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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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PROPOSALS OF AMENDMENTS TO THE RECOMMENDATIONS ON THE TRANSPORT OF DANGEROUS GOODS

Additional Proposal relating to a new entry for lithium ion batteries

Transmitted by the International Federation of Air Line Pilots Association (IFALPA)

1. In the paper ST/SG/AC.10/C.3/2006/83, IFALPA proposes to add a new entry for lithium ion batteries, and to make consequential amendments to Special Provision 188 and Packing Instruction 903 accordingly.
2. After receiving numerous comments, it is felt that additional clarity in battery names could be achieved by referring to the remaining batteries as lithium metal batteries (including lithium alloy). In this way, the previous entry for lithium batteries would be separated into two distinct entries: Lithium metal and lithium ion. As the lithium in a battery is either in a metallic or ionic state, this distinction is appropriate and would capture all lithium battery types.

Proposal

3. If the proposal in ST/SG/AC.10/C.3/2006/83 is adopted, IFALPA proposes:
 - .1 that the entries for UN 3090 and UN 3091 be listed as follows:

UN 3090 **Lithium metal batteries** (*including lithium alloy batteries*)

and

UN 3091 **Lithium *metal* batteries contained in equipment** or
UN 3091 **Lithium *metal* batteries packed with equipment**

.2 Consequential amendments to SP 188 be made as follows:

188 ~~Lithium~~ *Cells* and batteries offered for transport are not subject to other provisions of these Regulations if they 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 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 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 Manual of Tests and Criteria, Part III, sub section 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
- (e) Except when installed in equipment, each package containing more than 24 ~~lithium~~ cells or 12 ~~lithium~~ batteries shall in addition meet the following requirements:
 - (i) Each package shall be marked indicating that it contains lithium ***metal*** batteries *or lithium ion batteries, as appropriate*, and that special procedures should be followed in the event that the package is damaged;
 - (ii) Each shipment shall be accompanied with a document indicating that packages contain lithium ***metal*** batteries *or lithium ion batteries, as appropriate*, and that special procedures should be followed in the event a 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; and
 - (iv) Except in the case of lithium ***metal*** batteries *or lithium ion*

batteries packed with equipment, packages may not exceed 30 kg gross mass.

As used above and elsewhere in these Regulations, "lithium content" means the mass of lithium in the anode of a lithium metal or lithium alloy cell.

.3 Consequential Amendments to the UN Manual of Tests and Criteria as follows:

383. Lithium *metal and lithium ion* batteries

38.3.1 *Purpose*

This section presents the procedures to be followed for the classification of lithium *metal and lithium ion* cells and batteries (see UN Nos. 3090, ~~and~~ 3091, XXXX, ~~and~~ XXXX, and the applicable special provisions of Chapter 3.3 of the Model Regulations).

38.3.2 *Scope*

38.3.2.1 Lithium *metal and lithium ion* cells and batteries shall be subjected to the tests, as required by special provisions 188 and 230 of Chapter 3.3 of the Model Regulations prior to the transport of a particular cell or battery type. ~~Lithium~~ Cells or batteries which differ from a tested type by:

(a) A change of more than 0.1 g or 20% by mass, whichever is greater, to the cathode, to the anode, or to the electrolyte; or

(b) A change that would materially affect the test results,

shall be considered a new type and shall be subjected to the required tests. In the event that a ~~lithium~~ cell or battery type does not meet one or more of the test requirements, steps shall be taken to correct the deficiency or deficiencies that caused the failure before such cell or battery type is retested.

38.3.2.2 For the purposes of classification, the following definitions apply:

Large battery means a lithium *metal* battery in which the aggregate lithium content of all anodes, when fully charged, is more than 500 g, or in the case of a lithium ion battery, means a battery with a Watt-hour rating of more than 6200 Wh.

Large cell means a lithium *metal* cell in which the lithium content of the anode, when fully charged, is more than 12 g, or in the case of a lithium ion cell, means a cell with a Watt-hour rating of more than 150 Wh.

Small battery means a lithium *metal* battery composed of small cells and in which the aggregate lithium content of all cell anodes, when fully charged, is not more than 500 g, or in the case of a lithium ion battery, means a battery with a Watt-hour rating of not more than 6200 Wh.

Small cell means a lithium *metal* cell in which the lithium content of the anode, when fully charged, is not more than 12 g, or in the case of a lithium ion cell, means a cell with a Watt-hour rating of not more than 150 Wh.

.4 Consequential amendments to PI903 as follows::

P903

PACKING INSTRUCTION

P903

This instruction applies to UN Nos. 3090, and 3091, *XXXX and YYYY*.

The following packagings are authorized, provided the general provisions of **4.1.1** and **4.1.3** are met: Packaging conforming to the packing group II performance level. In addition, batteries employing a strong, impact resistant outer casing of a gross mass of 12 kg or more, and assemblies of such batteries, may be packed in strong outer packagings, in protective enclosures (e.g., in fully enclosed or wooden slatted crates) unpackaged or on pallets. Batteries shall be secured to prevent inadvertent movement, and the terminals shall not support the weight of other superimposed elements.

When ~~lithium~~ cells and batteries are packed with equipment, they shall be packed in inner fibreboard packagings that meet the requirements for packing group II. When ~~lithium~~ cells and batteries included in Class 9 are contained in equipment, the equipment shall be packed in strong outer packagings in such a manner as to prevent accidental operation during transport.

Additional requirement:

Batteries shall be protected against short circuit.
