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

1200 New Jersey Avenue, SE
Washington, DC 20590

May 31, 2024

Edward Mansell
ATECH Engineering
116 W. Wakefield Ave.
Sikeston, MO 63801

Reference No. 23-0106

Dear Mr. Mansell:

This letter is in response to your December 18, 2023, letter requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to cylinder specifications. Specifically, you ask questions about the requirements for the heads on Department of Transportation (DOT) 4BW welded steel cylinders with electric-arc welded seams found in § 178.61(b)(2).

We have paraphrased and answered your questions as follows:

Q1. You ask whether the heads on DOT 4BW welded steel cylinders with electric-arc welded seams need to meet the specification requirements in Table 1 of Appendix A to Part 178—Specifications for Steel.

A1. Per the requirements of § 178.61(b)(2), the heads for DOT 4BW welded steel cylinders with electric-arc welded seams must conform to the specifications in Table 1 of Appendix A to Part 178—Specifications for Steel, or the alternative specification requirements for heads as provided in § 178.61(b)(2).

Q2. You ask for confirmation that the composition limit for "Carbon" indicated in Table 1 of Appendix A to Part 178—Specifications for Steel, is a maximum limit for each grade. You also ask whether there is any relation to the requirements in § 178.61(b)(2).

A2. Table 1 of Appendix A to Part 178—Specifications for Steel, lists three grades for steel, with ranges or maximum composition limits of "Carbon" for each grade. Grade 1 lists a minimum and a maximum composition limit for "Carbon", while grade 2 and grade 3 list only the maximum composition limit for "Carbon". The steel requirements in § 178.61(b)(1) apply to all parts (shell and heads) of the cylinders whereas § 178.61(b)(2)

provides alternative steel composition for the construction of heads on DOT 4BW cylinders.

Q3. You ask whether the low carbon steel for the heads of DOT 4BW cylinders referenced in § 178.61(b)(2) is the same steel referenced in Table 1 of Appendix A to Part 178—Specifications for Steel.

A3. The answer is no. The term "low carbon steel" listed in § 178.61(b)(2) is not a reference to the steel in Table 1 of Appendix A. If low carbon steel, as referenced in § 178.61(b)(2), is used to make DOT 4BW cylinder heads, it must comply with the alternative steel composition requirements as detailed in the same subparagraph. Additionally, the thickness of such heads must be determined by using a maximum wall stress of 24,000 psi in the formula described in § 178.61(f)(2).

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

Sincerely,

Steven Andrews
Acting Chief, Regulatory Review and Reinvention Branch
Standards and Rulemaking Division

Jacobson

23-0106

From: INFOCNTR (PHMSA)
To: Dodd, Alice (PHMSA)
Cc: Hazmat Interps
Subject: FW: Intrepretation Please
Date: Tuesday, December 26, 2023 3:04:53 PM
Attachments: STEEL-INTERPRETATION 12182023.pdf

Hi Alice,

Please see the attached interpretation request.

Let us know if you need anything.

Regards,

-Breanna

-----Original Message-----
From: edmansell@atechengineering.com <edmansell@atechengineering.com>
Sent: Tuesday, December 19, 2023 11:08 AM
To: PHMSA HM InfoCenter <PHMSAHMInfoCenter@dot.gov>
Subject: Intrepretation Please

Good morning,

Attached is an official request for interpretation, please confirm you have received in good order.

Kind regards,
Ed Mansell
417-300-5205

116 W. Wakefield Ave.
Sikeston, MO 63801
Phone: 417-300-5205
edmansell@atechengineering.com

December 18, 2023

U.S. DOT PHMSA Office of Hazardous Materials Standards
Attn: PHH-10
East Building 1200 New Jersey Avenue, SE.
Washington, DC 20590-0001
phmsa.hm-infocenter@dot.gov

RE: Request for Interpretation

We are asking for confirmation, on official letterhead, that the steel for heads under 49CFR §178.61 "Specification 4BW welded steel cylinders with electric-arc welded seam":

A. Need to meet with 49 CFR Appendix A to Part 178 -Specifications for Steel Table 1?

B. Confirm that carbon percent is the maximum, as indicated in Appendix A to Part 178 -Specifications for Steel Table 1, for each case and there is no restriction or relation with the §178.61(b)(2) below?

C. Confirm that the low carbon steel referenced in §178.61(b) (2) below, is not the steels reference in 49 CFR Appendix A to Part 178 -Specifications for Steel Table 1?

49CFR §178.61 Specification 4BW welded steel cylinders with electric arc welded seam.

b) ***Steel.***

(1) The steel used in the construction of the cylinder must be as specified in table 1 of appendix A to this part. The cylinder manufacturer must maintain a record of intentionally added alloying elements.

(2) Material for heads must meet the requirements of paragraph (b)(1) of this section or be open hearth, electric or basic oxygen carbon steel of uniform quality. Content percent may not exceed the following: Carbon 0.25, Manganese 0.60, Phosphorus 0.045, Sulfur 0.050. Heads must be hemispherical or ellipsoidal in shape with a maximum ratio of 2:1. If low carbon steel is used, the thickness of such heads must be determined by using a maximum wall stress of 24,000 psi in the formula described in paragraph (f)(2) of this section.

Kind regards,

Edward D Mansell

Edward Mansell