U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue, SE
Washington, D.C. 20590

DEC 14 2015

Mr. Michael Greiner
Director, Laboratory Operations
Technical Services Lab
MGA Research Corporation
12790 Main Road
Akron, NY 14001

Reference No. 15-0146

Dear Mr. Greiner:

This is in response to your July 14, 2015 e-mail and telephone conversations with members of my staff requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to the transportation of "UN 3480, Lithium ion batteries, *including lithium ion polymer batteries*, 9 (miscellaneous)" and "UN 3090, Lithium metal batteries, *including lithium alloy batteries*, 9." Specifically, you ask if safety features can be added to the batteries without having to retest them after they were initially tested successfully in accordance with § 38.3 of the United Nations (UN) Manual of Tests and Criteria.

If the safety features added to a lithium battery may lead to it failing any of the tests prescribed in § 38.3 of the UN Manual of Tests and Criteria, the answer is no. The provisions outlined in the 5th revised edition, Amendment 1, of the UN Manual of Tests and Criteria provide guidance to make this testing determination. PHMSA has incorporated the UN Manual of Tests and Criteria, Fifth revised edition, Amendment 1, by reference under § 171.7, but stresses the importance of testing after any material modifications in the design or manufacturing.

Section 38.3.2.2 (c) of the UN Manual states any change to a lithium battery that would lead to failure of any of the tests prescribed in this section must be considered a new type and subjected to the required tests. It is the opinion of this Office that the person responsible for testing the batteries is the person responsible for making this decision. Section 38.3.2.2 (c) also describes the types of changes that may be considered sufficiently different from a tested type so that it might lead to a failure of a lithium battery test result. These changes include but are not limited to:

- A change in the material of the anode, the cathode, the separator or the electrolyte;
- A change of protective devices, including hardware and software;
- A change of safety design in cells or batteries, such as a venting valve;
- A change in the number of component cells; and
- A change in connecting mode of component cells.

Further, § 38.3.2.2 (c) states if a cell or battery type does not meet one or more of the UN Manual's test requirements, the deficiency or deficiencies that caused the failure must be corrected before the cell or battery type is retested.

I hope this information is helpful.

Sincerely,

T. Glenn Foster
Chief, Regulatory Review and Reinvention Branch
Standards and Rulemaking Division

Edmonson
§173.185
Batteries

15-0146

Dodd, Alice (PHMSA)

From: Geller, Shelby CTR (PHMSA)
Sent: Tuesday, July 14, 2015 11:58 AM
To: Hazmat Interps
Subject: FW: Request Letter of Interpretation

Dear Shante and Alice.

Attached is a request for a formal letter of interpretation. Mr. Greiner spoke with Adam Lucas in the HMIC.

Thanks,
Shelby

From: Michael Greiner [mailto:michael.greiner@mgaresearch.com]
Sent: Tuesday, July 14, 2015 9:52 AM
To: INFOCNTR (PHMSA)
Subject: Request Letter of Interpretation

Hello,

I have a customer that has passed the testing requirements per the UN 38.3 battery testing for transportation. They are looking to add addition protection (fuses and circuit boards) to make the units safer. According to the standard, it reads as follows:

38.3.2.2 Lithium metal and lithium ion cells and batteries shall be subjected to the tests, as required by special provisions 188 and 230 of Chapter 3.3 of the Model Regulations prior to the transport of a particular cell or battery type. Cells or batteries which differ from a tested type by:

(a) For primary cells and batteries, a change of more than 0.1 g or 20% by mass, whichever is greater, to the cathode, to the anode, or to the electrolyte;

(b) For rechargeable cells and batteries, a change in nominal energy in Watt-hours of more than 20% or an increase in nominal voltage of more than 20%; or

(c) A change that would lead to failure of any of the tests,

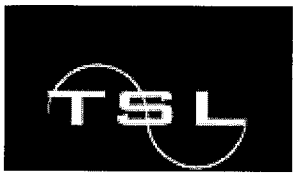
shall be considered a new type and shall be subjected to the required tests.

I am looking to get a letter of interpretation stating that they do not need to repeat the UN 38.3 testing if they make this change. Please let me know if I am correct and provide me with the letter at your earliest convienience.

Thank you and please feel free to contact me if you have any questions.

Regards,

Michael Greiner
Director of Laboratory Operations
Technical Services Lab



UL 810A / UL 1642 / UL Outline 1973 / UL 1989 / UL 2054 /
UL Outline 2271 / UL 2580

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