



U.S. Department of Transportation
**Pipeline and Hazardous Materials
Safety Administration**

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

OCT 21 2010

Mr. Larry J. Britton
Britton & Associates, S.C.
735 North Water Street
16th Floor West
Milwaukee, WI 53202

Ref. No.: 10-0199

Dear Mr. Britton:

This is in response to your September 3, 2010, letter requesting clarification of requirements in the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to design-type testing of lithium ion batteries. You describe a single lithium ion battery comprised of electrically connected cells weighing approximately 650 lbs and a watt-hour (Wh) rating of 28,000 Wh. Additionally, you state that the component cells will pass each of the applicable tests outlined in the 5th revised edition of the UN Manual of Tests and Criteria. Specifically you ask if the battery described in your letter must additionally pass each of the applicable tests outlined in the UN Manual of Tests and Criteria.

In accordance with the UN Manual of Tests and Criteria, a lithium battery assembly in which the aggregate lithium content of all anodes, when fully charged, is more than 500 g, or in the case of a lithium ion battery, a Watt-hour rating of more than 6,200 Watt-hours is comprised of electrically connected batteries that have passed all applicable tests does not need to be tested if it is equipped with a system capable of monitoring the battery assembly and preventing short circuits, or over discharge between the batteries in the assembly and any overheat or overcharge of the battery assembly.

The provision described above applies to a battery assembly composed of electrically connected batteries that have passed all applicable tests. Since the battery described in your letter is assembled from individually tested cells and not individually tested batteries, the battery described in your letter must meet all of the applicable tests in the UN Manual of Tests and Criteria. While each of

the cells that form the battery described in your letter may pass each of the applicable design type tests, there is no evidence of the ability of the battery to pass the applicable tests.

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

Sincerely,

A handwritten signature in black ink that reads "Ben Supko". The signature is written in a cursive style with a long, sweeping underline.

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

BRITTON
— & —
ASSOCIATES sc
ATTORNEYS AT LAW
Est. 1913

LARRY J. BRITTON
E-MAIL: ljb@britton-law.com
WEBSITE: www.britton-law.com

Leary
\$73,185
Batteries
10-01-99
TELEPHONE: 414-273-2900
FAX: 414-273-2905

September 3, 2010

Office of Hazardous Materials Special Permits and Approvals
Energetic Materials
ATTN: Mr. Don Berger
1200 New Jersey Avenue
East Building, 2nd Floor
PHH-30
Room# E21-406
Washington, DC 20590

DOT/RSPA/QHMS
UNIT
10 SEP 10 PM 12:45

Sent in Duplicate via Electronic Mail to: Specialpermits@dot.gov

RE: Request for Clarification

Dear Mr. Berger:

Johnson Controls-Saft Power Solutions, LLC, ("JCS") is a manufacturer of lithium-ion batteries. By regulation, lithium-ion batteries are to be subjected to the testing protocols present in the UN Test Manual. The 5th edition of the UN Test Manual contains the following language:

38.3.3 WHEN A CELL OR BATTERY TYPE IS TO BE TESTED UNDER THIS SUBSECTION, THE NUMBER AND CONDITION OF CELLS AND BATTERIES OF EACH TYPE TO BE TESTED ARE AS FOLLOWS:

...

When batteries that have passed all applicable tests are electrically connected to form a battery assembly in which the aggregate lithium content of all anodes, when fully charged, is more than 500g, or in the case of the lithium-ion battery, with a watt-hour rating of more than 6200WH, that battery assembly does not need to be tested if it is equipped with a system capable of monitoring the battery assembly and preventing short circuits, or over discharge between the batteries in the assembly and any overheat or overcharge of the battery assembly.

In other words, the 5th edition of the UN testing protocol does not require testing for very large batteries which are comprised of smaller batteries where those smaller batteries pass all applicable tests. This exemption recognizes the physical limitations of testing very large batteries.

Johnson Controls-Saft will soon manufacture a very large battery for electric vehicles that weighs approximately 650 pounds, containing approximately 4,000 g of lithium content with a rating of 28,000 Watt-hours (the "EV Pack"). While the EV Pack easily exceeds the 500 g/6,200 Watt-hour criteria, it is not an assembly of small batteries. Instead, the EV Pack consists of cells which are connected electrically with a battery monitoring system, and each of the cells will pass the testing specified in the UN Test Manual (5th edition).

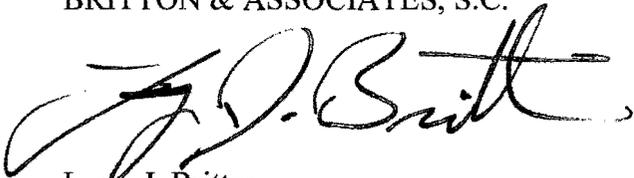
JCS believes that the aforementioned exemption should apply to its EV Pack. The exemption is based on the fact that very large batteries cannot be easily tested due to their size and weight, but the exemption is only available where the components making up the very large batteries successfully pass the applicable tests. In other words, the exemption for very large batteries is essentially an exemption from re-testing assembled components that have themselves already passed the applicable tests¹ before assembly into a very large battery pack.

The cells used in the JCS EV Pack will pass all safeguards and safety requirements set forth in the UN testing procedure. JCS requests confirmation from PHMSA that the exemption for very large batteries, which would eliminate the need to re-test JCS's EV Pack, applies to its manufacturing process of connecting cells to form a battery assembly in which the aggregate lithium content of all anodes, when fully charged, is more than 500 g or in the case of a lithium battery, with a Watt-hour rating of more than 6,200, so long as it is equipped with a system capable of monitoring the battery assembly in preventing short circuits or overcharge between the cells in the assembly and any overheat or overcharge of the battery assembly. In other words, JCS believes that the aforementioned exemption to testing should apply to both a battery assembly made up of cells and a battery assembly made up of smaller batteries so long as all other testing provisions have been met.

I would appreciate your immediate confirmation on this issue to determine our packaging and transportation requirements for the JCS EV Packs.

Sincerely,

BRITTON & ASSOCIATES, S.C.



Larry J. Britton
LJB.SMT.mmk

¹ Johnson Controls-Saft is authorized to test lithium ion batteries in accordance with the amendments in Section 38.3 of the UN Manual of Tests and Criteria pursuant to Approval CA2010030026.