



U.S. Department
of Transportation
**Research and
Special Programs
Administration**

JUN 21 2004

400 Seventh St., S.W.
Washington, D.C. 20590

Mr. Philip J. Glandon
President
Nexergy, Inc
1909 Arlingate Lane
Columbus, OH 43228

Ref No.: 03-0207

Dear Mr. Glandon:

This is in response to your two letters, both dated August 11, 2003, concerning requirements under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) for design-type testing of lithium ion batteries. The specific requirements you address are contained in Section 38.3.2.1 of the United Nations Manual of Tests and Criteria and are implemented through the provisions of 49 CFR 173.185. Your scenarios are paraphrased and answered below:

Scenario 1: Nexergy is a battery pack assembler. Nexergy assembles a lithium ion battery pack (Model No. 123) using nine 2.0 ampere-hour cells manufactured by ABC Company. The cells have passed the testing requirements under the UN Manual of Tests and Criteria. The Nexergy battery pack is tested and passes the UN tests. Nexergy now wants to assemble the same model battery pack using "substantially equivalent" cells from another cell manufacturer, XYZ Corporation, which also have passed the UN tests. Is this a new design type which must be retested or may Nexergy use the test results from its original tests to satisfy the requirements for this battery pack?

Answer 1: If the cells from XYZ Corporation are "substantially equivalent" to the cells from ABC Company and the design of the battery pack remains unchanged, the battery pack is not considered a new design type and need not be retested. If the cells or battery pack are changed in any way that could affect test results for the battery pack, then it is a new design type and needs to be retested.

A cell or battery is deemed to be "a new design type" if the change in mass to the cathode, anode or electrolyte is more than 0.1 grams or 20%, whichever is greater, or the change would materially affect the test results.

Scenario 2: Nexergy assembles a lithium ion battery pack using specifications (circuitry, safety features, etc.) for the battery pack design provided by the customer. The Nexergy battery pack is tested and passes the UN tests. The customer then contracts with Smith Battery Company (Smith) to



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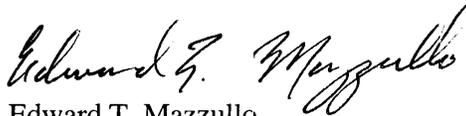
produce the same battery pack design using the same specifications and cells. May Smith rely on Nexergy's test results to determine that a battery pack manufactured by a different company also passes the United Nations Manual of Tests and Criteria or must the battery pack be retested?

Answer 2: If a lithium ion battery and cell is not "substantially equivalent" from the tested design, the lithium ion battery and cell must be tested. However, if it can be established that a new lithium ion battery and cells are "substantially equivalent" to the tested design type, retesting is not required. Therefore, a battery design that contains cells that are "substantially equivalent" to cells in the tested design type, though from a different manufacturer, it is not required to be retested.

Since Smith Battery Company is a different company than Nexergy, the company that originally tested the battery pack design under the United Nations Manual of Tests and Criteria, Smith Battery Company may not use the test results representing the original company (Nexergy) unless specific permission and arrangements, such as a written agreement, exist between the two companies, and Nexergy is willing to certify that the battery pack design manufactured by Smith Battery Company passes the UN tests.

I hope this information is helpful. Please contact us if you require additional assistance

Sincerely,



Edward T. Mazzullo
Director, Office of Hazardous
Materials Standards



1909 Arlingate Lane
Columbus, OH 43228
614.351.2191
fax 614.351.2180
www.nexergy.com

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Batteries
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August 11, 2003

Via Facsimile

Mr. Edward Mazzullo
Director of Hazardous Materials Standards
Research and Special Programs Administration
U.S. Department of Transportation
400 7th Street, SW
Washington, DC 20590-

Re: Request for Interpretation on UN Manual of Tests and Criteria for Lithium Batteries
- Battery Pack using substantially equivalent cells from different cell manufacturers

Dear Mr. Mazzullo:

I am writing to request a clarification on the testing requirements for new "types" of lithium or lithium ion battery packs.

Pursuant to the new Section 38.3.2.1 of the UN Manual of Tests and Criteria,

Lithium 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. Lithium cells or batteries which differ from a tested type by:

(a) 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; or

(b) A change that would materially affect the test results,

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

Nexergy is a battery pack assembler with design and assembly centers in Columbus, Ohio; Gainesville, Georgia; and Escondido, California. We purchase lithium and lithium ion cells from various manufacturers for incorporation into our battery packs. These packs can contain from one to 12 cells. My question pertains to the use of cells from different manufacturers.

- ✓ On January 1, 2003, Nexergy assembled a lithium ion battery pack (Model No. 123) using nine 2.0 ampere-hour cells manufactured by ABC Company and which had passed the testing requirements under the UN Manual of Tests and Criteria. The Nexergy pack also was tested and passed UN tests.
- ✓ On December 1, 2003, Nexergy plans to begin assembling Model No. 123 using substantially equivalent cells manufactured by XYZ Corporation. The cells from XYZ Corporation are also compliant with the testing requirements under the UN Manual of Tests and Criteria.
- ✓ Question: Is Nexergy required to test the battery pack that contains cells from XYZ Corporation or can it simply depend on the testing results from the original January 1, 2003 battery pack, which utilizes cells from ABC Company?

Thank you for taking the time to consider this very important issue. I look forward to your timely response.

Sincerely,



Philip J. Glandon
President,
Nexergy, Inc.