

COMMITTEE OF EXPERTS ON THE
TRANSPORT OF DANGEROUS GOODS
(Twentieth session,
Geneva, 7-16 December 1998,
agenda item 2 (c)(iii))

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

Draft amendments to the Model Regulations
on the Transport of Dangerous Goods
Manual of Tests and Criteria

38.3 Lithium Batteries

Transmitted by the Expert from Canada

1. Comments concerning ST/SG/AC.10/1998/30 were received after the paper was submitted to the secretariat. In light of this, the following revisions are submitted for consideration by the Committee.

Proposal 1

2. In document ST/SG/AC.10/1998/30:

- (a) In paragraph 3 of the Introduction section delete, in the third sentence, the text following the word “incident” and delete the fourth sentence.
- (b) Amendment Instruction 3, in the introductory text, change 38.3.3.2 to “38.3.4.7.2”;
- (c) In the proposed text “**38.4 Small lithium cells or batteries**”:
 - (i) in section 38.4.3.2 replace the definition of *Equivalent grams of lithium* with “*Equivalent grams of lithium* means, for lithium-ion cells, the quantity in grams obtained by multiplying the rated capacity in ampere-hours of the cell by a factor 0.3 g per ampere-hour. The equivalent grams of lithium for a lithium-ion battery is the sum of the equivalent grams of lithium contained by the cells comprising the battery.”;
 - (ii) in section 38.4.3.2 under the definition *Fully charged*, replace the phrase “which is charged to” with the word “with”;
 - (iii) in the same section under the definition *Lithium-ion cell*, add the word “constructed” prior to the words “with no metallic lithium in either electrode”;
 - (iv) in 38.4.4.1.2.2(b), delete the text in square brackets;
 - (v) in 38.4.4.1.3.1, replace “20 °C” with “ambient temperature”;
 - (vi) in 38.4.4.1.3.2, replace “-40 °C” with “-20 °C”;

- (vii) in 38.4.4.2.3.1, replace “20 °C” with “ambient temperature”;
- (viii) in 38.4.4.2.3.3, replace “-40 °C” with “-20 °C”; and
- (ix) replace 38.4.4.3.1 with the following:
 - “38.4.4.3.1 A lithium cell or battery does not satisfy the test if, for any one of the tested units of that type
 - (a) venting, leaking, disassembly, short circuit or fire is evident;
 - (b) distortion of cells or distortion of batteries attributable to deterioration of the battery’s component cells or their interconnections;
 - (c) the loss of mass exceeds that shown in Table 38.4.4.3.1; and
 - (d) in the case of test ST.2 for rechargeable batteries, the four batteries which were fully charged at the beginning of the test are thereafter fully discharged and after repeated cycling, any one battery’s capacity does not recover to within 10% of the average capacity of the four batteries which were fully discharged at the beginning of the test.”
- (d) Delete Amendment Instruction 4.
- (e) in Amendment Instruction 5 for proposed Special Provision 188:
 - (i) in the first line replace “add the following at the end of Special Provision 188:” with “replace Special Provision 188 with:”
 - (i) replace “**Part B:**” with “188” and replace “38.4.3.2” with “38.4.1”;
 - (ii) replace paragraph (g) with the following:
 - “(g) Cells and batteries are packed in such a way as to prevent short circuits and, except when installed in equipment, packed in strong packages;”
 - (iii) insert “and” after subparagraph (h)(iii);
 - (iv) replace “,” with “;” in subparagraph (h)(iv) and delete subparagraph (h)(v);
 - (v) insert a new paragraph (i) as follows:
 - “(i) Cells and batteries are prevented from operating during transport except for cells and batteries exempted from testing in paragraph (h) where each primary cell and battery is diode protected from charging.”
- (f) in Amendment Instruction 6 for proposed Special Provision 230, delete “**Part A:**” and replace “38.4.3.2” with “38.3.1”;

- (g) in Amendment Instruction 7 for proposed Special Provision 230:
 - (i) delete “**Part B:**”, and replace “38.4.3.2” with “38.4.1”; and
 - (ii) remove the square brackets in paragraphs (a) and (b);
 - (iii) replace paragraph (h) with the following:
 - “(h) Batteries are sealed in plastic packages and packed in inner packagings to effectively prevent the development of short circuits and to prevent movement which could lead to short circuits;”
- (h) in Amendment Instruction 8 for the proposed addition to Special Provision 231:
 - (i) replace “38.4.3.2” with “38.4.1”.
 - (ii) delete “In addition, when small lithium cells and batteries included Class 9 are contained in equipment, the equipment shall be sealed in plastic bags and packed in strong outer packaging in such a manner as to prevent accidental operation during transport.”

Proposal 2

- 3. As a consequence of Proposal 1, in the Manual of Tests and Criteria:
 - (a) delete paragraph 38.3.4.7.1;
 - (b) in paragraph 38.3.4.7.2, delete the phrase “,subject to the mass requirements given in Special Provision 230,”; and
 - (c) renumber paragraphs 38.3.4.7.2 and 38.3.4.7.3 as “38.3.4.7.1” and “38.3.4.7.2”.
-