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**COMMITTEE OF EXPERTS ON THE TRANSPORT
OF DANGEROUS GOODS**

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**WORK OF THE SUB-COMMITTEE OF EXPERTS
ON THE TRANSPORT OF DANGEROUS GOODS**

Draft amendments to the Recommendations on the Transport of Dangerous Goods

Amendment to special provision 188 for lithium batteries

Transmitted by the expert from Japan

Introduction

1. At the eighteenth session of the Sub-Committee of Experts on the Transport of Dangerous Goods, the expert from the United States of America proposed the revision of special provision 188 for lithium batteries (UN/SCETDG/18/INF.49) on the basis of investigation results concerning an incident at Los Angel's international airport.
2. During the session, the expert from Japan agreed, in principle, with the contents of the United States of America's proposal and also proposed an amendment to special provision 188 (UN/SCTDG/18/INF.56).

However, as the Japanese proposal was to limit only air transport, the Chairman of the Sub-Committee asked the expert from Japan to clarify the intention of the proposal (ST/SG/AC.10/C.3/36, para. 77). This proposal is to revise the document UN/SCETDG/18/INF.56.

Justification

3. For transport safety reasons, a certain test should be applied to lithium batteries to ensure their safety. The expert from Japan thinks that it is necessary to make testing according to the Manual of Test and Criteria, Part III, sub-section 38. 3.

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4. However, the button (coin) type cells and batteries that are used for memory backup applications and as power source for watches have small lithium contents and generate very small heat. Their safety is so high that there is substantially no need for testing.

5. It is not possible to require individuals carrying batteries to prove that they are non-dangerous by providing test results, as this would cause social confusions.

6. It can be estimated that the total mass of lithium cells and/or batteries, including those installed in equipment, carried by individuals for personal use can reach 3 kg. Therefore, lithium cells and/or batteries should be exempted from the Regulations when the total mass carried does not exceed 3 kg.

7. From the safety standpoint, sub-paragraphs (g) to (j) in special provision 188 should be included in special provision 230 for transport as Class 9 articles.

Proposal

8. The expert from Japan proposes that special provision 188 should be amended as follows (a consolidated draft text for special provision 188 is shown in the annex):

(1) Sub-paragraphs (a) to (c) remain unchanged;

(2) Insert the following as sub-paragraph (d):

"(d) Each cell or battery is of the type proved to be non-dangerous by testing in accordance with tests in the Manual of Tests and Criteria, Part III, sub-section 38.3; such testing shall be carried out on each type prior to the initial transport of that type. However, the provisions of this sub-paragraph do not apply to:

(i) Lithium metal or lithium alloy button type cells with a liquid cathode and lithium contents of not more than 0.1g; nor to lithium metal or lithium alloy button type cells with a solid cathode and lithium contents of not more than 0.3g; nor to lithium-ion button type cells, with equivalent lithium contents of not more than 0.3g;

(ii) Lithium metal or lithium alloy batteries using button type cells with liquid cathode, with aggregate lithium contents of not more than 0.2g; nor to lithium metal or lithium alloy batteries using button type cells with solid cathode and aggregate lithium contents of not more than 0.6g; nor to lithium-ion batteries using button type cells, with aggregate equivalent lithium contents of not more than 0.6g;

(iii) Lithium cells and batteries specified in sub-paragraphs (a) or (b), which are carried by individuals for their own use provided that the total mass of lithium cells and/or batteries, including lithium cells and/or batteries installed in equipment, is not more than 3 kg.

- (3) Current sub-paragraph (d), (e) and (f) would become sub-paragraphs (e), (f) and (g) respectively.
- (4) The words “fully charged” in the new sub-paragraph (g) should read “undischarged”.
- (5) Delete the sentence “Lithium cells and lithium batteries are also not subject to these Regulations if they meet the following provisions” under existing paragraph (f), and delete sub-paragraphs (g) to (j).
- (6) At the end of the existing last sentence, add: “Button type cell means small round battery, where the overall height is less than the diameter.”.

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Annex

188 Lithium cells and batteries offered for transport are not subject to these Regulations if they meet the following provisions:

- (a) For a lithium metal or lithium alloy cell with a liquid cathode, the lithium content is not more than 0.5 g, for a lithium metal or lithium alloy cell with a solid cathode, the lithium content is not more than 1 g, and for a lithium-ion cell, the equivalent lithium content is not more than 1.5 g;
- (b) For a lithium metal or lithium alloy battery with liquid cathodes, the aggregate lithium content is not more than 1 g, for a lithium metal or lithium alloy battery with solid cathodes, the aggregate lithium content is not more than 2 g, and for a lithium-ion battery, the aggregate equivalent lithium content is not more than 8 g;
- (c) Each cell or battery containing a liquid cathode is hermetically sealed;
- (d) *Each cell or battery is of the type proved to be non-dangerous by testing in accordance with tests in the Manual of Tests and Criteria, Part III, sub-section 38.3; such testing shall be carried out on each type prior to the initial transport of that type. However, the provisions of this sub-paragraph do not apply to:*
 - (i) *Lithium metal or lithium alloy button type cells with a liquid cathode and lithium contents of not more than 0.1g; nor to lithium metal or lithium alloy button type cells with a solid cathode and lithium contents of not more than 0.3g; nor to lithium-ion button type cells, with equivalent lithium contents of not more than 0.3g;*
 - (ii) *Lithium metal or lithium alloy batteries using button type cells with liquid cathode, with aggregate lithium contents of not more than 0.2g; nor to lithium metal or lithium alloy batteries using button type cells with solid cathode and aggregate lithium contents of not more than 0.6g; nor to lithium-ion batteries using button type cells, with aggregate equivalent lithium contents of not more than 0.6g;*
 - (iii) *Lithium cells and batteries specified in sub-paragraphs (a) or (b), which are carried by individuals for their own use provided that the total mass of lithium cells and/or batteries, including lithium cells and/or batteries installed in equipment, is not more than 3 kg.*
- (e) Cells are separated so as to prevent short circuits;
- (f) Batteries are separated so as to prevent short circuits and are packed in strong packagings, except when installed in electronic devices; and
- (g) If, when **undischarged**, the aggregate lithium content of the anodes in a liquid cathode battery is more than 0.5 g, or of the aggregate lithium content of the anodes in a solid cathode battery is more than 1 g, it does not contain a liquid or gas which is considered dangerous unless the liquid or gas, if free, would be completely absorbed or neutralized by other materials in the battery;

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, except in the case of a lithium-ion cell the "equivalent lithium content" in grams is calculated to be 0.3 times the rated capacity in ampere-hours. **Button type cell means small round battery, where the overall height is less than the diameter.**
