TRADEBE™
Pollution Control Industries, Inc.

UPDATE ALERT

PHMSA HAS ISSUED A NEW BATTERY INTERPRETATION

Pollution Control Industries Battery Guide

As stated in Pollution Control Industries, Inc (PCI) previous regulatory notice, due to recent fires caused by short circuiting of improperly packaged batteries, the US Department of Transportation issued new compliance procedures regarding battery packaging. Beginning January 1, 2010 the U.S. Department of Transportation will require that all batteries are packaged so that the terminals cannot contact each other. This can be accomplished by taping the terminals with non conductive tape, bagging the batteries individually, packaging them in the original package, or placing non-conductive caps on the terminals.

The PHMSA has now issued a subsequent interpretation letter dated November 25, 2009 which exempts all spent dry cell batteries with a marked rating of 9-volts or less from the HMR, thus these batteries will not require additional packaging measures. Only chemically compatible batteries should be packaged together, and cannot be mixed with other batteries.

To view these new regulations please follow this link:

http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/2009_Battery_Safety_Compliance_Advisory.pdf

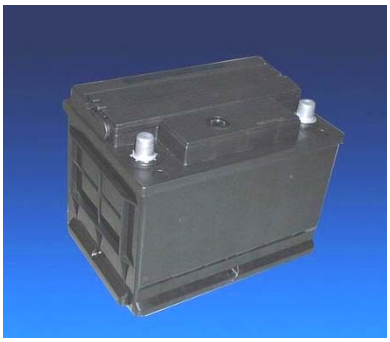
For the interpretation letter date November 25th, 2009 please follow this link (a pdf copy is also included in the guidance documents):

http://www.phmsa.dot.gov/portal/site/PHMSA/menuitem.ebdc7a8a7e39f2e55cf2031050248a0c/?vgnextoid=94d30725a4645210VgnVCM1000001ecb7898RCRD&vgnextchannel=aa8cd3c1af814110VgnVCM1000009ed07898RCRD&vgnextfmt=print

BATTERIES REQUIRING SPECIAL PACKAGING

LEAD ACID BATTERIES

Lead acid batteries are most commonly used in automotive, marine, and industrial processes.

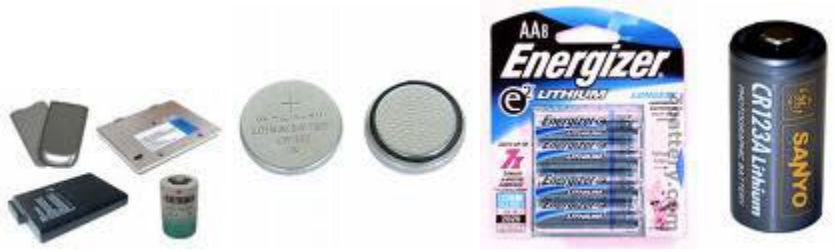


Large lead acid car/marine batteries need to be palletized and stacked no more than two high with a piece of cardboard between layers. All terminals need to be taped off or otherwise covered. Smaller lead acid batteries need to be packaged so the terminals cannot contact each other through taping the terminals with non-conductive tape, individual bagging, or placing non-conductive caps on the terminals. They should also be packaged in plastic drums, just in case a battery becomes damaged, since the acid could corrode metal drums.

Lead acid batteries should be shipped in using the U.S. Department of Transportation description: **UN2794, BATTERIES, WET, FILLED WITH ACID, 8, PGIII**

LITHIUM BATTERIES

Lithium batteries are rechargeable batteries and are commonly used in cameras, computers, cellular phones, and watches.



These batteries contain a small amount of Lithium, which is a water reactive metal, and have the potential to be dangerous if the batteries are damaged, leaking, or in contact

with water. They also have the potential to short circuit if the terminals are not protected; therefore these batteries need to be packaged so the terminals cannot contact each other through taping the terminals with non-conductive tape, individual bagging, placing non-conductive caps on the terminals, or packaging the used batteries in the original package.

Lithium batteries should be shipped using the following U.S. Department of Transportation shipping name: **UN3090, Lithium Battery, 9, PGII**

WET CELL NI-CAD BATTERIES

Wet cell Ni-Cad batteries must be packaged so the terminals cannot contact each other through taping the terminals with non-conductive tape, individual bagging, placing non-conductive caps on the terminals, or packaging the used batteries in the original package. This will help to prevent short circuiting, any evolution of heat, and damage to the terminals. Larger wet cell Ni-Cad batteries need to have their terminals taped, and should be either packed in cubic yard boxes, or securely fastened on skids. Skids are to be no higher than two layers with cardboard or plywood in between the batteries, and shrink wrapped.

Wet cell Ni-Cad batteries should be shipped using the following U.S. Department of Transportation shipping name: **UN2975 Batteries WET, FILLED WITH Alkali, 8, PGIII**

DRY CELL BATTERIES

According to a U.S department of Transportation letter dated November 25, 2009, reference number 090255, used or spent dry, sealed batteries of both non-rechargeable, and rechargeable designs, described as Batteries, dry, sealed n.o.s. in the Hazardous Materials Table in 172.101 of the HMR and not specifically covered by another proper shipping name, with a marked rating up to 9-volt are not likely to generate a dangerous quantity of heat, short circuit, or create sparks in transportation. Therefore, used or spent batteries of the type Batteries, dry, sealed, n.o.s., with a marked rating of 9-volt or less that are combined in the same package and transported by highway or rail for recycling, reconditioning, or disposal are not subject to the HMR. Used or spent for this regulation refers to containing none or very little energy content, and not capable of producing a dangerous evolution of heat during transportation.

ALKALINE BATTERIES

Alkaline batteries are the most common kind of household batteries. They are commonly used for flashlights, toys, cameras, and audio devices.

Any spent or used alkaline batteries that are 9-volt and below may ship in under the proper shipping name**: Batteries, dry, sealed, n.o.s. (Alkaline batteries spent)**

Any spent alkaline batteries that are above 9-volt are not exempt under this interpretation, and will need to be packaged so the terminals cannot contact each other through taping the terminals with non-conductive tape, individual bagging, placing non-conductive caps on the terminals, or packaging the used batteries in the original package.

Spent alkaline batteries rated above 9-volts should be shipped in using the proper shipping name: **UN3028, BATTERIES CONTAINING POTASSIUM HYDROXIDE SOLID, 8, PGIII**

DRY CELL NICKEN CADMIUM BATTERIES

Spent or used dry cell Ni-Cad batteries that are 9-volt and below may ship in under the proper shipping name**: Batteries, dry, sealed, n.o.s. (Nickel Cadmium Batteries spent)**



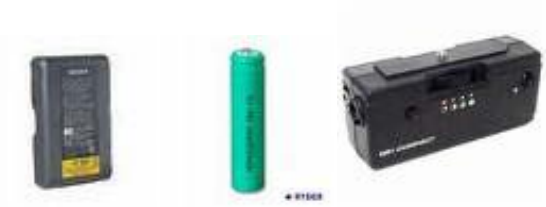

Dry cell Ni-Cad batteries that are above 9-volt are not exempt under this interpretation, and will need to be packaged so the terminals cannot contact each other through taping the terminals with non-conductive tape, individual bagging, placing non-conductive caps on the terminals, or packaging the used batteries in the original package.

Dry Ni-Cad batteries above 9-volts should be shipped using the following U.S. Department of Transportation shipping name: **UN3028, BATTERIES DRY CONTAINING POTASSIUM HYDROXIDE SOLID, 8, PGIII**

NICKEL METAL HYDRIDE BATTERIES

Nickel Metal Hydride batteries are rechargeable batteries, commonly used for portable power tools, portable appliances, and cameras.

Spent or used Nickel Metal Hydride Batteries rated 9-volt and below may be shipped using the following shipping name: **Batteries, dry, sealed, n.o.s. (Nickel Metal Hydride Batteries Spent)**



Nickel Metal Hydride batteries above 9-volts must be packaged so the terminals cannot contact each other through taping the terminals with non-conductive tape, individual bagging, placing non-conductive caps on the terminals, or packaging the used batteries

in the original package. This will help to prevent short circuiting, any evolution of heat, and damage to the terminals.

Spent or used Nickel metal hydride batteries above 9-volts should be shipped in using the following U.S. Department of Transportation shipping description: **UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (NICKEL METAL HYDRIDE BATTERIES SPENT) 9, PGIII**

MERCURY BATTERIES

Mercury batteries are commonly found in calculators, hearing aids, and watches.

Spent or used Mercury Batteries rated 9-volt and below may be shipped using the following shipping name: **Batteries, dry, sealed, n.o.s. (Mercury Batteries Spent)**

Spent or used Mercury batteries rated above 9-volts must be packaged so the terminals cannot contact each other through taping the terminals with non-conductive tape, individual bagging, placing non-conductive caps on the terminals, or packaging the used batteries in the original package.

Spent or used Mercury batteries rated above 9-volts should be shipped in using the following U.S. Department of Transportation shipping description: **UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (MERCURY BATTERIES) 9, PGIII**

SILVER OXIDE BATTERIES

Silver Oxide batteries are most commonly used in calculators, hearing aids and watches.

Spent or used Silver Oxide Batteries rated 9-volt and below may be shipped using the following shipping name: **Batteries, dry, sealed, n.o.s. (Silver Oxide Batteries spent)**

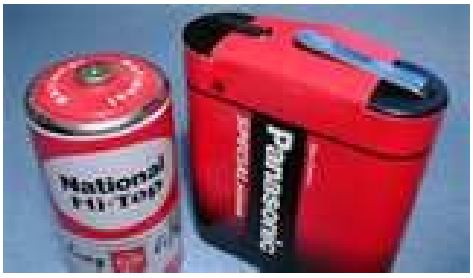
Silver Oxide batteries rated above 9-volts must be packaged so the terminals cannot contact each other through taping the terminals with non-conductive tape, individual bagging, placing non-conductive caps on the terminals, or packaging the used batteries in the original package

Silver oxide batteries rated above 9-volts should be shipped in using the following U.S. Department of Transportation shipping description: **UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (SILVER OXIDE BATTERIES), PGIII**

CARBON ZINC BATTERIES

Carbon Zinc batteries are typically used for toys, and flashlights.

Spent or used Carbon Zinc batteries rated 9-volt and below may be shipped using the following shipping name: **Batteries, dry, sealed, n.o.s. (Silver Oxide Batteries spent)**



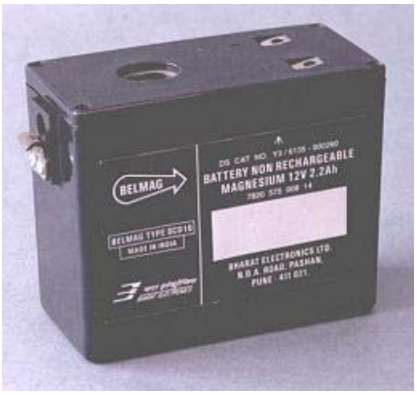
Spent or used Carbon Zinc batteries rated above 9-volts must be packaged so the terminals cannot contact each other through taping the terminals with non-conductive tape, individual bagging, placing non-conductive caps on the terminals, or packaging the used batteries in the original package.

Carbon Zinc batteries rated above 9-volts should be shipped in using the following U.S. Department of Transportation shipping description: **UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (CARBON ZINC BATTERIES), PGIII**

MAGNESIUM BATTERIES

Magnesium batteries are used for flashlights, toys, cameras, and audio devices.

Magnesium batteries rated 9-volt and below may be shipped using the following shipping name: **Batteries, dry, sealed, n.o.s. (Magnesium batteries spent)**



Spent or used Magnesium batteries rated above 9-volts must be packaged so the terminals cannot contact each other through taping the terminals with non-conductive tape, individual bagging, placing non-conductive caps on the terminals, or packaging the used batteries in the original package.

Spent or used Magnesium batteries rated above 9-volts should be shipped in using the following U.S. Department of Transportation shipping description: **UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (MAGNESIUM BATTERIES), PGIII**

UNIVERSAL WASTE

Lead acid, lithium, nickel cadmium batteries, mercury batteries, magnesium, and silver oxide batteries are ok to be shipped in as universal waste as long as they are not leaking, and are marked accordingly with the words Universal Waste. When shipping these kinds of batteries, the proper shipping name must be used followed by the words UNIVERSAL WASTE, on the label, and on the manifest.

EXAMPLE**: Batteries, dry, sealed, n.o.s. (Silver Oxide Batteries Spent) Universal Waste**

If any of these batteries are found to be leaking, or not shipped in under universal waste then the word waste must be included in the shipping name, and the proper RCRA waste codes must be put on the manifest and label.

EXAMPLE

UN2794, WASTE BATTERIES, WET, FILLED WITH ACID, 8, PGIII

Battery Type	**Codes**
Lead Acid	D008, D002
Ni-Cad	D006
Mercury	D009
Silver Oxide	D011
Lithium	D003
Magnesium (contains chromium)	D007

Alkaline batteries, nickel metal hydride batteries, and carbon zinc batteries are not classified as a hazardous waste as defined by the U.S. EPA, therefore they are not subject to the universal waste requirements. These batteries should be shipped in by using the proper shipping name.

EXAMPLE: **Batteries, dry, sealed, n.o.s. (Alkaline batteries spent)**

U.S. Department of Transportation
Pipeline and Hazardous Material Safety Administration

1200 New Jersey Ave, S.E.
Washington, D.C. 20590

NOV 2 5 2009

Mr. Donald Sugerman
2998 Geddes Avenue
Ann Arbor, MI 48104-2725

Ref. No.: 09-0225

Dear Mr. Sugerman:

This responds to your letter dated September 30, 2009, regarding the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180), as they apply to the transportation of alkaline dry cell batteries collected and shipped for recycling. Specifically, you ask whether alkaline dry cell batteries collected from households for recycling must be transported in accordance with the HMR.

The HMR govern the safe transportation of hazardous materials in commerce. A state agency, such as a county recycling program collecting spent batteries, or local jurisdiction that transports hazardous materials for governmental purposes using its own personnel is not engaged in transportation in commerce and, therefore, is not subject to the HMR. However, if the state agency or local jurisdiction transports hazardous materials for a commercial purpose, utilizes contract personnel to transport the materials, or offers a hazardous material for transportation to a commercial carrier, then the HMR apply.

The HMR prohibit the transportation of electrical devices that are likely to create sparks or generate a dangerous quantity of heat, unless the devices are packaged in a manner that precludes such an occurrence. However, certain dry, sealed batteries are not subject to the prohibition and are excepted from full regulation under the HMR when they are securely packaged and offered for transportation in a manner that prevents a dangerous evolution of heat and protects against short circuits in conformance with § 172.102(c)(1), Special Provision 130.

Additionally, on June 23, 2009, our Office issued several letters of interpretation stating that based on test data provided, spent 1.5-volt alkaline dry cell batteries are not subject to the provisions for secure packaging and prevention of a dangerous evolution of heat and protection against short circuit under the HMR, when transported by highway or rail, because they are not likely to generate a dangerous quantity of heat nor are they likely to short circuit or create sparks when they are transported in a packaging with no other battery types or chemistries present.

After further consideration and analysis of dry, sealed battery chemistries and sizes and based on information available to us, it is the opinion of this Office that used or spent dry, sealed batteries of both non-rechargeable and rechargeable designs, described as "Batteries, dry, sealed, n.o.s." in the Hazardous Materials Table in § 172.101 of the HMR and not specifically covered by another proper shipping name, with a marked rating up to 9-volt are not likely to generate a dangerous quantity of heat, short circuit, or create sparks in transportation. Therefore, used or spent batteries of the type "Batteries, dry, sealed, n.o.s." with a marked rating of 9-volt or less that are combined in the same package and transported by highway or rail for recycling, reconditioning, or disposal are not subject to the HMR. Note that batteries utilizing different chemistries (i.e., those battery chemistries specifically covered by another proper shipping name) as well as dry, sealed batteries with a marked rating greater than 9-volt may not be combined with used or spent batteries of the type "Batteries, dry, sealed, n.o.s." in the same package. Note also, that the clarification provided in this letter does not apply to batteries that have been reconditioned for reuse.

We welcome feedback from private citizens and the hazmat safety community on ways to improve transportation safety. Questions or concerns may be directed to the Hazardous Materials Information Center at 1-800-HMR-4922 or 1-800-467-4922. You may also access the U.S. Department of Transportation, Office of Pipeline and Hazardous Materials Safety Administration's (PHMSA) website at http://www.phmsa.dot.gov/hazmat.

I hope this satisfies your inquiry. If we can be of further assistance, please contact us.

Sincerely,

Charles E. Betts
Chief, Standards Development
Office of Hazardous Materials Standards

Engrum
§173.159
§173.185(h)
Batteries
09-0225

2998 Geddes Avenue
Ann Arbor, MI 48104-2725

September 30, 2009

Pipeline and Hazardous
Materials Safety Administration
U.S. Department of Transportation
1200 New Jersey Ave SE
Washington DC 20590-0001

Re: Disposal/Household Batteries:

Dear PHMSA:

This past summer, after accumulating well over a hundred batteries (hearing aid, AAA, AA , C and D), I put them in a labeled container and placed them outside my house for recycling – as I have often done over the years. They were not accepted and a pre-printed note was left stating that each end of each battery had to be taped and then put into a sealed plastic packet. I was surprised and went to the EPA's website to find out what was going on. While I did not get an immediate answer, I noted that batteries like the type I use, can be put in the regular waste and do not have to be recycled. I do not want to do this, but I do not want to tape each battery either. I finally heard from EPA and was told that taping was a regulation promulgated by the US Department of Transportation. Thus, this letter.

My questions to you are: If most people continue to simply throw their batteries away (as I suspect they do), and those who recycle stop doing so, isn't the regulation counter-productive? If batteries cause fires when transported in bulk, will not this problem simply be transferred to the regular waste collection vehicles? While I know that fires are serious matters, I wonder about the number of confirmed fires that led to the regulation and whether it was found that household batteries caused them? If they did not, might the regulation be extreme? I hope you will respond fairly soon. Thanks.

Very truly yours,

Donald F. Sugerman