



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

1200 New Jersey Avenue, SE
Washington, DC 20590

MAY 08 2015

Mr. Billy Puk
HHW Collection Facility & Operations Manager
Recology San Francisco
501 Tunnel Avenue
San Francisco, CA 94134

Reference No. 15-0008

Dear Mr. Puk:

This is in response to your January 13, 2015 e-mail requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to the collection, processing, and transportation of batteries of mixed chemistries (alkaline, nickel-cadmium, primary and rechargeable lithium batteries). You ask several questions related to the shipment of lithium batteries and your questions are paraphrased and answered as follows:

Q1. Does the proper shipping name "lithium metal batteries" mean exclusively primary and non-rechargeable lithium batteries? If not please provide examples.

A1. For the purposes of the HMR, the term lithium metal cell or battery as defined by § 171.8 means "an electrochemical cell or battery utilizing lithium metal or lithium alloys as the anode. The lithium content of a lithium metal or lithium alloy cell or battery is measured when the cell or battery is in an undischarged state. The lithium content of a lithium metal or lithium alloy battery is the sum of the grams of lithium content contained in the component cells of the battery." The determination as to if a battery is a lithium metal battery or a lithium ion battery is based on the chemical makeup of the battery itself and cannot be solely determined by knowing if a battery is rechargeable or not. Most lithium metal batteries manufactured today are not rechargeable, however rechargeable lithium metal battery technology does exist and these batteries are currently manufactured. This office does not provide examples or references to a particular battery model or manufacturer.

Q2. Does the proper shipping name "lithium ion batteries" mean exclusively rechargeable lithium batteries? If not please provide examples.

A2. The term lithium ion cell or battery as defined by § 171.8 means "a rechargeable electrochemical cell or battery in which the positive and negative electrodes are both lithium compounds constructed with no metallic lithium in either electrode. A lithium ion polymer cell or battery that uses lithium ion chemistries, as described herein, is regulated as

a lithium ion cell or battery.” Irrespective of the term rechargeable in the definition above, and as mentioned in A1 above, the determination as to if a battery is a lithium metal battery or a lithium ion battery is based on the chemical makeup of the battery itself and cannot be solely determined by knowing if a battery is rechargeable or not. Most lithium ion batteries manufactured today are rechargeable, however non-rechargeable lithium ion battery technology does exist and these batteries are currently manufactured. This office does not provide examples or references to a particular battery model or manufacturer.

You further raise several questions as they relate to a previous letter of interpretation issued by this office (Ref. No. 09-0289) regarding exceptions applicable to household waste. Your questions are paraphrased and answered as follows:

Q3. Do batteries that have been turned in by residents at various battery drop-off points that are further transported to a household hazardous waste collection facility (HHWCF) by a government contractor qualify for the household waste exceptions provided in § 173.12(g)?

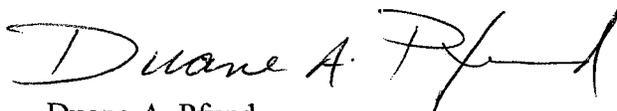
A3. No. The exceptions in § 173.12(g) do not apply to the transportation of a consolidated household hazardous waste shipment from a collection center by a commercial carrier. The definition of “Household waste” in § 171.8 further defines collection centers as “a central location where household waste is collected.” Battery drop-off points are considered collection centers.

Q4. Do batteries collected from a HHWCF and transported to various battery recycling facilities qualify for the household waste exceptions provided in § 173.12(g)?

A4. No. The exceptions in § 173.12(g) do not apply to the transportation of a consolidated household hazardous waste shipment from a collection center by a commercial carrier. The definition of “Household waste” in § 171.8 further defines collection centers as “a central location where household waste is collected.”

I trust this information is helpful. If you have further questions, please do not hesitate to contact this office.

Sincerely,



Duane A. Pfund
International Standards Coordinator
Standards and Rulemaking Division

Webb
173.185(d)
Lithium cell and Batteries
15-0008

Goodall, Shante CTR (PHMSA)

From: Babich, Vincent (PHMSA)
Sent: Wednesday, January 14, 2015 1:07 PM
To: Goodall, Shante CTR (PHMSA)
Cc: Kelley, Shane (PHMSA); Betts, Charles (PHMSA)
Subject: FW: lithium metal batteries vs. lithium ion batteries
Attachments: lithium metal batteries vs. lithium ion batteries

Shante,

Will you please log this in as a request for interpretation and assign.

Thanks!

Vince

From: Billy Puk [mailto:cpuk@recology.com]
Sent: Tuesday, January 13, 2015 2:44 PM
To: Babich, Vincent (PHMSA)
Cc: Kelley, Shane (PHMSA); Betts, Charles (PHMSA)
Subject: RE: lithium metal batteries vs. lithium ion batteries

Hi Vincent,

Our company does not ship collected hazardous waste by air, which is prohibited by both state and federal laws. Our company, Recology San Francisco, (a private entity) and the City and County of San Francisco (a public entity) are in a public-private partnership in running a successful household hazardous waste (HHW) collection program. In one aspect, our company is responsible to transport batteries collected from various drop-off points citywide by only San Francisco residents to our Household Hazardous Waste Collection Facility (HHWCF). The drop-off points are inside hardware stores, pharmacies, etc. set up by the City. The collected batteries at each drop-off point are always in mix batteries chemistries such as alkaline, nickel-cadmium(Ni-Cd), primary, rechargeable, etc.

A correct distinction of lithium metal and lithium ion batteries is really important for both our company and the City to develop a safe transportation and collection policy to meet such new standard. This distinction would also impact our pre-transportation operation to sort and package collected lithium batteries directly from the public at our HHWCF before shipping to our downstream batteries recyclers from our HHWCF. Since our company is a private entity, an exemption (49 CFR 171.1(d)(5)) does not apply to us unless the existing interpretation letter dated on February 5, 2010 (Reference# 09-0289) applies to our current transportation procedure on both:

- 1) transporting all batteries collected from various drop-off points by only the residents to our HHWCF and
- 2) transporting all batteries collected from our HHWCF to the ultimate recycling facility(ies).

In addition, Shane actually pointed out our batteries collector's/recycler's concern on Wednesday, November 5, 2014, which is shown below in the email chain as well. Here is his quotation:

"While the vast majority of lithium metal batteries are not rechargeable, some are, and any cell or battery utilizing lithium metal or lithium alloys as the anode is considered a metal battery."

Under the current proper shipping name, "UN3090, lithium battery, 9, PG II," we can commingle all different lithium battery chemistry types in one UN-rated container for proper disposal/recycling regardless of lithium metal or lithium ion batteries so long as we follow 49 CFR 173.185(d). Our concern, as confirmed by Shane's comment, is that we need a pictorial guidance document for ground transportation in order to correctly distinguish any lithium metal battery that is actually rechargeable from lithium ion batteries, which is also rechargeable.

Our HHW program is not related to any batteries manufacturer or distributor. However, we must manage waste batteries shipment at the same standard as the manufacturers and distributors. This rule is a major disconnect for HHW programs to comply with across the US because our programs are collecting and managing a mix type of batteries in general. Our technicians do not work on one particular battery chemistry type daily. Moreover, our technician staff do not have any chemistry background and specific educational training to understand each lithium battery chemistry type (metal vs. ion) based on the specific terminals. Some label on the batteries contain no end-of-life management information, foreign language, misleading information (i.e. lithium rechargeable (metal) batteries but **not** lithium-ion chemistry type), etc. Therefore, I have requested a pictorial guidance document for ground transportation to correctly train our staff to meet such standard.

Time is still ticking and we are getting closer to the implementation date on Friday, February 6, 2015. Can you kindly pass my original email dated on Tuesday, October 7, 2014 to your team, which handles the formal letter of interpretation by PHSMA, please? Here are my original questions and attached in this email again:

- 1) Does "lithium-metal batteries" mean exclusively primary and non-rechargeable lithium batteries? If not, what are the examples?
- 2) Does "lithium-ion batteries" mean exclusively rechargeable lithium batteries? If not, what are the examples?

Can your team also insert an interpretation on the same letter whether the following scenarios meet the interpretation letter published on February 5, 2010 (Reference# 09-0289), please?

- 1) Batteries transportation collected from various batteries drop-off points only by the residents (i.e. households) to a HHWCF
- 2) Batteries transportation collected from a HHWCF to various batteries recycling facilities

If there is any specific regulation that our HHW program must follow for the two scenarios above, can you provide the reference(s) on the letter, please? Thank you very much.

Sincerely yours,

Billy Puk

HHW Collection Facility & Operations Manager

Recology™ San Francisco (綠源再生)

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415-657-4030

cpuk@recology.com

如你有疑問需要中文解答，我可以盡力幫助你。

Goodall, Shante CTR (PHMSA)

From: Billy Puk <cpuk@recology.com>
Sent: Tuesday, October 07, 2014 3:40 PM
To: INFOCNTR (PHMSA)
Subject: lithium metal batteries vs. lithium ion batteries

To whom it may concern:

Under 79 FR 46036, the “lithium batteries” entry was removed from the HazMat Table. I read the definitions for the new replacement entries – “lithium-metal batteries” and “lithium-ion batteries” in 49 CFR §171.8. I need to confirm the following:

- 1) Does “lithium-metal batteries” mean exclusively primary and non-rechargeable lithium batteries? If not, what are the examples?
- 2) Does “lithium-ion batteries” mean exclusively rechargeable lithium batteries? If not, what are the examples?

We need to train our employee to identify which lithium batteries are supposed to be in our DOT performance package like drum or fiberboard box before we can ship off to a disposal recycler. Please kindly provide me as many picture examples as possible. Thank you very much.

Sincerely yours,

Billy Puk

HHW Collection Facility & Operations Manager

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