

## 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

3 June 2015

Forty- seventh session

Geneva, 22 – 26 June 2015

Item 4 (a) of the provisional agenda

**Electric Storage Systems. Testing of Lithium Batteries**

### **Report on the first meeting of the informal working group on UN lithium battery tests**

#### **Transmitted by the expert from France (in his capacity as Chairman of the informal working group), RECHARGE, PRBA and COSTHA**

1. The first meeting of the informal working group (IWG) was held in Brussels (Belgium) on March 16 & 17, 2015. It was co-organized by RECHARGE, PRBA and COSTHA. A total of 40 participants from both the Sub-Committee of Experts and industry attended the meeting. The expert from France, Mr Claude Pfauvadel, chaired the meeting.
2. A detailed report of the discussions, proposals and list of participants are available on RECHARGE's website:  
  
<http://www.rechargebatteries.org/1rst-informal-working-group-2015-un-manual-of-tests-and-criteria/>
3. The IWG prepared a draft summary table on the UN lithium battery tests according to the type of cell and battery. The table is intended to provide guidance to the battery industry, regulators testing labs and other interested parties.
4. A review of the differences and similarities between the IEC-standard test requirements and definitions and the tests and definitions in the UN Manual of Tests and Criteria also were reviewed. Further work is needed by the IWG before a proposal will be made to the Sub-Committee.
5. In addition, the IWG reviewed a list of items on which it was concluded that some guidance needs to be received from the Sub-Committee before the work will start on these items. Table 1 on the following pages list these issues raised during the 1st IWG. The Members of the Sub-Committee are invited to express their opinion on the issues addressed by the IWG.
6. The next IWG Meeting will be organised by PRBA in Washington DC, on August 26-28, 2015. Delegates interested in participating in the Informal Working Group are invited to contact PRBA, COSTHA or RECHARGE.

TABLE 1

**LIST OF ITEMS WHERE GUIDANCE IS REQUESTED FROM THE SCETDG.  
Follow-up of the 1<sup>st</sup> Informal Working Group Meeting on UN Lithium Battery Tests**

	<b>Discussion Items</b>	<b>SCETDG's Comments Requested</b>
1.	<b>Reference is made to SP188 (b).</b> There are different interpretations on whether cells can exceed 20 Wh in a battery with a Watt-hour rating of not more than 100 Wh.	The IWG to request clarification as to whether the 20 Wh limit in SP 188 applies to cells contained in batteries or only to cells when transported as cells.
2.	Information was presented on <b>rechargeable lithium metal polymer battery</b> operating at 80°C (this is not to be compared with a thermal battery).	The IWG recommended a classification of Lithium Metal Batteries UN3090. Therefore it is proposed to modify UN 3090 entry as follow: 1. LITHIUM METAL BATTERY, including lithium alloy <u>and lithium metal polymer</u> batteries Or, a generic version: 2. LITHIUM METAL BATTERY
3.	Information was presented on a <b>Rechargeable lithium metal - sulphur battery</b> operating at room temperature.	The IWG recommended a classification of Lithium Metal Batteries UN3090. Therefore, it is proposed to modify UN 3090 entry as follow: 1. LITHIUM METAL BATTERY, including lithium alloy, <u>lithium metal polymer and lithium sulphur</u> batteries Or, a generic version: 2. LITHIUM METAL BATTERY
4.	<b>A new hybrid lithium battery</b> consisting of a lithium metal battery coupled to lithium ion cell or battery was presented.	The IWG to request guidance from the SCETDG on whether separate definitions and/or testing conditions are needed for this type of hybrid battery
5.	Reference is made to the preparation of a <b>Certificate of Conformity</b> of tested batteries with § 38.3 testing requirements.  Distinction needs to be made between the <b>Tests Record</b> (as a partial fulfilment of 2.9.4 (e)(iv) and the <b>Declaration of Conformity</b> (for the benefit of Shippers/Carriers/Freight Forwarders, etc... ).  The Chairman drew attention to similar language in Chapter 6.1.5.7.1 in the UN Model Regulations for packaging test reports.	The IWG to report to the Sub-Committee that additional elements of conformity could be discussed within the WG at future sessions.

	<b>Discussion Items</b>	<b>SCETDG's Comments Requested</b>
<b>6.</b>	<p>The WG agreed the Sub-Committee should be informed of the discussions that were associated with an <b>internal short circuit test</b>.</p> <p>The U.S. delegate presented research on an internal short circuit test. They discussed reasons for cell failure, current test methodologies, and examples of test methods that could be implemented. The WG could not come to a consensus as to whether a new test method for the UN Manual was necessary.</p>	<p>The IWG to report to Sub-Committee that internal short circuit test will be further discussed at the next IWG meetings.</p>
<b>7.</b>	<p>The introductory language in UN Model Regulations Special Provision 376 applicable to <b>damaged and defective batteries</b> was discussed. However, questions were raised about what criteria would a shipper use to determine if a battery is damaged or defective.</p>	<p>The IWG to ask Subcommittee whether the IWG can issue guidance or technical criteria for when lithium batteries are to be considered damaged for defective.</p> <p>(See also ST/SG/AC.10/C.3/2015/20 Working Paper from DGAC &amp; PRBA)</p>
<b>8.</b>	<p>PRBA noted that many <b>batteries equipped with resettable circuit interrupt devices</b>. However the test provisions do not currently permit for the resetting of such devices during the test sequence, and therefore these batteries would fail.</p>	<p>The IWG to ask Subcommittee to add the issue of fail/safe devices to the work program.</p>