



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue SE
Washington, DC 20590

DEC 14 2011

Mr. George Kerchner
Wiley Rein LLP
1776 K Street, NW
Washington, DC 20006

Ref. No. 11-0268

Dear Mr. Kerchner:

This responds to your October 26, 2011 letter regarding the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to design type testing of lithium batteries. The requirements you address are contained in Section 38.3 of the 5th Revised Edition of the United Nations (UN) Manual of Test and Criteria and are implemented through the provisions of § 173.185 of the HMR. Specifically, you request confirmation that paragraph (f) in Section 38.3.3 applies only to the testing of a battery assembly consisting of lithium batteries that have met the applicable tests in the UN Manual of Tests and Criteria and not to batteries which must be tested in accordance with paragraphs (a), (b) and (d) of Section 38.3.3.

Your understanding is correct. Paragraph (f) in 38.3.3 provides limited relief from the UN design type testing requirements for a battery assembly in which the lithium content of all anodes, when fully charged, is not more than 500 g, or in the case of a lithium ion battery assembly, a watt-hour rating of not more than 6200 Watt-hours, that is assembled from batteries that have passed all applicable design type tests.

I hope this information is helpful. If you have further questions, please contact this office.

Sincerely,

Ben Supko
Acting Chief, Standards Development
Office of Hazardous Materials Standards

DN



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October 26, 2011

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Delivered Via Email

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Re: Request for Interpretation on Testing of Lithium Battery Assemblies

I am writing for a clarification on paragraph (f) in Section 38.3.3 of the 5th Revised Edition of the UN Manual of Tests and Criteria as it applies to lithium batteries and lithium battery assemblies. As more fully-explained below, I would like written confirmation that paragraph (f) does not provide relief from the number of lithium batteries that require testing in accordance with 38.3.3(a), (b) and (d) of the UN Manual of Tests and Criteria.

Lithium batteries, or battery packs, are generally comprised of two or more cells that are electrically connected by permanent means. The batteries are subject to the testing requirements outlined in the UN Manual of Tests and Criteria. The number of batteries that must be tested are listed in 38.3.3(a), (b) and (d) of the UN Manual of Tests and Criteria.

While there is no definition for "battery assembly" in the UN Manual of Tests and Criteria, it is generally understood that a battery assembly is a collection of electrically connected batteries that have been tested in accordance with the numbers listed in 38.3.3(a), (b) and (d) of the UN Manual of Tests and Criteria. Sometimes these batteries are referred to as "modules" in a battery assembly. Therefore, batteries and modules are generally smaller "units" of a battery assembly.

Paragraph (f) in Section 38.3.3. of the UN Manual of Tests and Criteria states:

When testing a battery assembly in which the aggregate lithium content of all anodes, when fully charged, is not more than 500 g, or in the case of a lithium ion battery, with a Watt-hour rating of not more than 6200 Watt-hours, that is assembled from cells or batteries that have passed all applicable tests, one battery assembly in a fully charged state shall be tested under tests 3, 4 and 5, and, in addition, test 7 in the case of a



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rechargeable battery assembly. For a rechargeable battery assembly, the assembly shall have been cycled at least 25 cycles.

It is my understanding that paragraph (f) was added to the UN Manual of Tests and Criteria during the December 2008 meeting of the UN Subcommittee of Experts on the Transport of Dangerous Goods. It appears the intent of this new provision is to provide some relief from the UN testing requirements for battery assemblies (consisting of batteries or modules) that do not exceed 6200 Wh or 500 grams of lithium metal. The paragraph that follows paragraph (f) in Section 38.3.3 of the UN Manual of Tests and Criteria provides relief from the UN lithium battery testing requirements for battery assemblies greater than 6200 Wh or 500 grams of lithium metal provided the batteries (or modules) of which the battery assembly is comprised are fully UN-tested and the battery assembly meets certain design criteria as specified in that paragraph.

Therefore, I would appreciate a letter of interpretation confirming that paragraph (f) in Section 38.3.3 of the UN Manual of Tests and Criteria applies only to the testing of lithium battery assemblies (consisting of batteries or modules) as described herein and not to the testing of batteries which must be tested in accordance with the numbers prescribed in 38.3.3(a), (b) and (d).

Thank you for your assistance.

Sincerely,

George A. Kerchner

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