



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

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

MAR 24 1998

Mr. R. J. Reynolds
Regulatory Compliance Services
5437 Adventure Drive
Dublin, Ohio 43017

Dear Mr. Reynolds:

I have been requested by Acting Research and Special Programs Administrator Kelley Coyner to reply to your letter concerning industrial aerosols packaged in cylinders and using isobutane or propane as propellants. You request information as to how such products would be classified and shipped under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180).

In your letter and in telephone conversations with my staff, you described two products that would be packaged in DOT Specification 39 cylinders (up to 1,500 cubic inch capacity) and used as industrial aerosols. Product A consists of 85 percent water, 10 percent non-hazardous surfactants, and 5 percent isobutane or propane used as propellant. Product B consists of 48 percent methylene chloride, 25 percent non-hazardous resins and polymers, and 27 percent isobutane or propane used as propellant. Your specific questions about these two products are addressed below.

Q1. Is testing under § 173.306(i)(2) applicable for this type of application?

A1. No. The flammability tests specified in § 173.306(i) are required for aerosols shipped under the limited quantity provisions of § 173.306. Since your client's products do not meet the criteria for shipment as limited quantities, their flammability may not be determined using the test specified in § 173.306(i)(2).

Q2. Are the products as a whole considered Division 2.1 materials since the propellants are 2.1 materials?

A2. No, Products A and B would not be classified as Division 2.1 materials solely because the propellants are Division 2.1 materials. Your client must determine the correct hazard class of each product in the form it will be offered for transportation. If Products A and B meet the definition specified in § 173.115(a) for Division 2.1, Flammable Gas, then they must be classified as Division 2.1 materials.

- Q3. If Spec 39 cylinders are used for these products, are they limited to 75 cubic inches?
- A3. Section 173.304(d)(3)(i) limits the internal volume for a DOT Specification 39 cylinder used to transport liquefied petroleum gas to 75 cubic inches. This limitation applies to pure liquefied petroleum gas or to mixtures that have the characteristics of liquefied petroleum gas. If your client's products have the characteristics of liquefied petroleum gas, as determined by testing, then the internal volume limitation of § 173.304(d)(3)(i) will apply.
- Q4. Are there any exemptions in use that may be applicable to these types of shipments?
- A4. No, a search of our exemptions data base found no current exemptions applicable to aerosols shipped in DOT Specification 39 cylinders and using propane or isobutane as propellants.

I hope this information is helpful. If you need anything further, please do not hesitate to contact me.

Sincerely,



Alan I. Roberts
Associate Administrator for
Hazardous Materials Safety

Robert J. Reynolds
Consultant

February 24, 1998

Administrator, RSPA
U.S. Department of Transportation
400 7th Street SW
Washington, DC 20590-0001

I am a consultant working with a small formulator of industrial cleaning compounds. I would like your assistance in determining whether a certain industry practice is in compliance with DOT regulations.

My client has two products, similar to competitor products, that he would like to package in DOT 39 cylinders (up to 1500 cu. in. capacity). The cylinders would be used as industrial size aerosols. Other specification cylinders are too costly for use as a disposable container. The composition of the two products are:

PRODUCT A

water - 85%
surfactants - 10% (non-hazardous)
isobutane or propane - 5%

PRODUCT B

methylene chloride - 48% (Division 6.1, PG III)
resins and polymers - 25% (non-hazardous)
isobutane or propane - 27%

The isobutane and propane, in both products, are used only as propellants. They are not dissolved in the solution. Carbon dioxide and other non-flammable gases cause quality problems with the product.

Propane and isobutane are both classified as Division 2.1 flammable gases as defined in 173.115. They are not dissolved in the remainder of the product.

Although the containers are used as aerosols and charged to only 50-75 psig, they do not meet the limited quantity criteria of 173.306. The cylinder is fitted with a dip tube inhibiting the propellant from being expelled unless the container is operated while inverted or it is almost empty.

3/1/98
RJR

My advice originally was that if flammable gases, such as propane or isobutane were to be used, the container size would be limited to 75 cubic inches [173.302(a)(4)]. Unfortunately, it is a common industry practice to use isobutane or propane as the propellant. Some competitors use a flammable gas label; others ship as non-regulated because the products are not flammable according to tests conducted under 173.306(i)(2).

Can you please provide responses to the following questions:

- 1) Is testing under 173.306(i)(2) applicable for this type of application?
- 2) Are the products, as a whole, considered Division 2.1 materials since the propellants are 2.1 materials?
- 3) If Spec 39 cylinders are used for these products, are they limited to 75 cubic inches?
- 4) Are there any exemptions in use that may be applicable to these types of shipments?

My client, in his desire to be in compliance with all applicable regulations, is at a severe competitive disadvantage until this issue is resolved.

Thank you for your help in this matter.

Sincerely,



R. J. Reynolds