



U.S. Department
of Transportation

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

**Pipeline and Hazardous
Materials Safety Administration**

April 3, 2009

To: All battery recyclers and battery collection points and related associations.

Based on recent investigations conducted by the U.S. Department of Transportation (DOT), Pipeline and Hazardous Materials Safety Administration (PHMSA), and based on recent incidents, this letter is generated to convey our findings and our ongoing effort to improve compliance and transportation safety. PHMSA has noted an ongoing trend of serious safety problems and non-compliance regarding the classification, packaging, marking, labeling, documentation, and transportation of spent batteries in commerce. PHMSA has great concern over the lack of compliance with and understanding of the transportation requirements for batteries. PHMSA recognizes the breadth and scope of the battery recycling and disposal industries. However, due to several incidents resulting in serious consequences, PHMSA pledges its efforts to reduce this risk by enforcing the safety standards and increasing awareness. In order to magnify its safety and compliance efforts, PHMSA feels this letter will help increase the awareness and provide a means of contact for the prescribed safety requirements to the appropriate battery recycling and disposal transportation streams.

PHMSA is concerned that many persons who ship batteries for recycling or disposal do not appreciate the hazards posed by batteries during transportation. PHMSA has documented numerous shipments that were not in compliance with requirements in the Hazardous Materials Regulations (HMR, 49 CFR Parts 171-180).

Common violations and safety problems noted during these investigations include:



(Primary lithium batteries with unprotected terminals)

1. Large numbers of used batteries, of many different types, are collected in large containers that do not adequately prevent damage to the batteries or prevent their release during transportation.
2. Outer packages are not marked and labeled as required to indicate that they contain batteries; the shipments are not described as

required on accompanying shipping documents.

3. No action is being taken to prevent a short circuit, such as *separating the batteries by placing each one in a separate plastic “baggie” or taping the terminals of the battery.*

These types of violations appear to have directly led to a November 2006 incident in which a shipment of used, rechargeable lead acid batteries caused a fire that completely destroyed the vehicle transporting the batteries.

PHMSA has also investigated two additional parcel carrier delivery truck fires. These incidents occurred in April and of July 2008. Both of these incidents involved batteries destined for recycling.



(July 2008 truck fire in Jackson, MI)

The following is a brief summary of the requirements that apply to ground shipments of batteries for recycling or disposal. These requirements also apply to shipments of batteries from battery manufacturers, equipment manufacturers, distributors and retail sales outlets. While additional requirements apply to air shipment of batteries PHMSA is not aware of used batteries being shipped by air.

All batteries are subject to requirements in the HMR because they have two types of hazards: (1) the chemicals or other materials contained in the battery, and (2) the electrical potential of the battery.

All batteries must be packaged for transportation in a manner that prevents short circuiting and damage to the battery or its terminals. This may be achieved by packing each battery in fully enclosed inner packagings made of non conductive material or separating the batteries from each other and other conductive material in the same package and pack to prevent damage and shifting while in transport.

Lithium batteries (including lithium-ion batteries) are “Class 9” miscellaneous hazardous materials, and are subject to requirements in § 173.185. Note that “small” and “medium” sized lithium batteries may be shipped by ground under the requirements in § 172.102 Special Provisions 188 and 189.



(Individually packaged batteries to prevent short circuits)

Batteries, wet including batteries containing electrolyte acid or alkaline battery fluid are “Class 8” corrosive hazardous materials, and are subject to requirements in § 173.159. This section allows for reduced requirements when the batteries are shipped by ground by themselves (*i.e.*, no other hazardous materials on the same vehicle).

Batteries containing sodium are “Division 4.3” dangerous when wet hazardous materials, and are subject to the requirements in § 173.189.

Batteries, dry, containing potassium hydroxide solid are class 8 corrosive hazardous materials, and are subject to requirements in 49 C.F.R. § 173.213.

Batteries, dry, include the common household type alkaline batteries. Additionally, these include nickel cadmium (NiCad), nickel metal hydride (NiMH) and silver-zinc batteries. These “dry” batteries unless specifically covered by another entry in the Hazardous Material Table (HMT) are not subject to the HMR provided they are in conformance with § 172.102 Special Provision (SP) 130. SP 130 prescribes they are to be securely packaged to prevent the dangerous evolution of heat and protect against short circuits. Insulating the exposed terminal ends and securely packaging the batteries is an effective means for complying with SP 130.

On January 14, 2009, PHMSA published a Final Rule in the Federal Register under Dockets HM-215J and HM-224D titled “Revision to Requirements for the Transportation of Batteries and Battery-Powered Devices; and Harmonization with the United Nations Recommendations, International Maritime Dangerous Goods Code, and International Civil Aviation Organization's Technical Instructions”.

Except as specified in §§ 171.14, 171.25, 172.102, 172.448, and 178.703 as amended, compliance with the amendments adopted in this final rule will be required beginning January 1, 2010, with a voluntary compliance date of January 1, 2009.

This final rule:

- Requires reporting of incidents involving batteries and battery-powered devices that result in a fire, violent rupture, explosion, or dangerous evolution of heat. Immediate notice is limited to air transport of batteries and battery-powered devices.
- Clarifies the requirement that batteries and battery-powered devices and vehicles be offered for transportation and transported in a manner that prevents short-circuiting, the potential of a dangerous evolution of heat, damage to terminals, and, in the case of transportation by aircraft, unintentional activation.
- Includes several examples of packaging methods that meet the requirement to be packed in a manner that prevents short circuits.



(November 2006 truck fire in Galesburg, IL)

DOT encourages and supports the safe recycling and disposal of used batteries. However, we take an aggressive approach to swiftly investigate and enforce the safety requirements in the HMR for complaints and transportation incidents such as the parcel carrier delivery truck battery incident in November 2006.

Persons who violate the HMR may be subject to significant civil penalties and criminal fines and imprisonment. The maximum penalties depend on several factors, including the nature and circumstances, extent and gravity, and severity of the consequences of the violation, but can range up to \$100,000 for a civil penalty and \$500,000 and ten years in jail for a criminal penalty. In a recent enforcement case, PHMSA assessed a total civil penalty of \$360,000 for multiple violations of the HMR relating to the improper shipment of used batteries for recycling or disposal.

More detailed information on the requirements in the HMR governing the shipment of batteries and additional guidance are available on DOT's Hazmat Safety web site: <http://www.phmsa.dot.gov/hazmat>. The HMR are also accessible through our website, and you can obtain answers to specific questions from the Hazardous Materials Information Center at 1-800-467-4922 (in Washington, DC, call 202-366-4488).

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Ryan Posten', with a long horizontal flourish extending to the right.

R. Ryan Posten
Director, Office of Hazardous Materials Enforcement