



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

1200 New Jersey Ave., S.E.  
Washington, DC 20590

SEP 11 2008

Mr. Craig Updyke  
National Electrical Manufacturers Association  
1300 North 17<sup>th</sup> Street, Suite 1752  
Rosslyn, VA 22209

Ref. No.: 08-0172

Dear Mr. Updyke:

This is in response to your June 30, 2008 letter concerning the packaging of lithium batteries offered for transportation by aircraft under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) and International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Technical Instructions).

A provision contained in Packing Instruction 968 of the ICAO Technical Instructions 2009-2010 edition requires certain packages containing lithium cells or batteries to be capable of withstanding a 1.2 meter drop test *without shifting of contents that would allow battery to battery (cell to cell) contact*. You ask if this provision is intended to prohibit all contact between batteries while in transport or just contact that could lead to short circuiting.

The intent of this provision is to ensure a package containing lithium cells or batteries is capable of withstanding in any orientation, a drop from a height of 1.2 meters while retaining the cells or batteries in their original orientation. In your letter, you provide an example of AA batteries packed in a blister pack where the insulating jackets of the batteries contact each other but no contact between the conductive terminals occurs. Cells or batteries securely packed in this manner would meet the intent of the requirement.

I hope this answers your inquiry.

Sincerely,

Susan Gorsky  
Acting Chief, Standards Development  
Office of Hazardous Materials Standards



**KYLE PITSOR**  
Vice President, Government Relations

Leary  
9173-185  
Batteries  
08-0172

June 30, 2008

Mr. Charles E. Betts  
Senior Transportation Regulations Specialist  
Office of Hazardous Materials Standards  
Pipeline and Hazardous Materials Safety Administration  
U.S. Department of Transportation  
1200 New Jersey Avenue, SE  
Washington, DC 20590

Dear Mr. Betts,

I am writing on behalf of the Dry Battery Section of the National Electrical Manufacturers Association (NEMA) to request an official interpretation of a requirement contained in the 2009-2010 edition of the ICAO Technical Instructions. We are raising this inconsistency and interpretation problem in advance of PHMSA's recognition of the 2009-2010 TIs in the U.S. Hazardous Materials Regulations (HMR) and hope that our inquiry, your interpretation and our proposed text to rectify the situation can be integrated into PHMSA's adoption of the TIs.

At issue is the proper interpretation of a small but important portion of the new Packing Instruction 968 for lithium metal batteries.

Specifically, under "Additional requirements", the second sub-bullet of the section on the 1.2 meter drop-test specifies that the batteries should not touch (at all, that is, no "battery to battery (cell to cell) contact"). Is this the true intent, that the batteries should be completely isolated from each other, i.e., not only should the conductive terminals of the batteries not touch, but also should the insulating jackets of AA batteries not be able to come in contact with each other in a blister pack? This interpretation is also important for shrink and volume packs of batteries. We do not believe that the ICAO Dangerous Goods Panel intended to prohibit all contact between batteries in transport, only contact that could lead to short circuiting.

On an attached page we have included some photographs of these types of packaging for your consideration.

**National Electrical  
Manufacturers Association**

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To aid in clarifying the matter and avoiding misinterpretation, we offer the text in question with new suggested text **in bold**:

Additional requirements

**In addition, the following new packaging and documentation requirements apply, except for when packaged in blister packs or with equipment:**

- Cells and batteries must be packed in inner packagings that completely enclose the cell or battery.
- Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit.
- Each package must be capable of withstanding a 1.2 m drop test in any orientation without:
  - damage to cells or batteries contained therein;
  - shifting of the contents so as to allow battery to battery (or cell to cell) **positive-to-negative terminal** contact;
  - release of contents.

Special Provision 188 already limits the number of batteries that can be packed with a device to the number necessary to power the equipment.

Thank you for prompt consideration of this interpretation request and of the suggested text. I and our member companies look forward to your reply. Should you have questions or need more information about this request, please contact Craig Updyke of my staff at (703) 841-3294 or [cra\\_updyke@nema.org](mailto:cra_updyke@nema.org).

Sincerely,



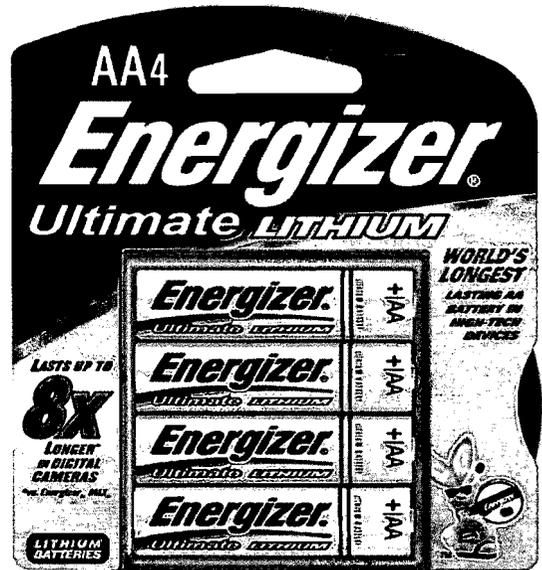
cc: Robert Richard, Deputy Associate Administrator for Hazardous Materials Safety  
Duane Pfund, International Standards Coordinator  
John Gale, Standards Development Chief, Office of Hazardous Materials Standards

attachment

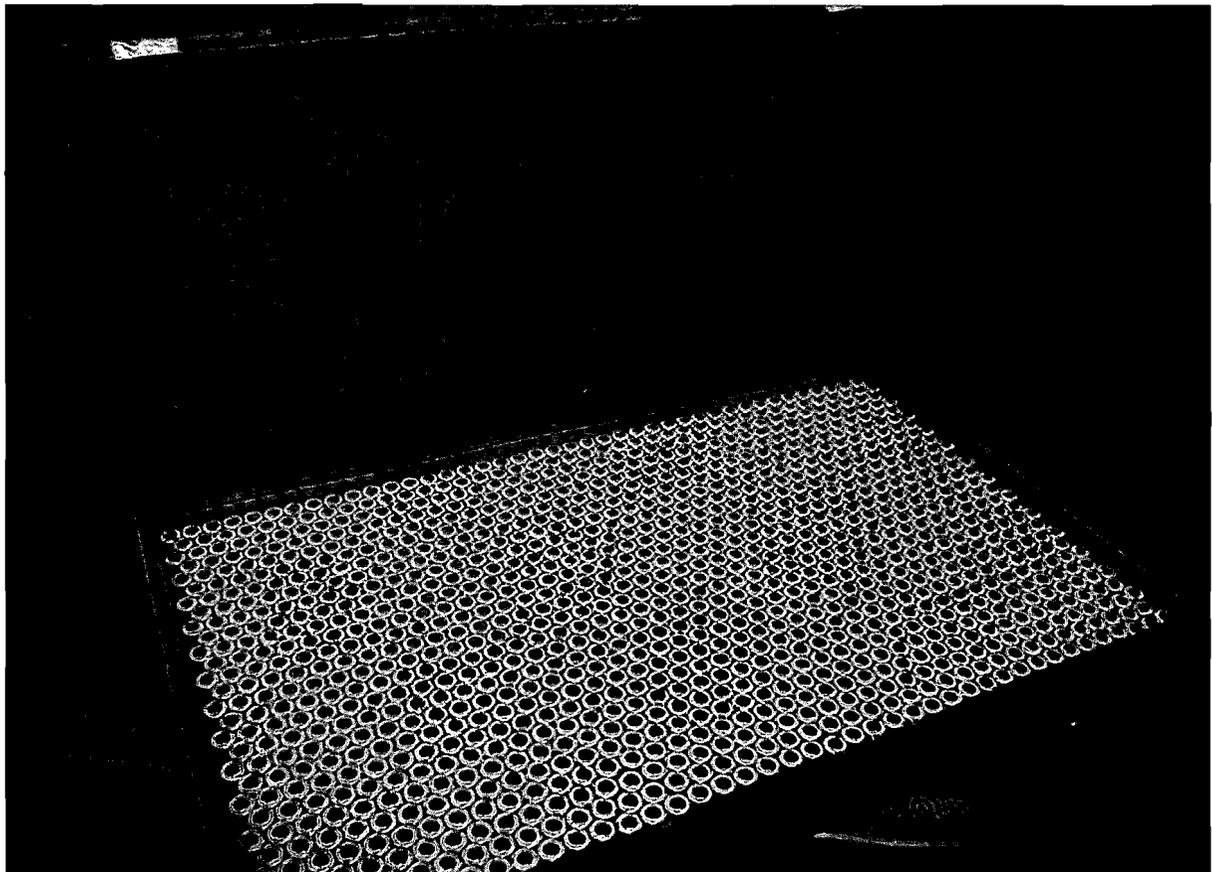
Photos of Shrink, Blister and Volume Packs of AA Lithium Metal Batteries



*Shrink Pack*



*Blister Card*



*Volume Pack*