



**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-second session**

Geneva, 27 November-6 December 2017

Item 4 (d) of the provisional agenda

Electric storage systems:**damaged or defective lithium batteries****Requirements for damaged or defective lithium cells and
batteries****Transmitted by PRBA - The Rechargeable Battery Association (PRBA)
and the European Association for Advanced Rechargeable Batteries
(RECHARGE)*****Introduction**

1. In previous sessions, the Sub-Committee has discussed the requirements for transporting damaged or defective lithium cells and batteries. It has been noted that the text in special provision 376 leads to confusion and inconsistency in determining whether a cell or battery meets the criteria to be defined as damaged or defective and poses a risk of producing “a dangerous evolution of heat, fire or short circuit in transport.” Currently, SP 376 indicates that a damaged or defective cell or battery is one that does not conform to the type tested per the applicable provisions of the Manual of Tests and Criteria. Whether a cell or battery can meet the provisions of the Manual of Tests and Criteria is not necessarily directly related to whether it presents a risk of producing a dangerous evolution of heat, fire or short circuit *in transport*. Assessing whether a cell or battery meets the 38.3 tests may be completely unrelated to determining whether it presents a safety hazard. There are situations where cells or batteries are not capable of meeting the 38.3 tests (*e.g.*, can no longer be cycled, it is no longer possible to charge or discharge the cell or battery) but do not pose a safety risk.

* In accordance with the programme of work of the Sub-Committee for 2017-2018 approved by the Committee at its eighth session (see ST/SG/AC.10/C.3/100, paragraph 98 and ST/SG/AC.10/44, paragraph 14)

2. Requiring subjective determination of whether a cell or battery meets the 38.3 tests is not practical and such determination is difficult, particularly for individuals who lack the expertise to make such a determination (e.g., retail employees). If a cell or battery is no longer capable of holding a charge how could it be determined whether it is capable of meeting the 38.3 tests? For instance, how would a person determine whether a battery if subjected to the T.2 Thermal test would be less than 90% of its voltage immediately prior to the test procedure? For the T.5 External short circuit test how could a person determine that the external case temperature would return to $57 \pm 4^{\circ}\text{C}$?

3. To improve on the language applicable to damaged or defective lithium cells and batteries in the Model Regulations, we are proposing minor amendments to Special Provision 376 to clarify the examples related to whether a cell or battery is subject to Packing Instruction P908. Therefore, we propose to remove the reference to the Manual of Tests and Criteria and clarify that a damaged cell or battery is one that differs from the original design type and has the potential of producing a dangerous evolution of heat, fire or short circuit under normal conditions of transport.

4. For example, a cell or battery that has leaked or vented all its electrolyte, no longer measures a voltage, poses no risk in transport, and does not meet the definition of a cell or battery or any class of dangerous goods would not be considered a damaged or defective cell or battery or a regulated dangerous goods.

Proposal

5. Amend special provision 376 to read as follows:

~~“376 Lithium ion cells or batteries and lithium metal cells or batteries identified as being damaged or defective such that they do not conform to the type tested according to the applicable provisions of the Manual of tests and Criteria shall comply with the requirements of this special provision. differ from the original design type in a way that the cells or batteries have the potential of producing a dangerous evolution of heat, fire or short circuit under normal conditions of transport shall comply with the requirements of this special provision.~~

For the purposes of this special provision, these may include, but are not limited to:

- Cells or batteries identified as being defective for safety reasons;
- ~~— Cells or batteries that have leaked or vented;~~
- Cells or batteries that cannot be diagnosed prior to transport; or
- Cells or batteries that have sustained physical or mechanical damage that effect safety and have the potential to leak or vent under normal conditions of transport.