used without contributing to the severity of a thermal reaction or the ability of the packaging to contain a thermal event."