



U.S. Department  
of Transportation

**Pipeline and Hazardous  
Materials Safety  
Administration**

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

JUN 21 2016

Mr. George Kerchner  
Senior Regulatory Analyst  
Wiley Rein LLP  
1776 K Street NW  
Washington, DC 20006

Reference No. 15-0040

Dear Mr. Kerchner:

This is in response to your March 10, 2015 letter requesting confirmation of the requirements for shipping lithium metal batteries contained in equipment under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180), the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO TI) and the International Maritime Dangerous Goods (IMDG) Code. Specifically you ask if a water flow meter containing two lithium metal C-size cells with an aggregate lithium metal content of approximately 4.5 grams can be placed into a package in conformance with all applicable requirements of the HMR, the ICAO TI and the IMDG code and transported by all modes while the electronic device is activated (i.e. powered on). The device would meet all appropriate requirements including lithium battery design testing and protection of the device.

The HMR do not specifically address electronic devices that are intentionally active in transport. As such, the HMR do not prohibit the transport of a battery-powered device in an operational mode by any mode of transportation, including air provided the device is packaged to prevent sparks and the evolution of a dangerous quantity of heat (see § 173.21). The ICAO TI in Section II of Packing Instruction 970 and the IMDG Code, in special provision 188 and packing instruction 903 of the IMDG code permit devices such as radio frequency identification tags, watches and temperature loggers to be transported when active. These devices must not be capable of generating a dangerous evolution of heat.

The flow meter described in your letter containing two lithium metal cells may be transported in an operational mode within the United States in accordance with the HMR. The flow meter may be transported in an operational mode to, from, or within the United States in accordance with packing instruction 903 of the IMDG Code, if all or part of the transportation is by vessel. The flow meter would not be eligible for air transport in an operational mode in accordance with the ICAO TI because the lithium content of the cells contained in the device exceeds the limit specified in Section II of Packing Instruction 970.

The shipper must ensure that the battery and the device as presented for transport will not generate a dangerous quantity of heat or sparks when powered on. In addition to any HMR and ICAO TI requirements and limitations, you are advised to consider any aviation-specific

requirements prescribed by the Federal Aviation Administration that may be applicable in connection with the water flow meter that is the subject of this letter and with any other electronic device. The aviation-based requirements continue to evolve necessitating such consideration.

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

Sincerely,

A handwritten signature in cursive script that reads "Duane A. Pfund". The signature is written in black ink and is positioned above the printed name.

Duane Pfund  
International Standards Coordinator  
Standards and Rulemaking Division



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February 17, 2015

**Delivered Via Email**

U.S. Department of Transportation  
Pipeline and Hazardous Materials Safety Administration  
Office of Hazardous Materials Standards/Attn: PHH-10  
East Building  
1200 New Jersey Avenue, SE.  
Washington, DC 20590-0001

Re: Supplemental Request for Interpretation on Shipping Lithium Batteries  
Contained in Equipment

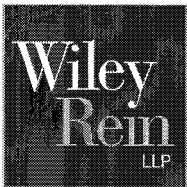
On January 20, 2015, PHMSA responded to our request for a letter confirming that a certain water flow meter containing a lithium metal battery may be shipped in accordance with the U.S. hazardous materials regulations (HMR) and international dangerous goods regulations. (See Reference No. 14-0207.) We now require additional clarification on whether the water meter (IFC070) with the battery installed may be shipped by all modes of transport with the meter activated (*i.e.*, powered on).

In order for the water flow meter to be properly utilized in the field, the lithium metal battery is permanently installed in the meter. That is, the battery is not intended to be removed until it reaches the end of life. After the battery is installed by the manufacturer, the meter is activated and ready for immediate installation in the field. In other words, the meter is not designed with an on/off switch. It is designed this way to eliminate the need to open the electronics enclosure in the field and risk potential contamination by moisture or dirt intrusion that would cause the meter to fail prematurely

It is our understanding that the U.S. HMR and international dangerous goods regulations do not prohibit the transport of electronic devices like the above-referenced water meter while in the operational mode provided the device is packaged to prevent sparks and the evolution of a dangerous quantity of heat. (See PHMSA letter to Fed Ex Express dated April 23, 2009, Ref. No.: 09-0047.) We also recognize that for air transport, the FAA may require evidence that the activated water meter will not cause interference with the navigation or communication systems of the aircraft. However, because the water meter does not

Leary  
§ 173.485  
Lithium Batteries  
15-0040

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February 17, 2015

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transmit signals that can cause interference with navigation systems, this is not an issue of concern.

Therefore, we request confirmation that an activated (*i.e.*, powered on) water meter containing a lithium metal battery as described above and in the January 20, 2015 PHMSA interpretation letter (Reference No 14-0207) may be shipped by all modes of transport provided the following conditions are met:

- The meter is packaged to prevent sparks and the evolution of a dangerous quantity of heat; and
- The meter will not cause interference with the navigation or communication systems of the aircraft when transported by passenger or cargo aircraft.

Thank you for your assistance.

Sincerely,

A handwritten signature in cursive script that reads "George A. Kerchner".

George Kerchner  
Senior Regulatory Analyst

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