



**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****Fifty-seventh session**

Geneva, 29 June-8 July 2020

Item 4 (c) of the provisional agenda

Electric storage systems: transport provisions**Revision to Chapter 2.9.4 to Separate the Quality
Management System from Classification Requirements****Transmitted by the International Air Transport Association (IATA)*****Introduction**

1. At the fifty-sixth session of the Sub-Committee IATA submitted an informal document (INF.20) that sought discussion on the need for consignors of lithium cells or batteries (UN Nos. 3090, 3091, 3480 or 3481) that are not the manufacturer of the cells or batteries to have evidence of the manufacturer's quality management programme.
2. In an informal discussion during a coffee-break at the fifty-sixth session there was consensus among the experts that there is no requirement for the manufacturer to provide evidence of a quality management programme to any other party than the competent authority.
3. Based on that informal discussion, this document proposes a slight restructure of 2.9.4 to separate the requirement that lithium cells and batteries shall be manufactured under a quality management programme from the provisions applicable to classification of lithium cells and batteries to which the consignors are subject when offering the cells or batteries for transport.
4. In reviewing the current wording of the opening paragraph of 2.9.4, the second sentence states that "They (lithium cells and batteries) may be transported under these entries if they meet the following conditions:". This implies that the carriers are also responsible, however as these are requirements that apply to be able to ship lithium cells or batteries, it is the consignor that is responsible. Therefore, the sentence should read "They may be offered for transport...".
5. It was also identified that the list of UN numbers to which the provisions of 2.9.4 apply does not include UN 3536, LITHIUM BATTERIES INSTALLED IN CARGO TRANSPORT UNIT. It is believed that this UN number should be included.

* 2020 (A/74/6 (Sect.20) and Supplementary, Subprogramme 2)

6. If the proposal to revise 2.9.4 is agreed there are then some consequential amendments in other parts of the Model Regulations to address the correct paragraph reference.

Proposal

7. The Sub-Committee is invited to consider revising 2.9.4 to place the classification provisions into a new paragraph 2.9.4.1, with then the existing sub-paragraph (e) for the quality management programme to be moved to become 2.9.4.2, as follows:

“2.9.4 Lithium batteries

2.9.4.1 Design, testing and test summary

Cells and batteries, cells and batteries contained in equipment, or cells and batteries packed with equipment, containing lithium in any form shall be assigned to UN Nos. 3090, 3091, 3480, 3481 or 3536 as appropriate. They may be offered for transport under these entries if they meet the following provisions:

...

- (d) Each battery ... current flow (e.g., diodes, fuses, etc.);
- (e) Lithium batteries, containing both primary lithium metal cells and rechargeable lithium ion cells, that are not designed to be externally charged (see special provision 387 of Chapter 3.3) shall meet the following conditions:
 - (i) The rechargeable lithium ion cells can only be charged from the primary lithium metal cells;
 - (ii) Overcharge of the rechargeable lithium ion cells is precluded by design;
 - (iii) The battery has been tested as a lithium primary battery;
 - (iv) Component cells of the battery shall be of a type proved to meet the respective testing requirements of the Manual of Tests and Criteria, part III, sub-section 38.3.
- (f) Manufacturers and subsequent distributors of cells or batteries manufactured after 30 June 2003 shall make available the test summary as specified in the Manual of Tests and Criteria, Part III, sub-section 38.3, paragraph 38.3.5.

2.9.4.2 Quality management programme

Lithium cells and batteries shall be manufactured under a quality management programme that includes:

- (a) A description of the organizational structure and responsibilities of personnel with regard to design and product quality;
- (b) The relevant inspection and test, quality control, quality assurance, and process operation instructions that will be used;
- (c) Process controls that should include relevant activities to prevent and detect internal short circuit failure during manufacture of cells;
- (d) Quality records, such as inspection reports, test data, calibration data and certificates. Test data shall be kept and made available to the competent authority upon request;
- (e) Management reviews to ensure the effective operation of the quality management programme;
- (f) A process for control of documents and their revision;
- (g) A means for control of cells or batteries that are not conforming to the type tested as mentioned in (a) above;

- (h) Training programmes and qualification procedures for relevant personnel; and
- (i) Procedures to ensure that there is no damage to the final product.

NOTE: *In house quality management programmes may be accepted. Third party certification is not required, but the procedures listed in (a) to (i) above shall be properly recorded and traceable. A copy of the quality management programme shall be made available to the competent authority upon request.*

8. If the above is adopted, the Sub-Committee is also invited to consider the following consequential amendments:

In Chapter 3.3, amend the following special provisions to read:

“188 Cells and batteries offered for transport are not subject to other provisions of these Regulations if they meet the following:

...

- (c) Each cell or battery meets the provisions of 2.9.4.1 (a), (e) if applicable and (f);

...

230 Lithium cells and batteries may be offered for transport under this entry if they meet the provisions of 2.9.4.1.

...

363 This entry may only be used when the conditions of this special provision are met. No other requirements of these Regulations apply.

...

- (f) Engines or machinery may contain other dangerous goods than fuels (e.g. batteries, fire extinguishers, compressed gas accumulators or safety devices) required for their functioning or safe operation without being subject to any additional requirements for these other dangerous goods, unless otherwise specified in these Regulations. However, lithium batteries shall meet the provisions of 2.9.4.1, except that 2.9.4.1 (a) does not apply when pre-production prototype batteries or batteries of a small production run, consisting of not more than 100 batteries, are installed in machinery or engines.

...

377 This entry may only be used when the conditions of this special provision are met. No other requirements of these Regulations apply.

These cells and batteries are not subject to the requirements of section 2.9.4.1. Additional exemptions may be provided under the conditions defined by modal transport regulations.

...

387 Lithium batteries in conformity with 2.9.4.1 (e) containing both primary lithium metal cells and rechargeable lithium ion cells shall be assigned to UN Nos. 3090 or 3091 as appropriate. When such batteries are transported in accordance with special provision 188, the total lithium content of all lithium metal cells contained in the battery shall not exceed 1.5 g and the total capacity of all lithium ion cells contained in the battery shall not exceed 10 Wh.

388 UN No. 3166 entries apply to vehicles powered by flammable liquid or gas internal combustion engines or fuel cells.

...

Dangerous goods, such as batteries, airbags, fire extinguishers, compressed gas accumulators, safety devices and other integral components of the vehicle that are necessary for the operation of the vehicle or for the safety of its operator or passengers, shall be securely installed in the vehicle and are not otherwise subject to these Regulations. However, lithium batteries shall meet the provisions of 2.9.4.1, except that 2.9.4.1 (a) does not apply when pre-production prototype batteries or batteries of a small production run, consisting of not more than 100 batteries, are installed in vehicles or equipment.

...

389 This entry only applies to lithium ion batteries or lithium metal batteries installed in a cargo transport unit and designed only to provide power external to the cargo transport unit. The lithium batteries shall meet the requirements of 2.9.4.1 (a) to (f) and contain the necessary systems to prevent overcharge and over discharge between the batteries.

...”

In 4.1.4.1, Packing Instruction P911 amend footnote ^a (a) to read:

“

P911	PACKING INSTRUCTION	P911
This instruction applies to damaged or defective cells and batteries of UN Nos. 3090, 3091, 3480 and 3481 liable to rapidly disassemble, dangerously react, produce a flame or a dangerous evolution of heat or a dangerous emission of toxic, corrosive or flammable gases or vapours under normal conditions of transport.		
...		
(2) The additional packaging performance requirements shall be verified by a test as specified by the competent authority ^a .		
...		

^a *The following criteria, as relevant, may be considered to assess the performance of the packaging:*

(a) *The assessment shall be done under a quality management system (as described e.g. in section 2.9.4.2) allowing for the traceability of tests results, reference data and characterization models used;*

...”

In 4.1.4.3, Packing Instruction LP906 amend footnote ^a (a) to read:

“

LP906	PACKING INSTRUCTION	LP906
This instruction applies to damaged or defective cells and batteries of UN Nos. 3090, 3091, 3480 and 3481 liable to rapidly disassemble, dangerously react, produce a flame or a dangerous evolution of heat or a dangerous emission of toxic, corrosive or flammable gases or vapours under normal conditions of transport.		
...		
(2) The additional large packaging performance requirements shall be verified by a test as specified by the competent authority ^a .		
...		

^a *The following criteria, as relevant, may be considered to assess the performance of the large packaging:*

(a) *The assessment shall be done under a quality management system (as described e.g. in section 2.9.4.2) allowing for the traceability of tests results, reference data and characterization models used;*

...”