



Baker, Y.
25-0133

October 23, 2025

Mr. Matthew Nickels
Acting Director, Standards and Rulemaking Division
Pipeline and Hazardous Materials Safety Administration
Attn: PHH-10
U.S. Department of Transportation
East Building, 1200 New Jersey Ave., SE
Washington, D.C. 20590-0001
Submitted: Via Email
cc: infocntr@dot.gov

Dear Mr. Nickels,

Currie Associates respectfully requests a formal Letter of Interpretation (LOI) regarding the application of **§ 173.307 - Exceptions for compressed gases**. Specifically, we seek confirmation that our interpretation of §173.307(a)(4)(iii) and (v) is consistent with PHMSA's intent, as outlined in our discussion below and supported by PHMSA LOI Reference No. 21-0011 (issued April 12, 2021), which provides guidance related to this topic.

HMR Verbiage for Exceptions for Compressed Gases And Refrigerating Machines

§ 173.307(a)(4)(iii) & (v) and the applicable preliminary text reads as follows:

“§ 173.307 Exceptions for compressed gases.

(a) The following materials are not subject to the requirements of this subchapter:

...
(4) Refrigerating machines, including dehumidifiers and air conditioners, and components thereof, such as precharged tubing containing:

...
(iii) Except when offered or transported by air, 12 kg (25 pounds) or less of a flammable, non-toxic gas;

...
(v) 100 g (4 ounces) or less of a flammable, non-toxic liquefied gas.

...”

§ 173.307(a)(4)(iii) & (v) in its entirety is displayed in Attachment 1 (located in the attachments at the end of this document).

LOI Supports Applicability to Gases & Liquefied Gases

Regarding § 173.307, LOI Ref. No. 21-0011 Question 1 & Answer 1 (Attachment 2) clarified that the exception within § 173.307(a)(4)(iii) is applicable to both flammable, non-toxic gas as well as liquefied gas when offered for all modes of transport except by aircraft.

Use of the Exception for Gases Capable of Both States

Currie Associates requests confirmation that a gas which is capable of existing in both a gas & a liquefied state (for example, R-1234yf or D290 propane) may utilize the exception under §173.307(a)(4)(iii), if it is not transported by aircraft. Our understanding is based on the language of §173.307(a)(4)(iii), which references flammable, non-toxic gases but does not explicitly exclude liquefied forms. Meanwhile, LOI Ref. No. 21-0011 (Questions 1 & Answer 1) supports this interpretation by clarifying that liquefied gases are included within the scope of this exception. Therefore, we conclude that a gas capable of existing in both a liquefied and non-liquefied state qualifies for the §173.307(a)(4)(iii) exception when transported by surface modes.

Intended Applicability of §173.307(a)(4)(v)

If the conclusion that § 173.307(a)(4)(iii) applies to both gases and liquefied gases is correct, Currie Associates requests confirmation on the intended applicability of § 173.307(a)(4)(v). It is our understanding that Subparagraph (v) applies to all modes of transport, including air, while Subparagraph (iii) applies to all modes except air. Thus, we interpret the HMR as follows:

- a) Subparagraph (iii) - Authorizes an exception for up to 12 kilograms of flammable, non-toxic gas (either liquefied or non-liquefied) when transported by highway, rail, or vessel (excluding air).
- b) Subparagraph (v) – Authorizes an exception for up to 100 grams of liquefied flammable, non-toxic gas contained in a refrigerating machine when transported by any mode, including air.

Independence of Meeting Exception Conditions

Currie Associates requests confirmation on our understanding that the exceptions listed in § 173.307(a)(4)(i) through (v) are independent, and meeting the conditions of any single subparagraph removes the shipment from full regulation requirements under the HMR. For example, compliance with (iii) would not require additional compliance with (v) and vice versa.

Based on this interpretation, Currie Associates concludes that refrigerating machines containing no more than 12 kilograms of a flammable, non-toxic liquefied gas (such as R-1234yf or D290 propane), when they are not transported by air, are not subject to the HMR in accordance with §173.307(a)(4)(iii), even if the amount exceeds 100 grams.

Harmonization with International Regulations

Currie Associates also requests confirmation that §173.307(a)(4)(iii) and (v) are consistent with the applicable provisions in the various international regulations. Based on our review, **ICAO Technical Instructions Special Provision A103** reads as follows:

*“A103 (≈291) Flammable liquefied gases must be contained within refrigerating machine components. These components must be designed and tested to at least three times the working pressure of the machinery. The refrigerating machines must be designed and constructed to contain the liquefied gas and preclude the risk of bursting or cracking of the pressure-retaining components during normal conditions of transport. **Refrigerating***

machines and refrigerating machine components are considered not subject to these instructions if containing less than 100 g flammable, non-toxic, liquefied gas."

Based on our review, this aligns with § 173.307(a)(4)(v) since both authorize refrigerating machines or components containing less than 100 grams of flammable, non-toxic liquefied gas when they are transported by air. Except for this situation, air transport of these machines appears to be restricted otherwise.

For surface modes, the **IMDG Code and ADR Special Provision 291** (Attachment 3 & 4) and **TDGR Special Provision 104** (Attachment 5) appear to be consistent with §173.307(a)(4)(iii), providing an exception for machines or components containing less than 12 kilograms of flammable, non-toxic gas. Special Provision 291 for both IMDG and ADR states that "refrigerating machines and refrigerating-machine components are not subject to the requirements of this Code (or ADR) if they contain less than 12 kg of gas." Additionally, TDGR SP104 provides a similar exemption for ground, rail and vessel transport within Canada.

Summary of Confirmation Requests

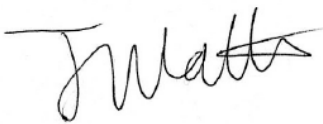
Currie Associates respectfully requests PHMSA's confirmation that the interpretations outlined above accurately reflect the correct intent and applicability of § 173.307(a)(4)(iii) and (v). We also seek confirmation that these provisions are consistent with the corresponding international regulations that are referenced in this request.

Please see the following attachments referenced within this document:

- Attachment 1: § 173.307(a)(4)(iii) & (v)
- Attachment 2: LOI Ref. No. 21-0011
- Attachment 3: IMDG Code Special Provision 291
- Attachment 4: ADR Special Provision 291
- Attachment 5: TDGR Special Provision 104

Currie Associates appreciates your review of this interpretation request and we look forward to your response.

Sincerely,



Drew Watts
Regulatory Compliance Specialist
Currie Associates
www.currieassociates.com
drew@currieassociates.com
O: 518-761-0668

Attachment 1: § 173.307(a)(4)(iii) & (v)

⦿ § 173.307 Exceptions for compressed gases.

- (a) The following materials are not subject to the requirements of this subchapter:
- (1) Carbonated beverages.
 - (2) Tires when inflated to pressures not greater than their rated inflation pressures. For transportation by air, tires and tire assemblies must meet the conditions in [§ 175.8\(b\)\(4\) of this subchapter](#).
 - (3) Balls used for sports.
 - (4) Refrigerating machines, including dehumidifiers and air conditioners, and components thereof, such as precharged tubing containing:
 - (i) 12 kg (25 pounds) or less of a non-flammable, non-toxic gas;
 - (ii) 12 L (3 gallons) or less of ammonia solution (UN2672);
 - (iii) Except when offered or transported by air, 12 kg (25 pounds) or less of a flammable, non-toxic gas;
 - (iv) Except when offered or transported by air or vessel, 20 kg (44 pounds) or less of a Group A1 refrigerant specified in ANSI/ASHRAE Standard 15 (IBR, see [§ 171.7 of this subchapter](#)); or
 - (v) 100 g (4 ounces) or less of a flammable, non-toxic liquefied gas.
 - (5) Manufactured articles or apparatuses, other than light bulbs each containing not more than 100 mg (0.0035 ounce) of inert gas and packaged so that the quantity of inert gas per package does not exceed 1 g (0.035 ounce).
 - (6) Light bulbs (lamps) conforming to the requirements of [§ 173.11](#).
- (b) [Reserved]

[Amdt. 173-94, [41 FR 16081](#), Apr. 15, 1976, as amended by Amdt. 173-135, [45 FR 13090](#), Feb. 28, 1980; [65 FR 50462](#), Aug. 18, 2000; [68 FR 45038](#), July 31, 2003; [68 FR 75745](#), Dec. 31, 2003; [69 FR 76174](#), Dec. 20, 2004; [71 FR 14604](#), Mar. 22, 2006; [74 FR 2266](#), Jan. 14, 2009; [76 FR 3380](#), Jan. 19, 2011; [80 FR 1162](#), Jan. 8, 2015; [85 FR 83400](#), Dec. 21, 2020]

Attachment 2: LOI Ref. No. 21-0011



U.S. Department
of Transportation
**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

April 13, 2021

Helen Walter-Terrinoni
VP Regulatory Affairs
Air-Conditioning, Heating, and Refrigeration Institute (AHRI)
2311 Wilson Boulevard Suite 400
Arlington, VA 22201

Reference No. 21-0011

Dear Ms. Walter-Terrinoni:

This letter is in response to your February 4, 2021, email requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to exceptions for compressed gases in refrigerating machines and their components. Specifically, you ask questions regarding the exceptions provided in §§ 173.307(a)(4)(iii) and (v).

We have paraphrased and answered your questions as follows:

- Q1. You ask whether the exception provided in § 173.307(a)(4)(iii) would apply to refrigerating machines containing 12 kg or less of a flammable, non-toxic liquefied gas, such as “UN3252, Difluoromethane, 2.1” or “UN3161, Liquefied gas, flammable, n.o.s., 2.1,” so long as such units are not offered or transported by air.
- A1. The answer is yes. Refrigerating machines and components thereof, containing 12 kg or less of a flammable, non-toxic gas, including a liquefied gas, are not subject to the requirements of the HMR provided they are not offered or transported by aircraft.
- Q2. You ask whether the exception provided in § 173.307(a)(4)(v) would apply to refrigerating machines containing 100 g or less of a flammable, non-toxic liquefied gas, such as “UN3252, Difluoromethane, 2.1” or “UN3161, Liquefied gas, flammable, n.o.s., 2.1,” regardless of the mode of transportation.

A2. The answer is yes. Refrigerating machines and components thereof, containing 100 g or less of a flammable, non-toxic liquefied gas, are not subject to the requirements of the HMR, regardless of the mode of transportation.

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

Sincerely,

A handwritten signature in blue ink, appearing to read 'Dirk Der Kinderen', written in a cursive style.

Dirk Der Kinderen
Chief, Standards Development Branch
Standards and Rulemaking Division

Attachment 3: IMDG Code Special Provision 291

- 291 Flammable liquefied gases shall be contained within refrigerating-machine components. These components shall be designed and tested to at least three times the working pressure of the machinery. The refrigerating machines and refrigerating-machine components shall be designed and constructed to contain the liquefied gas and preclude the risk of bursting or cracking of the pressure-retaining components during normal conditions of transport. Refrigerating machines and refrigerating-machine components are not subject to the provisions of this Code if they contain less than 12 kg of gas.

Attachment 4: ADR Special Provision 291

- 291 Flammable liquefied gases shall be contained within refrigerating machine components. These components shall be designed and tested to at least three times the working pressure of the machinery. The refrigerating machines shall be designed and constructed to contain the liquefied gas and preclude the risk of bursting or cracking of the pressure retaining components during normal conditions of carriage. Refrigerating machines and refrigerating-machine components are not subject to the requirements of ADR if they contain less than 12 kg of gas.

NOTE: For the purposes of carriage, heat pumps may be considered as refrigerating machines.

Attachment 5: TDGR Special Provision 104

104 (1) Flammable liquefied gases must be contained within refrigerating-machine components. These components must be designed to withstand at least three times the working pressure of the machinery and must be tested to ensure they meet that requirement. The refrigerating machines must be designed and constructed to contain the liquefied gas and to preclude the risk of the pressure-retaining components bursting or cracking during normal conditions of transport.

(2) These Regulations, except for Parts 1 and 2, do not apply to the offering for transport, handling or transport, on a road vehicle, a railway vehicle or a vessel on a domestic voyage, of refrigerating machines and refrigerating-machine components transported that contain less than 12 kg of gas.

UN3358