



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

1200 New Jersey Avenue, SE  
Washington, DC 20590

March 28, 2024

Roger Dalske  
Vice President Engineering and Fleet Operations  
American Industrial Transport, Inc.  
100 Clark Street  
St. Charles, MO 63301

Reference No. 23-0102

Dear Mr. Dalske:

This letter is in response to your November 28, 2023, letter requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to thermal protection systems on rail tank cars. You ask whether thermal protection systems included among the Department's list of thermal protection systems that comply with the requirements of Part 179, Appendix B—and no longer require test verification per § 179.18(c)—can be combined. Specifically, you ask whether a different thermal protection system on the list may be used to repair a thermal protection system on the list that has already been installed on a tank car if the list does not specifically identify the two systems in use together. It is your understanding that it would be permissible to use one listed thermal protection system to repair another listed thermal protection system provided the tank car still meets the required performance standards set forth in the HMR, and that further test verification of the combined system would be unnecessary because separately both systems no longer require test verification.

Based on the information in your letter and the included plans for repair of the thermal protection system, it is the opinion of this Office that your understanding is incorrect. The thermal protection systems that comply with Part 179, Appendix B and no longer require test verification per § 179.18(c), provide readily available options to be used wholly. Combining pieces of two or more systems from the thermal protection systems list will require test verification in accordance with the requirements of § 179.18(a)-(b), as the systems on the list were not tested in combination.

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

Sincerely,

A handwritten signature in blue ink, appearing to read "Dirk Der Kinderen".

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

**Jones, Jessie Jane CTR (PHMSA)**

23-0102 CONFIDENTIAL

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**From:** Dodd, Alice (PHMSA)  
**Sent:** Wednesday, November 29, 2023 2:00 PM  
**To:** Jones, Jessie Jane CTR (PHMSA)  
**Subject:** Fwd: requesting interpretation of acceptable repair of thermal protection systems  
**Attachments:** Public Version\_AITX Interpretation Request - Thermal Protection System (11.28.23).pdf;  
Confidential Version\_AITX Interpretation Request - Thermal Protection System (11.28.23).pdf

Jessie,  
Here you go thanks

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**From:** Patrick, Eamonn (PHMSA) <eamonn.patrick@dot.gov>  
**Sent:** Wednesday, November 29, 2023 11:14:49 AM  
**To:** Dodd, Alice (PHMSA) <Alice.Dodd@dot.gov>  
**Cc:** DerKinderen, Dirk (PHMSA) <Dirk.DerKinderen@dot.gov>; Foster, Glenn (PHMSA) <Glenn.Foster@dot.gov>; Majors, Leonard (PHMSA) <leonard.majors@dot.gov>  
**Subject:** FW: requesting interpretation of acceptable repair of thermal protection systems

Alice,

Please see attached for a LOI request. Please check this in and assign to a specialist, and be sure to note that AITX is requesting confidential treatment. You can also let the assigned specialist know that Leonard and I have a lot of background on this request and we're happy to meet and discuss.

-Eamonn

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**From:** Dalske, Roger <RDalske@aitx.com>  
**Sent:** Tuesday, November 28, 2023 3:47 PM  
**To:** INFOCNTR (PHMSA) <INFOCNTR.INFOCNTR@dot.gov>  
**Cc:** Patrick, Eamonn (PHMSA) <eamonn.patrick@dot.gov>; O'Brien, Kenneth <KOBrien@aitx.com>; Dalske, Roger <RDalske@aitx.com>  
**Subject:** requesting interpretation of acceptable repair of thermal protection systems

AITX is requesting interpretation of acceptable repair of thermal protection systems previously discussed at the October AAR Tank Car Meetings.

Attached please find a public and confidential version of AITX's request for an interpretation from PHMSA. As indicated in its letter, AITX requests confidential treatment of the three procedures included as attachments to the confidential version of the letter pursuant to 49 C.F.R. § 105.30 because these documents constitute confidential business information relating to AITX's business operations, practices, and procedures, which are the type of business information exempt from the Freedom of Information Act, as set forth in 5 U.S.C. § 552(b)(4).



Roger Dalske

Vice President Engineering and Fleet Operations

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100 Clark Street | St. Charles, MO | 63301

E-mail: [RDalske@aitx.com](mailto:RDalske@aitx.com)



**AMERICAN  
INDUSTRIAL  
TRANSPORT™**

November 28, 2023

VIA ELECTRONIC MAIL ONLY

INFOCNTR (PHMSA) [INFOCNTR@dot.gov](mailto:INFOCNTR@dot.gov)

Standards and Rulemaking Division

Pipeline and Hazardous Materials Safety Administration

Attn: PHH-10, U.S. Department of Transportation, East Building

1200 New Jersey Avenue, SE.

Washington, DC 20590-0001

Subject: Request for Interpretation of 49 C.F.R. § 179.18.

To Whom It May Concern:

The federal rules require that certain tank cars be equipped with a thermal protection system that meets the criteria specified in 49 C.F.R. § 179.18. The Hazardous Materials Regulations do not define the term “thermal protection system” but instead set forth a thermal protection performance standard that each system must meet. *Id.* § 179.18(a). Compliance with the performance standard must be verified by analyzing the fire effects on the entire surface of the tank car using the analysis methodology set forth in § 179.18(b) and Appendix B to Part 179. PHMSA maintains a list of thermal protection systems that comply with the requirements in Appendix B of 49 C.F.R. § 179 and therefore no longer require test verification (hereafter, the “Approved Systems List”). PHMSA’s predecessor deliberately elected to use a performance standard rather than design specifications for the thermal protection system in order to incentivize and allow for innovation. 42 Fed. Reg. 46306, 46309 (Sept. 15, 1977) (Final Rule - Shippers; Specification for Pressure Tank Car Tanks).

AITX intends to repair one system on the Approved Systems List with another system also on the Approved Systems List. Although the Approved Systems List does not specifically identify these two systems in use together as a combined system, both systems are identified on the Approved Systems List and therefore no longer require test verification.

Specifically, AITX owns and maintains tank cars that are equipped with a thermal protection system that includes insulation and an 11-gauge metal jacket that meets the requirements of 179.18 (hereafter, the “original thermal protection system”). Pursuant to its infrared inspection procedure, AITX personnel use a thermal inspection camera to detect voids in the original thermal protection system of a tank car. AITX intends to repair such voids by applying a coating to the affected area such that the coating will overlap the identified voids to ensure all areas are adequately protected. The coating itself is an approved thermal protection system that is identified on the Approved System List (e.g., Jotun Paints’ Jotachar JF750 Intumescent paint; Courtaulds Aerospace’s Therma Shield coating; Textron Specialty Materials’ Chartek 59 coatings; and Thermal Sciences’ Thermo-lag coatings). Accordingly, AITX intends to use the two approved thermal protection systems in combination with one another. For PHMSA’s reference, AITX has attached a copy of its infrared inspection procedure and its repair procedures that contemplate application of a coating (i.e., a second thermal protection system) to address voids in the original

thermal protection system. AITX claims each of these procedures as confidential proprietary information pursuant to 49 C.F.R. § 105.30 and requests confidential treatment of these three procedures.<sup>1</sup>

While § 179.18 does not expressly address this scenario, AITX understands it is permissible to use one approved thermal protection system to repair another approved thermal protection system provided the tank car still meets the performance standard set forth in § 179.18(a). Moreover, AITX understands that further test verification of the combined system is unnecessary because both individual thermal protection systems are identified on the Approved System List and no longer require test verification.

Based on engineering principles, when making this repair AITX expects the following conditions will be maintained:

1. The pool fire and torch fire survival times will remain unchanged or potentially be improved by the new combined thermal protection system because each individual thermal protection system has already been verified to meet the § 179.18(a) thermal protection system performance standard.
2. The insulating characteristics of the original thermal protection system will be maintained or potentially exceeded using the combined system. The AAR MSPR Appendix A pressure relief device requirements will continue to be met because there will be no change to the pressure relief device. In addition, the combined thermal protection system is better insulated than the original thermal protection system.
3. The puncture resistance of the car will be maintained because the thickness of the head shields, tank and jacket will remain the same.

In addition, AITX will undertake the following activities:

1. The original thermal protection system will be stabilized and evaluated to ensure it will continue to meet its intended function and design level of safety and reliability for the inspection and test interval assigned to the safety system.
2. The combined thermal protection system will be evaluated to ensure it will meet its function and design level of safety and reliability for the inspection and test interval assigned to the combined safety system.
3. The changes to the thermal protection system are recorded on the AAR Certificate of Construction (“COC” of 4-2) or through the Tank Car Integrated Data base (TCID), with reference to an approved COC, in accordance with AAR MSRP M-1002 requirements.
4. The tank car, as repaired with the combined thermal protection system, will continue to meet the federal DOT package specification requirements and applicable AAR rules.

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<sup>1</sup> AITX requests confidential treatment of these three procedures pursuant to 49 C.F.R. § 105.30 because these documents constitute confidential business information relating to AITX’s business operations, practices, and procedures, which are the type of business information exempt from the Freedom of Information Act, as set forth in 5 U.S.C. § 552(b)(4).

In summary, AITX is requesting that PHMSA confirm its understanding that AITX is permitted to use one approved thermal protection system to repair another approved thermal protection system that has an 11-gauge jacket. AITX will evaluate tank cars with a combined system to ensure that the combined system reliably meets its functional requirements for the inspection and test interval assigned to the safety system.

Please feel free to contact me if you have any questions or require additional information regarding our request.



Roger Dalske

Vice President Engineering and Fleet Operations

(636) 940-6185 | [AITX.COM](http://AITX.COM)

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E-mail: [RDalske@aitx.com](mailto:RDalske@aitx.com)

CC: Eamonn Patrick [eamonn.patrick@dot.gov](mailto:eamonn.patrick@dot.gov)  
O'Brien, Kenneth [KOBrien@aitx.com](mailto:KOBrien@aitx.com)



**AMERICAN  
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November 28, 2023

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Standards and Rulemaking Division

Pipeline and Hazardous Materials Safety Administration

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