



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

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

JAN 22 2013

Mr. George A. Kerchner
PRBA – The Rechargeable Battery Association
1776 K Street, NW
Washington, DC 20006

Ref No.: 12-0256

Dear Mr. Kerchner:

This is a response to your November 10, 2012 email requesting clarification of the applicability of the Hazardous Materials Regulations (HMR; 49 CFR Parts 100-185) with regard to the transport of dry batteries. Specifically, you seek clarification on the following issues: (1) the applicability of § 172.102, Special Provision 130 to spent or used dry batteries up to 12-volt, (2) the packaging requirements for shipping mixed used battery chemistries, and (3) the packaging requirements of large format Nickel Metal Hydride (NiMH) batteries transported under Special Provision 130. Your questions are paraphrased and answered below.

Q1. Applicability of § 172.102, Special Provision 130 to spent or used dry batteries up to 12-volt

In your incoming letter you provided data on 12-volt alkaline batteries suggesting that, like 9-volt batteries of this chemistry, these batteries do not generate a dangerous evolution of heat during short circuit tests. Based on this data, you ask that PHMSA amend its position related to used or spent alkaline dry cell batteries to except up to 12-volt from the HMR.

A1. In the final rule published on January 19, 2011 (HM-215K; 76 FR 3308), PHMSA revised § 172.102, Special Provision 130 to reflect that used or spent dry batteries of both non-rechargeable and rechargeable designs, with a marked rating up to 9-volt that are combined in the same package and transported by highway or rail for recycling, reconditioning, or disposal are not subject to this special provision or any other requirement of the HMR.

We appreciate your bringing this data to our attention. PHMSA cannot make regulatory changes through a request for interpretation of the HMR. However, if you believe a rulemaking change is warranted, we invite you to file a petition for rulemaking in accordance with § 106.95 including all information (see § 106.100) needed to support your petition.

Q2. Packaging requirements for shipping mixed used battery chemistries

In your incoming letter you also seek confirmation on your understanding of the HMR with regard to shipment of mixed used battery chemistries. Specifically, it is your understanding that PHMSA may have inadvertently placed limitations on how certain used dry cell batteries may be packaged when we stated in the November 25, 2009 letter (Ref. No. 09-0225):

“... 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 of 9-volt may not be combined with used or spent batteries of the type ‘Batteries, dry, sealed, n.o.s.’ in the same package.”

You further state that this interpretation is inconsistent with current industry practices.

A2. In the final rule published on January 19, 2011 (HM-215K; 76 FR 3308), PHMSA revised § 172.102, Special Provision 130. The language found in § 172.102, Special Provision 130 paragraph (d) states 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.

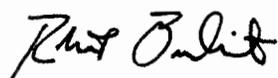
Q3. Packaging requirements of large format Nickel Metal Hydride (NiMH) batteries transported under Special Provision 130

You requested clarification regarding appropriate packaging methods for large format NiMH batteries transported by highway or rail and described as "Batteries, dry, sealed, n.o.s.," that are designed for use in hybrid electric vehicles and stationary applications. You indicate that these large batteries are often shipped on pallets without outer packaging. This packaging method is similar to practices authorized for large format batteries of other chemistries, such as lithium ion and lead acid.

A3. Large format NiMH batteries are subject to the requirements of § 172.102, Special Provision 130 when transported by highway and rail. It is the opinion of this Office, that the use of pallets without outer packaging, as described in the scenario you provided, would not be prohibited by the HMR if the requirements of Special Provision 130 to prevent a dangerous evolution of heat, short circuits and damage to terminals are met.

I hope this information is helpful. If you have any more questions, please do not hesitate to contact this office.

Sincerely,



Robert Benedict
Chief, Standards Development
Standards and Rulemaking Division

October 31, 2012



Mr. Kevin Leary
Pipeline and Hazardous Materials Safety Administration
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

Suchak
§173.159
Batteries
12-0256

Re: Request for Interpretation on Shipping Used Batteries and Packaging for Large Nickel Metal Hydride Batteries

Dear Mr. Leary:

I am following up on three issues we discussed at a meeting in your office on May 3, 2012 related to the transport of mixed, used battery chemistries and large nickel metal hydride (NiMH) batteries. I also am requesting a letter of interpretation from PHMSA regarding these issues.

BACKGROUND

Several PRBA members and I met with you and your colleagues on May 3, 2012 to discuss the hazardous materials regulations (HMR) applicable to the transport of used batteries. The issues we covered during this meeting included PRBA's recent proposal on shipping used lithium batteries filed with the UN Sub-Committee of Experts, the possibility of a national collection program for portable, non-rechargeable batteries, interpretation letters issued by your office related to shipping mixed used battery chemistries and the packaging requirements for large format NiMH batteries shipped in accordance with Special Provision 130 of the HMR. Based on our discussions, we believe the following three issues require written clarification from your office:

1. Short circuit protection for used 12 volt alkaline batteries shipped for disposal or recycling;
2. The packaging requirements for shipping mixed used battery chemistries; and
3. The use of pallets to transport large format NiMH batteries.

SHORT CIRCUIT PROTECTION FOR 12 VOLT ALKALINE BATTERIES

PHMSA has issued numerous letters over the last three years regarding the transportation of used batteries shipped for disposal or recycling and the requirements for short circuit protection applicable to used dry cell batteries. We are aware of the following letters issued by PHMSA on this subject:

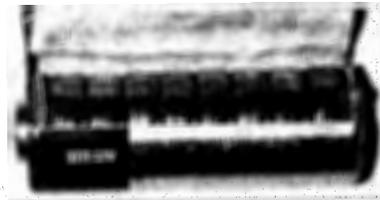
Ref. No. 09-0090	Ref. No. 09-0160
Ref. No. 09-0112	Ref. No. 09-0169
Ref. No. 09-0135	Ref. No. 09-0225
Ref. No. 09-0150	

These letters reflect PHMSA's evolving position over the years regarding the transportation of used 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. Currently, PHMSA does not require short circuit protection for dry cell batteries with a marked rating of 9-volts or less that are combined in the same package and transported by highway or rail for recycling, reconditioning, or disposal. That is, these batteries are not subject to the HMR. PHMSA’s position is based on test data supplied by PRBA members, which is reflected in PHMSA’s letter dated November 25, 2009 (Ref. No. 09-0225). In that letter, PHMSA stated –

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.

As noted during our meeting on May 3rd, there are 12 volt alkaline batteries on the market that are widely used in garage door openers and other short range transmission devices. Compared to AA and AAA alkaline batteries, the 12 volt batteries are a relatively small segment of the alkaline battery market.



A typical 12 volt battery consists of 8 button cells as shown in the picture above. These batteries were not included in initial tests on dry cell batteries in 2009 and 2010. Therefore, we are providing additional test data on 12 volt alkaline batteries attached as Exhibit A that show these batteries do not generate a dangerous evolution of heat during short circuit tests and in transport-type conditions when mixed in a container without short circuit protection.

Based on this data, we would like PHMSA to amend its position on short-circuit protection related to used batteries of the type “Batteries, dry, sealed, n.o.s.” to state that these batteries with a marked rating of 12 volts or less and transported by highway or rail for recycling, reconditioning, or disposal are not subject to the HMR.

PACKAGING REQUIREMENTS FOR MIXED USED BATTERY CHEMISTRIES

While we appreciate PHMSA’s position on dry, sealed batteries (e.g., alkaline, NiMH, NiCd) with a rating of not more than 9 volts, we believe PHMSA inadvertently placed limitations on how certain used dry cell batteries may be packaged for transport that is inconsistent with current industry practices. In the November 25, 2009 letter (Ref. No 09-0225), PHMSA stated 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.” (Emphasis added.)

We are not aware of any provision in the HMR that prohibits the transport of mixed battery chemistries provided the batteries that currently require short-circuit protection (e.g., lithium batteries, dry, sealed batteries over 9 volts) are packaged in accordance with the regulations. In other words, dry, sealed batteries with rating of not more than 9 volts that do not require short circuit protection that are mixed with battery chemistries specifically covered by a proper shipping name and/or dry, sealed batteries with a rating greater than 9-volt should be authorized for transport in the same outer package when shipped by highway or rail for recycling, reconditioning, or disposal under the HMR. (It is important to note that while NiMH batteries are now listed with a proper shipping name, they are regulated as hazardous materials only when transported by sea. When transported by road or rail, they are regulated as “Batteries, dry sealed, n.o.s.” in accordance with Special Provision 130.)

We therefore request written confirmation from PHMSA that dry, sealed batteries with rating of not more than 12 volts (based on enclosed test data) mixed with battery chemistries specifically covered by a proper shipping name – as well as dry, sealed batteries with a rating greater than 12 volts – are authorized for transport in the same outer package by highway or rail for recycling, reconditioning, or disposal provided all relevant provisions of the HMR are met.

SPECIAL PROVISION 130 AND PACKAGING REQUIREMENTS FOR LARGE FORMAT NICKEL METAL HYDRIDE BATTERIES

We explained during our meeting on May 3rd that large format NiMH batteries designed for use in hybrid electric vehicles and stationary applications are often shipped on pallets without outer packaging. This practice is consistent with the packaging authorized under 49 CFR 173.185(g) for large lithium ion batteries over 12 kg and lead acid batteries shipped in accordance with 49 CFR 173.159(d)(1) and (d)(2), which specifically authorize the use of pallets.

NiMH batteries shipped by road or rail are subject to Special Provision 130 of the HMR. This provision does not include language regarding the use of pallets similar to that found in 49 CFR 173.185(g) and 49 CFR 173.159(d)(1) and (d)(2). However, Special Provision 130 also does not specifically prohibit the use of pallets. Therefore, we have interpreted Special Provision 130 as authorizing the use of pallets without outer packaging for transporting large format NiMH batteries provided the shipper complies with all other requirements of Special Provision 130.

It would benefit the industry to have written confirmation from PHMSA that the use of pallets without outer packaging is authorized to transport large format NiMH batteries by road or rail provided all other requirements of Special Provision 130 are met.

* * *

Thank you for your assistance.

Sincerely,



George A. Kerchner

EXHIBIT A

PRODUCT TECHNICAL SUPPORT



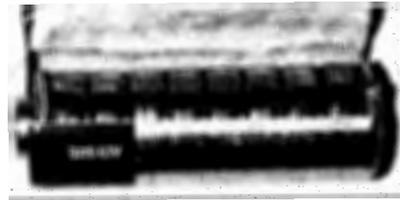
July 2012

Customer:
Marc Boolish

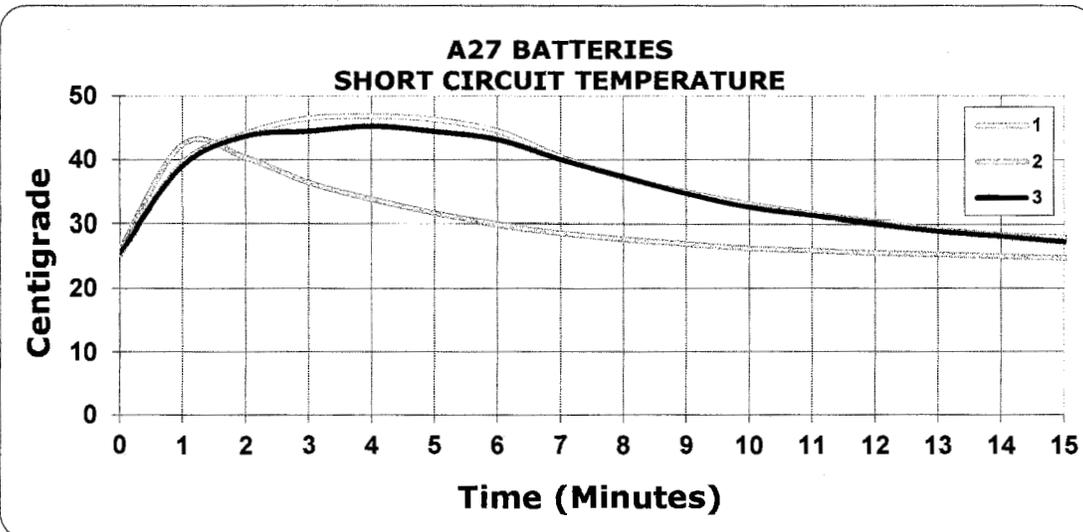
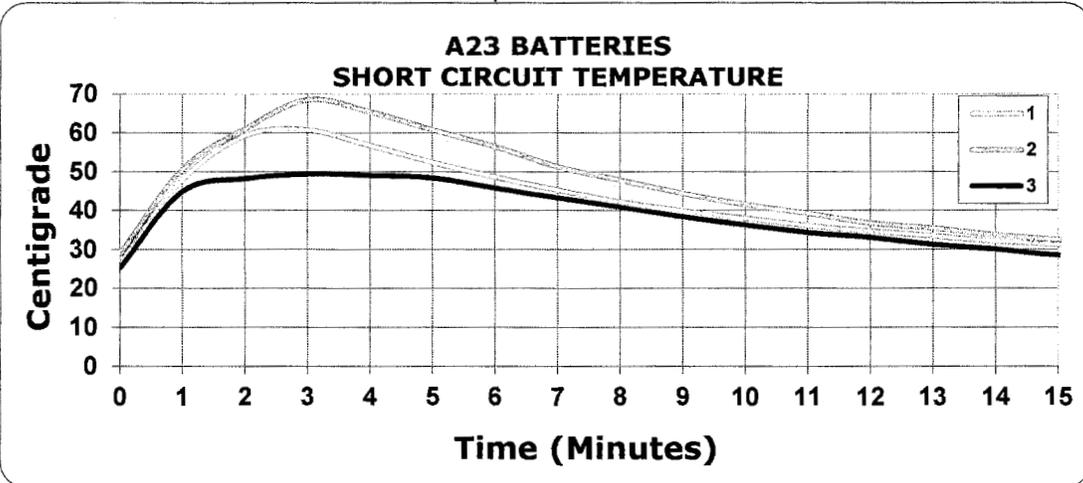
Batteries:
A27 & A23 12 volt cylindrical batteries

Reason for testing:
Determine if there is a heating problem due to shorting when a large volume of 12 volt cylindrical batteries are disposed of in a container for recycling or disposal.

Battery construction:
A27 and A23 12 volt batteries use 8 button cells in series.

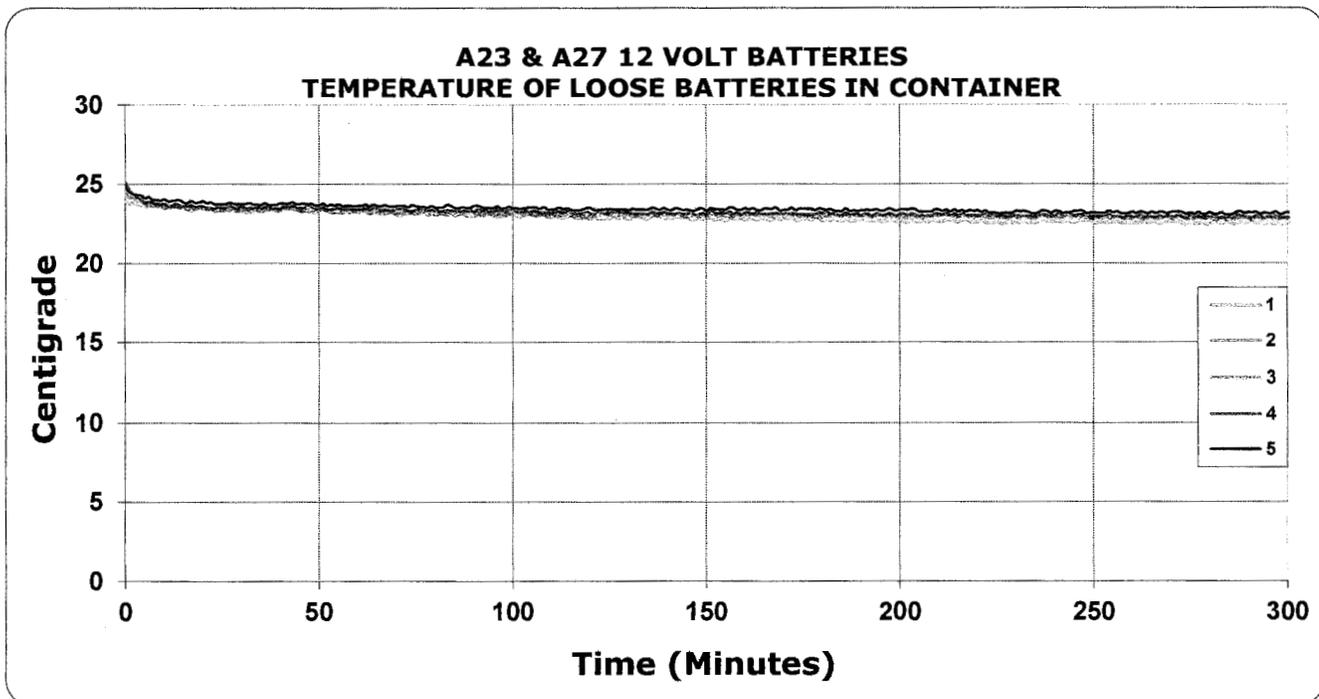


Individual short circuit test:
Three fresh A23 & three fresh A27 cells were individually subjected to a short circuit with a thermocouple attached. The batteries reached a maximum temperature of 70° C.



Container test:

Two hundred unused 12 volt cylindrical batteries (176 A27 batteries & 24 A23 batteries) were placed in a plastic container. Thermocouples were attached to five of the batteries with readings taken every minute. Container was shook at 2 hrs, 2.5 hrs, 3 hrs, 3.5 hrs and 4 hrs to reposition batteries in container.



Conclusion:

No temperature increase in the container was detected during this test.

Drakeford, Carolyn (PHMSA)

From: Leary, Kevin (PHMSA)
Sent: Tuesday, November 13, 2012 9:24 AM
To: Drakeford, Carolyn (PHMSA)
Subject: FW: Request for Interpretation
Attachments: PRBA-request_for_dot_interpretaion_on_dry_cell_batteries_and_large_nimh_batteries.pdf;
Copy of A23 A27 200 in container.pdf

Please log this in as new interp letter request and assign as appropriate.

Thanks,

Kevin

From: Kerchner, George [<mailto:GKerchner@wileyrein.com>]
Sent: Friday, November 09, 2012 3:55 PM
To: Leary, Kevin (PHMSA)
Subject: Request for Interpretation

Kevin –

Just left you a VM message.

Attached is a request for interpretation (and tests data) on shipping used dry cell batteries and large format NiMH batteries. These are the issues we discussed at your office in May.

Can you arrange to have this processed accordingly?

Thanks.

George

George A. Kerchner
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