



U.S. Department
of Transportation

Pipeline and Hazardous Materials
Safety Administration

1200 New Jersey Ave., SE
Washington, DC 20590

JAN 27 2009

Mr. Gene Sanders
Senior Dangerous Goods
Transportation Specialist
Thermo Fisher Scientific
Customer Channels Group
2000 Park Lane
Pittsburgh, PA 15275

Ref. No. 08-0239

Dear Mr. Sanders:

This responds to your letter regarding the applicability of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) to a product that contains a non-pressurized gas that is non-flammable and non-toxic but exhibits oxidizing properties. You also ask whether the gas meets the definition of a Division 5.1 "oxidizer" under § 173.127(a).

Under § 173.115(b), the definition of a Division 2.2 non-flammable, non-poisonous compressed gas includes oxidizing gases. This definition includes additional qualifying criteria such as *the material must exert in the packaging an absolute pressure of 280 kPa (40.6 psia) or greater at 20 °C (68 °F)*. The gas in your product does not exert the minimum pressure required to meet the definition of a Division 2.2 material.

Under § 173.127(a), an oxidizing material, or, "oxidizer," must meet the definition of either a solid or liquid at the time it is offered for transportation. Although the gas in your product may yield oxygen, it does not meet the definition of a Division 5.1 material.

Based on the information you provided, it is the opinion of this Office that your product is not subject to the HMR.

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,

Hattie L. Mitchell
Chief, Regulatory Review and Reinvention
Office of Hazardous Materials Standards

Stevens
§ 173.127(a)
Definitions
08-0239

Drakeford, Carolyn <PHMSA>

From: Gorsky, Susan <PHMSA>
Sent: Wednesday, October 01, 2008 2:21 PM
To: Drakeford, Carolyn <PHMSA>
Subject: FW: Oxidizing gas

From: Sanders, Gene [mailto:gene.sanders@thermofisher.com]
Sent: Wednesday, October 01, 2008 2:10 PM
To: Gorsky, Susan <PHMSA>
Cc: Mayfield, John; Richard, Bob <PHMSA>
Subject: Oxidizing gas

Susan,

Small details can sometimes lead to bigger questions. So at the risk of making a mountain out of a molehill, I'm going to ask about a seemingly trivial issue.

Thermo Fisher has a product that contains a gas that is not toxic, not flammable, not pressurized, not compressed, not refrigerated, and not liquefied, but which does have oxidizing properties. The gas is not used as a refrigerant, dispersant, or blowing agent, nor is it part of an aerosol. As best I can determine, this gas does not meet the definition of a 2.1, 2.2, nor 2.3 gas.

49CFR 173.127(a) defines an oxidizer as "a material". 173.127(a)(1)&(2) tell me that solid materials and liquid materials can be oxidizers, but multiple 2.2 (5.1) entries in the Hazardous Materials Table tell me that gaseous materials can be oxidizers, too.

The gas is not corrosive, nor radioactive, nor pyrophoric, nor infectious, nor self-reactive, ...

So, it appears that the product is a gas, and meets the definition of a Division 5.1 material, but doesn't meet the definition of any other hazard class or division.

Is this product subject to the HMR?

If not, why not, since it appears to meet the definition of a 5.1 material?

If so, what are the choices for Proper Shipping Name (PSN)? The existing HazMat Table entries that only have 5.1 (no other hazards) seem to all be for solids or liquids, not gases.

From a 'common sense' perspective it may be helpful to examine two specifically listed 2.2 (5.1) materials, and the risks they may present when not compressed.

1. It seems the risk from a non-pressurized glass jar of, say, UN1070, Nitrous oxide would be minimal (illegal if used improperly maybe, but not transport dangerous). If the glass jar is broken, the Nitrous oxide would rapidly disperse and be diluted, so much so that it seems almost impossible for it to start or significantly enhance a fire.

2. Although pure oxygen used by medical patients has contributed to many fires, regulators to this point have only created HazMat Table listings for oxygen in compressed (UN1072) or refrigerated (UN1073) form. Perhaps this is because when pure oxygen has contributed to a fire, there has been a significantly large amount of it, usually compressed in a cylinder and being continuously released. Pure oxygen in a glass jar probably wouldn't be able to start a fire or significantly enhance a fire, just as the Nitrous oxide wouldn't either.

My personal conclusion is that although the product technically is a 5.1 material due to regulatory wording,

the lack of 5.1 gas PSN's, the lack of a non-compressed non-refrigerated pure oxygen PSN, and 'common sense' indicate that there is no intent to regulate the product as a dangerous good (hazardous material for transport). But that small detail of technically meeting the 5.1 definition is not one that Thermo Fisher is prepared to overlook without your guidance. So, even though I don't think our product is meant to be subject to the HMR, I had to ask whether it is or isn't currently regulated. Again, is this product subject to the HMR?

Thank you for your patience, and as usual, your continued assistance.

Cheers,

Gene Sanders, DGSA
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