U.S. Department of Transportation

Pipeline and Hazardous Materials Safety Administration

OCT 1 1 2018

James Blute, M.S., CHP Senior Consultant Spectrum Safety, Inc. 2 Sanford Road Chelmsford, MA 01824

Reference No. 18-0048

Dear Mr. Blute:

This letter is in response to your March 26, 2018, letter requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to trace amounts of "UN1660, Nitric oxide, 2.3 (poisonous gas)." You reference a letter of clarification previously issued under Reference No. 00-0133 in which this Office determined that 1/47.5 of an atmosphere of nitric oxide under vacuum in an ionization cell inner packaging was not in a quantity and form that would pose an unreasonable risk to health, safety, or property during transportation per package and was, therefore, not subject to the HMR. Specifically, you provide information on a package example and ask if in comparison to Reference No. 00-0133 it constitutes a trace amount of nitric oxide that is not subject to the HMR.

You describe your example package as follows:

- The package is either 1) a glass cuvette surrounded by foam packing material placed in a fiberboard box or 2) a glass cuvette installed inside an instrument with a sealed housing accompanied by an enclosed desiccant drier sachet, surrounded by foam packing material and placed in a fiberboard box.
- Only one glass cuvette is placed in each completed package.
- Each glass cuvette has a volume of 1.7 mL; will be pressurized to 3.62 psig; contains a total weight of 2.4 mg of nitrous oxide; and is leak checked with "UN1046, Helium, compressed, 2.2 (non-flammable gas)."

The HMR do not define "trace amount." However, according to conventional resources, such as the Merriam-Webster Dictionary, "trace" means "an amount of a chemical constituent not always quantitatively determinable because of minuteness." PHMSA regulates the transportation in commerce of materials in an "amount and form [that] may pose an unreasonable risk to health and safety or property." See 49 U.S.C 5103, as delegated to PHMSA in 49 CFR 1.97(b).

1200 New Jersey Avenue, SE Washington, DC 20590

It is the opinion of this Office, based on the information you provided, that the amount of nitric oxide in the example packages you described will not pose an unreasonable risk to health, safety, or property during transportation per package and, therefore, each constitute a trace amount that is not subject to the HMR.

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

Sincerely,

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T. Glenn Foster Chief, Regulatory Review and Reinvention Branch Standards and Rulemaking Division

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January, Ikeya CTR (PHMSA)

From: Sent: To: Subject: Attachments: INFOCNTR (PHMSA) Tuesday, March 27, 2018 3:42 PM Hazmat Interps FW: Request for Interpretation Nitric Oxide filled Cuvette Interpretation Request.pdf

Ikeya and Alice,

Attached is a request for a letter of interpretation. Please let me know if you have any questions.

Thanks, Jodi

From: James Blute [mailto:jimblute@specsafety.net] Sent: Tuesday, March 27, 2018 12:56 PM To: INFOCNTR (PHMSA) <INFOCNTR.INFOCNTR@dot.gov> Subject: Request for Interpretation

Dear Sir or Madam,

Please refer to the attached letter requesting an interpretation of DOT regulations. Thank you.

Jim Blute, M.S. CHP

Spectrum Safety Inc (978) 337-4517 iimblute@specsafety.net



March 26, 2018

U.S. Department of Transportation PHMSA Office of Hazardous Materials Standards 1200 New Jersey Avenue, SE Washington DC, 20590-0001

Dear Standards Office:

Spectrum Safety Inc. requests that the Pipeline and Hazardous Materials Safety Administration (PHMSA) provide a clarification on what is considered a trace amount (i.e., not subject to HMR regulations) of UN 1660 Nitric Oxide (NO), a Class 2.3 Toxic Gas. This material is generally forbidden for transport on aircraft but PHMSA's Interpretation Letter # 00-0133 stated that trace amounts of Nitric Oxide as described in the interpretation request would not be subject to the HMR and could be shipped on cargo and passenger aircraft.

Specifically, we request your interpretation on whether the following glass cuvette, designed to contain a small amount of Nitric Oxide, would be considered trace as described in DOT interpretation letter #00-0133 (Dated November 6, 2000) and thus not be subject to the HMR. Below is a side-by-side comparison between the example package we are specifically seeking interpretation on and the package described previously in Interpretation Letter #00-0133:

| | Example Package | Interpretation Letter 00-0133 Package |
|---|--|---|
| Type of Inner Packaging | Glass Cuvette | Glass Tube |
| Volume per Inner Package | 1.7 mL | 7.2 mL |
| Number of Inner Packages | 1 | 10 |
| Pressure of Gas | 3.62 psig | 0.308 psig |
| Approximate Weight of NO per Inner Packaging | 2.4 mg | 9.8 mg |
| Approximate Total Weight of NO in Package | 2.4 mg | 98 mg |
| Leak checked with Helium | Yes | Unknown |
| Package Description | Glass cuvette in fiberboard box with foam packaging material. | Wrapped in bubble wrap and shipped in corrugated box. |
| Alternate Package Description | Glass cuvette installed inside an instrument which has a sealed housing and enclosed desiccant drier sachet. Instrument shipped in fiberboard box with foam packaging material. | None |



Though the cuvette is filled to a higher pressure than the tubes in the interpretation letter, there is less total Nitric Oxide being shipped in a package. A release of the cuvette's material in a 100-cubic foot room with completely dead air would be in parts per billion concentrations, a small fraction of the limiting Occupational Safety Health Administration's (OSHA) guidelines. The OSHA Permissible Exposure Limits for Nitric Oxide are 25 parts per million (ppm) for an 8-hour Time Weighted Average and 100 ppm for Immediately Dangerous to Life and Health (IDLH) levels. Therefore, we have concluded that these amounts of Nitric Oxide do not propose a risk in transportation.

I can be reached at 978-337-4517 or by email at <u>jimblute@specsafety.net</u> if you have any further questions or need to request any supplemental information.

Sincerely,

Jug. Alto

James Blute, Senior Consultant Spectrum Safety Inc.

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