



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue, SE
Washington, D.C. 20590

AUG 10 2016

Mr. John Heater
Transportation Safety and Security Specialist
The Dow Chemical Company
100 Independence Mall West
Philadelphia, PA 19106

Ref. No. 16-0115

Dear Mr. Heater:

This responds to your June 29, 2016, email requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR parts 171-180) applicable to the use of stainless steel as a material of construction for DOT Specification 117 (DOT-117) tank cars. On May 8, 2015, the Pipeline and Hazardous Materials Safety Administration (PHMSA) published HM-251, a Final Rule titled "Hazardous Materials: Enhanced Tank Car Standards and Operation Controls for High-Hazard Flammable Trains" [80 FR 26643] which adopted prescriptive, performance, and retrofit standards for DOT-117 tank cars. Your questions are paraphrased and answered below:

Q1. You note that in accordance with DOT-117 prescriptive standards the only material of construction authorized is AAR TC-128 Grade B, normalized steel and ask if any alternate materials, such as stainless steel, may be used when building DOT-117 tank cars.

A1. The answer is yes. Section 179.202-1 requires that each DOT-117 tank car be built in accordance with the general requirements of § 179.200 and the prescriptive standards in §§ 179.202-1 through 179.202-11 or the performance standards in § 179.202-12. The prescriptive standards for DOT-117 tank cars require the use of, at a minimum, 9/16 inch AAR TC-128, Grade B, normalized steel. While no other materials are prescribed, alternate designs will be considered in accordance with the performance specification standards of § 179.202-12. This may allow a DOT-117 tank car to be built with stainless steel. DOT-117 performance standards were intentionally incorporated into HM-251 to drive innovation and allow for variations in the DOT-117 tank car specifications.

Q2. You ask how to proceed in an obtaining an approval to build a stainless steel DOT-117 tank car.

A2. In order for a DOT-117 tank car to be built with stainless steel, it must meet the performance standards outlined in § 179.202-12 (see A1). Section 179.202-12(a) requires tank car design, testing, and modeling results be reviewed and approved by the Associate Administrator for Railroad Safety/Chief Safety Officer, Federal Railroad Administration (FRA), 1200 New Jersey Ave. S.E., Washington, DC 20590.

Q3. You ask for consideration in adopting stainless steel as a prescribed material of construction for DOT-117 tank cars and provide reasons for its incorporation.

A3. As mentioned in A1 above, the performance standards in § 179.202-12 have been designed to allow for variations in the DOT-117 tank car, as you suggest.

I trust this satisfies your inquiry. Please contact us if we can be of further assistance.

Sincerely,

A handwritten signature in black ink, appearing to read "Dirk Der Kinderen". The signature is fluid and cursive, written over a light blue horizontal line.

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

Celler
179.200-7
Materials
16-0115

Goodall, Shante CTR (PHMSA)

From: Betts, Charles (PHMSA)
Sent: Thursday, June 30, 2016 8:12 AM
To: Goodall, Shante CTR (PHMSA)
Subject: FW: Interpretation Letter Request - Dow Chemical
Attachments: Dow Chemical Request for Interpretation.pdf

Here you go

From: Heater, John L (J) [<mailto:jheater@dow.com>]
Sent: Wednesday, June 29, 2016 1:06 PM
To: PHMSA HM InfoCenter
Cc: Majors, Leonard (PHMSA); Keltz, Randy (FRA); Betts, Charles (PHMSA); Alexy, Karl (FRA); Freeman, Cheryl (PHMSA)
Subject: Interpretation Letter Request - Dow Chemical

The Dow Chemical Company respectfully submits the attached request for an interpretation letter. Your prompt processing is necessary and would be greatly appreciated.

Please contact me with any questions or need for additional information.

Sincerely,

John Heater
Transportation Safety and Security Specialist
The Dow Chemical Company
100 Independence Mall West
Philadelphia, PA 19106
Phone: (215) 592-3157
Email: jheater@dow.com



For the testing, destroy
TANK CAR

The Dow Chemical Company
Midland, MI 48674
U.S.A.

June 29, 2016

Via Email

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

Subject: **Request for Interpretation**

117J VS 117P

The Dow Chemical Company ("Dow") respectfully submits this request for an interpretation letter.

Dow's request for an interpretation is with regard to the materials of construction authorized for a DOT Specification 117 tank car in §179.200-7 of the Hazardous Material Regulations ("HMR"). Dow has a need to build DOT Specification 117 tank cars constructed of stainless steel; however, as adopted in the HM-251 Final Rule, only TC-128 Grade B carbon steel is an authorized material of construction for a DOT Specification 117 tank car. ~~Was it an oversight or a deliberate decision to exclude stainless steel as an authorized material of construction?~~

Following are the reasons in support of stainless steel as an authorized material of construction:

117P W/ approval from
FRA

- In the HM-251 Notice of Proposed Rulemaking, first footnote under "Table 2: Safety Features by Tank Car Option" in the preamble on page 45019, it was implied that stainless steel would be an authorized material of construction by stating the following: *"For the purposes of this figure, TC-128 Grade B normalized steel is used to provide a consistent comparison to the proposed options. Section 179.200-7 provides alternative materials which are authorized for the DOT Specification 111."* As such, it doesn't appear that the intent was to exclude the use of alternative steels; however these were not included in the final rule, which supports Dow's belief that this was an oversight, not a deliberate exclusion. Additionally, for the Transport Canada proposed TC 140 Specification tank car (later adopted as the TC 117 Specification tank car), stainless steel was a proposed material of construction; however Transport Canada only adopted TC-128 Grade B normalized steel.
- In the unpublished February 2016 Advanced Tank Car Collaborative Research Program ("ATTCRP") Final Technical Report for Project TWP-10, sponsored by the American Chemistry Council, the Association of American Railroads ("AAR"), The Chlorine Institute, The Fertilizer Institute and the Railway Supply Institute ("RSI"), it was reported that 304L stainless steel produces the highest average normalized puncture energy, which represents a 55% improvement over TC-128 Grade B carbon steel, and a 17% improvement in average normalized puncture force over TC-128 Grade B carbon steel. Additionally, on page 88 of the report, Figure 66 indicates a 24% increase in puncture speed resistance for 304L stainless steel; therefore, a 9/16 inch thick stainless steel plate would at a minimum be equal in



The Dow Chemical Company
Midland, MI 48674
U.S.A.

performance to TC-128 Grade B carbon steel, and stainless steel could actually be thinner based on puncture energy absorption.

- There are some flammable liquids that are not compatible with either carbon steel or any lining Dow is aware of that is suitable for application to a carbon steel tank car, consequently a stainless steel DOT Specification 117 tank car would be required.

Dow recently has brought forth this issue for discussion at the April 2016 AAR Tank Car Committee meeting, as well as during the Transport Canada meeting of the TP14877 Consultative Committee in May 2016. During these meetings, all parties seemed to be in support of the need to add stainless steel as an authorized material of construction for the DOT Specification 117 tank car.

For the aforementioned reasons, Dow requests that PHMSA and ERA collaborate with Transport Canada to adopt stainless steel as an authorized material of construction for a Specification 117 tank car as soon as possible. Dow believes this could be readily addressed as the FAST Act legislation is incorporated into the HMR. Alternatively, Dow solicits other suggestions on how to obtain approval to proceed.

Thank you for consideration of our request. Dow welcomes the opportunity to continue the discussion on this issue. If you have any questions or require additional information please do not hesitate to contact the undersigned at your convenience.

Sincerely,

John Heater

John Heater

Transportation Safety and Security Specialist
The Dow Chemical Company
100 Independence Mall West
Philadelphia, PA 19106
Phone: (215) 592-3157
Email: jheater@dow.com

Cc: Charles Betts, Pipeline and Hazardous Materials Safety Administration
Cc: Cheryl West Freeman, Pipeline and Hazardous Materials Safety Administration
Cc: Leonard Majors, Pipeline and Hazardous Materials Safety Administration
Cc: Karl Alexy, Federal Railroad Administration
Cc: Randy Keltz, Federal Railroad Administration