



U.S. Department
of Transportation
**Research and
Special Programs
Administration**

400 Seventh St., S.W.
Washington, D.C. 20590

JUN -6 2002

Mr. Dan Dajie
Vice President of Operations
Polyfuel, Inc.
333 Ravenswood Avenue
Menlo Park, CA 94025

Ref. No. 01-0298

Dear Mr. Dajie:

This responds to your letter requesting clarification of the exception in § 173.150(e) of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180), as it applies to fuel cell devices that contain an aqueous solution of alcohol (methanol).

Specifically, you asked for confirmation of your understanding that an aqueous solution of alcohol consisting of 76% or more water and 24% or less methanol, and no other hazardous material constituent is not regulated as a hazardous material and thus not be subject to the HMR.

Your understanding is correct. As provided in § 173.150(e), an aqueous solution containing no less than 50% water and 24 % or less alcohol by volume and no other hazardous material is not subject to the HMR for domestic transportation. The aqueous solution, described in your letter, containing 76% water and 24 % alcohol (methanol) by volume and no other hazardous material (used to generate electrochemical power to operate portable electronic devices, such as cell phones, camcorders, digital cameras, and laptop computers) satisfies the domestic exception criteria and is not subject to the HMR. Please note that this exception is not provided in the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air.

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

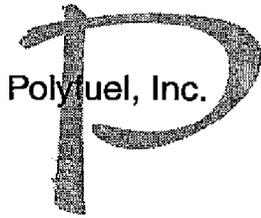
Sincerely,

Delmer F. Billings
Chief, Standards Division
Office of Hazardous Materials Standards



010298

173.150(e)



CONFIDENTIAL COMMUNICATION

Engrum
§173.150
Applicability
01-0298

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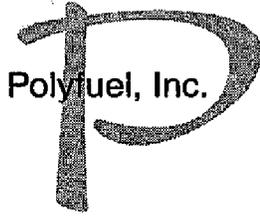
Edward T. Mazzullo
Director, OHMS
U.S. DOT/RSPA DHM-10
400 Seventh Street, S.W.
Washington, DC 20590

RE: Letter of Clarification on use of aqueous solutions of alcohol.

Background: Polyfuel Inc. develops fuel cell technologies which offer electrochemical power to portable electronic devices. These include products such as cell phones, camcorders, digital cameras, and laptop computers which consumers carry as passengers on aircraft or other forms of transit. Polyfuel's technologies use aqueous solutions of alcohol (methanol). In a meeting on November 2, 2001 we reviewed a fuel cell powered cell phone and aqueous solutions of alcohol with Research and Special Programs Administration personnel, including Transportation Regulations and Technology offices. We are requesting this Letter of Clarification as to the use of aqueous solutions of alcohol in portable fuel cell devices.

Aqueous alcohol fuel cell devices: Polyfuel has technologies for fuel cells which operate on aqueous solutions of alcohol consisting of 76% or more water and 24% or less methanol. There is no other hazardous material constituent. The cell phone demonstrated on November 2 was representative of such a device, with a fuel replaceable cartridge containing approximately 0.5 ounce of water/methanol being typical. The fuel cartridges will meet all applicable safety and other commercial standards. For your information, data obtained from industry sources and Polyfuel's independent laboratory tests demonstrate flashpoints of these solutions to be at or above 100 degrees F. For comparison purposes, these flashpoints for solutions of methanol and water are higher than the flashpoints of equivalent solutions of water and ethanol.

Request for Letter of Clarification: Please clarify or confirm that alcohol solutions for portable fuel cell devices which are 76% or more water and 24% or less methanol, and no other hazardous material constituent, are not regulated as DOT hazardous material. (i.e., are not subject to the requirements of Subchapter C, the Hazardous Materials Regulation). For transportation purposes, consumers and passengers with portable fuel cell devices using these solutions may carry them in aircraft and rail passenger cabins, assuming the fuel cell has no other hazardous materials and applicable usage restrictions are followed. Specific reference is made to 49 CFR 173.150(e), and to the Office of Hazardous Materials Standards Letter of Clarification to Xerox Corporation's February 18, 1994 request for clarification of 49 CFR 173.150 (e).



CONFIDENTIAL COMMUNICATION

Future Issues: At our November 2 meeting it was suggested we outline potential future DOT matters for portable fuel cell devices using aqueous alcohol solutions (76% or more water/24% or less methanol). We can anticipate consumer/passengers with these devices will likely possess one or more spare cartridges (approximately 0.5 oz solution for cell phones), although the very long running time of portable fuel cell devices compared to batteries will require less spare capacity. Also, they may want to replace a depleted cartridge while in transit, although cell phone use is restricted on aircraft and the longer running times of fuel cell devices should reduce such change-outs. Finally, we can expect portable devices in the future, such as laptop computers, that demand even more power than cell phones and may use as much as 3 to 10 ounces of water/methanol solution in the cartridge.

Manufacturing safety standards are being developed for portable fuel cell devices and fuel cartridges which relate to these future issues. Polyfuel expects its aqueous solution fuel cells and cartridges to meet safety standards and practices which are acceptable to the DOT, FAA, international and civil aviation authorities, and will review them with RSPA as standards and practices develop and become more specific.

Please contact me if any reason arises or further information is desired. Thank you for your efforts in this matter.

Sincerely,

Dan Dajie
Vice President of Operations