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

1200 New Jersey Avenue, SE
Washington, DC 20590

August 7, 2025

Art Fleener
Fleener Consulting LLC
3741 Mathews Road
Ames, IA 50014

Reference No. 25-0050

Dear Mr. Fleener:

This letter is in response to your April 23, 2025 email requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to the minimum thickness for Department of Transportation (DOT) specification Motor Carrier (MC) 331 cargo tanks. You explain that Pipeline and Hazardous Materials Administration (PHMSA) previously issued a memo to the Federal Motor Carrier Safety Administration's (FMCSA) Hazardous Materials Division, providing clarification on the minimum thickness requirements for cargo tanks under the HMR, including those for MC 331 cargo tanks. You ask questions regarding the minimum shell thickness requirements.

We have paraphrased and answered your questions as follows:

Q1. Is the memo from PHMSA to FMCSA, as referenced in your incoming email, regarding the minimum shell thickness of an MC 331 specification cargo tank still valid?

A1. Yes, this memo remains valid for the specific scenario that it addressed at the time it was drafted. Please keep in mind that an interagency memo, like the one referenced in your incoming email, is intended for "internal use only." This memo is not meant to be shared outside of the agency, as it serves as internal guidance for specific situations.

Q2. For an MC 331 specification cargo tank, what thickness is considered below the minimum requirement?

A2. In accordance with § 178.337-3(e), the minimum thickness of the tank shell and head shall be determined using structural design requirements in Section VIII of the American Society of Mechanical Engineers (ASME) Code[1] or 25% of the tensile strength of the

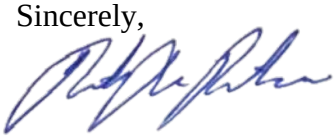
[1] ASME BPVC.VIII.1-2017, Section VIII—Rules for Construction of Pressure Vessels Division 1.

material used. Additionally, the minimum required thickness for an MC 331 cargo tank constructed before October 1, 2003, is determined by the thickness indicated on the U-1A form[2] minus any corrosion allowance, as required in § 180.407(i)(9). If no corrosion allowance is indicated on the U-1A form, then the thickness of the tank shall be the thickness of the material of construction indicated on the U-1A form with no corrosion allowance. For an MC 331 cargo tank constructed after October 1, 2003, the required minimum thickness is the value that has been marked on the cargo tank, as required by §§ 180.407(i)(9) and 178.337-17(b).

Incidentally, § 180.407(i)(9) states that the minimum thickness for an MC 331 cargo tank constructed after October 1, 2003, can be found on the specification plate, but this is incorrect. However, the minimum thickness markings can be found on the name plate in accordance with § 178.337-17(b) and this will be corrected in a future rulemaking.

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

Sincerely,



Dirk DerKinderen
Chief, Standards Development Branch
Standards and Rulemaking Division

[2] Form U-1A

From: Dodd, Alice (PHMSA)
To: Baker, Yul (PHMSA)
Subject: FW: interp request
Date: Thursday, April 24, 2025 11:53:46
Attachments: under mill tollerance with .0004.pdf
interp thickness.pdf

From: Kelley, Shane (PHMSA) <shane.kelley@dot.gov>
Sent: Wednesday, April 23, 2025 3:19 PM
To: Hazmat Interps <hazmatinterps@dot.gov>
Cc: art fleener <fleenerconsulting@yahoo.com>
Subject: Fw: interp request

Please process and thank you

From: art fleener <fleenerconsulting@yahoo.com>
Sent: Wednesday, April 23, 2025 3:09:48 PM
To: Kelley, Shane (PHMSA) <shane.kelley@dot.gov>
Subject: interp request

Shane

See the below and the attached files.

Thanks

art
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515 291 9208
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On April 18, 2014, PHMSA issued a Memorandum, REF: 13-0216 that addressed minimum thickness of various specification cargo tanks. (see attached file). This memo appears to no longer be available as a PHMSA interpretation (interp) when a search is made on PHMSA's website.

This interp amongst other things answers questions on when a MC331 cargo tank is below the minimum thickness. This interp tells us based on ASME code that the USDOT will allow .014” below the minimum thickness as shown on the specification plate. So, if a tanks minimum thickness as shown on the specification plate is .250”, this tank would not be too thin until it is more then .014” below .250” or once the tank went below .236” for thickness.

PHMSA determined the .014” in the April 18, 2014, memo by using the ASME code for mill under tolerance for .01”. The .004” is based on a ASME interpretation for rounding rules for a combination total of .014”. (see attached file)

Below are the 49 CFR regulations for determining minimum thickness of specification cargo tanks.

Questions:

1. Is the April 18, 2014, Memorandum, REF: 13-0216 that addressed minimum thickness of various specification cargo tanks still accurate for when a MC 331 cargo tank is too thin and allowing .014” below the minimum thickness as shown on the specification plate before the tank is too thin.

2. If as described in question #1 is no longer allowed by the USDOT for a MC331 cargo tank when would a MC331 cargo tank that has a minimum thickness of .250” be below the minimum thickness?

If you have any questions, please let me know.

Thank you.

Art Fleener

Fleener Consulting LLC

§ 180.407 Requirements for test and inspection of specification cargo tanks.

(i) Thickness testing.

(5) Minimum thicknesses for MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, and MC 312 cargo tanks are determined based on the definition of minimum thickness found in § 178.320(a) of this subchapter. The following Tables I and II identify the “In-Service Minimum Thickness” values to be used to determine the minimum thickness for the referenced cargo tanks. The column headed “Minimum Manufactured Thickness” indicates the minimum values required for new construction of DOT 400 series cargo tanks, found in Tables I and II of §§ 178.346-2, 178.347-2, and 178.348-2 of this subchapter. In-Service Minimum Thicknesses for MC 300, MC 301, MC 302,

MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, and MC 312 cargo tanks are based on 90 percent of the manufactured thickness specified in the DOT specification, rounded to three places.

§ 178.320 General requirements applicable to all DOT specification cargo tank motor vehicles.

Minimum thickness means the minimum required shell and head (and baffle and bulkhead when used as tank reinforcement) thickness needed to meet the specification. The minimum thickness is the *greatest* of the following values:

(1)

(i) For MC 330, MC 331, and MC 338 cargo tanks, the specified minimum thickness found the applicable specification(s); or

(ii) For DOT 406, DOT 407 and DOT 412 cargo tanks, the specified minimum thickness found in Tables I and II of the applicable specification(s); or

(iii) For MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, and MC 312 cargo tanks, the in-service minimum thickness prescribed in Tables I and II of § 180.407(i)(5) of this subchapter, for the minimum thickness specified by Tables I and II of the applicable specification(s); or

(2) The thickness necessary to meet with the structural integrity and accident damage requirements of the applicable specification(s); or

(3) The thickness as computed per the ASME Code requirements (if applicable).