



U.S. Department
of Transportation

Pipeline and Hazardous Materials
Safety Administration

1200 New Jersey Avenue SE
Washington DC 20590

MAR 13 2015

Mr. John P. Smith, PE
Senior Transportation Engineer
Linde
575 Mountain Ave.
Murray Hill, NJ 07974

Ref. No. 14-0175

Dear Mr. Smith:

This letter responds to your September 19, 2014 email regarding required use of DOT specification rail tank cars under in the Hazardous Materials Regulations (HMR; 49 CFR parts 171-180). In your letter, you indicate that your company has historically used a DOT-105S500W tank car (foam insulated with a steel jacket) denoted with an "S" delimiter in lieu of the "A" to indicate compliance with the requirement for tank head puncture resistance for the transport of carbon dioxide (UN2187, Carbon dioxide, refrigerated liquid). Recently, you have been made aware that a car type DOT-105J500W tank car is now required with the "J" delimiter denoting thermal protection when transporting this material based on § 173.31(b)(4). Specifically, you request clarification of the correct tank car authorized for transportation of "UN2187, Carbon dioxide, refrigerated liquid."

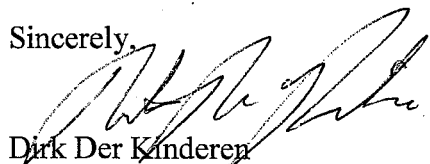
Your tank cars have a thermal protection system that includes a steel jacket, thus, generally, the specification marking must include the "J" delimiter. However, if insulation on the cars in question does not meet the thermal protection requirements, then your tank cars cannot be stenciled with the "J" delimiter indicating thermal protection with a metal jacket. For that case, you will need a special permit to use an "S" delimiter stenciled car in Class 2 service. If the insulation on the respective tank cars does meet the thermal protection requirements, then a Form R-1 amending the certificates of construction must be submitted to the Association of American Railroads, and the stenciling on the cars needs to be changed to reflect the "J" delimiter as required.

A DOT-105 tank car is authorized under § 173.314 for transportation of "UN2187, Carbon dioxide, refrigerated liquid." DOT-105 tank cars transporting a Class 2 material must have a thermal protection or insulation system (see § 173.31(b)(4)) that meets the thermal protection system requirements in § 179.18. The "J" delimiter means the tank car is equipped with a thermal protection system covered by a (metal) jacket and is equipped with a tank head puncture-resistance system. Thus, the requirement to mark with a "J" in lieu of "A" or "S" (see § 179.22(c)). Further, in a final rule published June 26, 1996 entitled "Crashworthiness Protection Requirements for Tank Cars; Detection and Repair of Cracks, Pits, Corrosion, Lining

Flaws, Thermal Protection Flaws and Other Defects of Tank Car Tanks; Corrections and Response to Petitions for Reconsideration" (HM-189M; 61 FR 33252), PHMSA revised § 173.31(b)(4)(i) to clarify that a tank car having a thermal protection system (conforming to § 179.18) and a tank car having an insulation system that has a heat flux of no more than 0.613 kilojoules per hour, per square meter, per degree Celsius temperature differential, are considered to meet the thermal protection system requirement. For example, a tank car currently marked "J" or "T," a tank car currently marked "A" but having a thermal protection material applied (e.g., 2-inches of ceramic fiber and 2-inches of glass fiber found on chlorine tank cars), and a tank car that has superior thermal resistance, such as a tank car used for carbon dioxide (refrigerated liquid), are considered to conform to the thermal protection standard.

I trust this information is helpful. If you have further questions, please do not hesitate to contact this office.

Sincerely,



Dirk Der Kinderen
Acting Chief, Standard Development
Standards and Rulemaking Division

Broussard
\$173.31
Tank Cars

14-0175

Dodd, Alice (PHMSA)

From: Ciccarone, Michael CTR (PHMSA)
Sent: Monday, September 22, 2014 1:30 PM
To: Hazmat Interps
Subject: FW: Interpretation Request - DOT car type for CO2

Shante and Alice,

Please submit this for a formal letter of interpretation. Mr. Smith spoke to Adam Lucas in the HMIC.

Thanks,

Mike

From: John.P.Smith@linde.com [mailto:John.P.Smith@linde.com]
Sent: Friday, September 19, 2014 5:51 PM
To: PHMSA HM InfoCenter
Subject: Interpretation Request - DOT car type for CO2

To whom it may concern,

Linde LLC would request an interpretation of 49 CFR for the use of DOT 105 S 500 W rail cars when transporting Carbon Dioxide Refrigerated Liquid.
Liquid CO2 being hazard class 2.2 and UN # 2187.

Linde has owned, leased and operated CO2 rail cars as specified in 49 CFR Part 179.101, specifically DOT 105 A 500 W rail cars, foam insulated, with a steel jacket, and qualified for tank head puncture resistance thus denoted by the " S " delimiter.

It has recently been brought to our attention that car type DOT 105 J 500 W car are now required for CO2 rail cars. The "J " delimiter denoting thermal protection.
Our attention was directed to 173.31 b 4 i. stating Class 2 material cars require thermal protection. Thermal protection requiring a " J " delimiter.

The cars Linde uses are (DOT 105 S 500 W) are constructed with foam insulation system.
We request an interpretation to clarify the correct car type for Carbon Dioxide Refrigerated Liquid service.

Regards,
John P. Smith PE
Sr Transportation Engineer

Linde
575 Mountain Ave
Murray Hill, NJ 07974

Mobile Ph 732 829 9644
Office 908 771 1240