



U.S. Department  
of Transportation

**Pipeline and  
Hazardous Materials Safety  
Administration**

400 Seventh Street, S.W.  
Washington, D.C. 20590

MAR 31 2006

Mr. John Cayias  
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Richardson, TX 75080

Ref. No: 05-0120

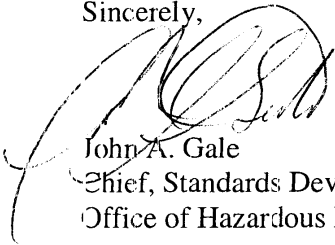
Dear Mr. Cayias:

This responds to your request for clarification of the periodic inspection and test requirements for non-DOT specification cargo tanks authorized under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically, you ask about inspection and retest requirements for non-DOT specification cargo tanks authorized to transport elevated temperature materials.

A non-DOT specification cargo tank used for the transportation of elevated temperature materials, such as molten sulfur, must meet the general requirements in § 173.247(g) of the HMR. A non-DOT specification cargo tank is not subject to the periodic inspection or retest requirements of the HMR. It is the shipper's responsibility to assure that the cargo tank conforms to all applicable HMR requirements. Note that in accordance with § 173.24(e), the shipper must ensure that a packaging is compatible with its lading even if that packaging is authorized for transportation of the material in Part 173 of the HMR. In the particular case of molten sulfur, the variability of its composition and other factors related to the operational service of the cargo tank may require that a shipper institute certain inspections and frequencies beyond that required of a comparable DOT specification tank.

I hope this information is helpful. Please contact us if you require additional assistance

Sincerely,

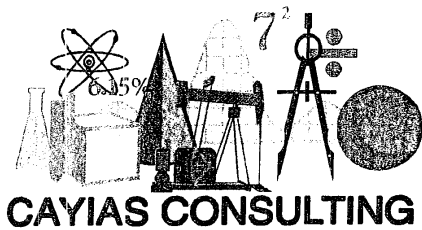
  
John A. Gale  
Chief, Standards Development  
Office of Hazardous Materials Standards



050120

173.247(g)  
173.24(e)

5/16/05  
CAYIAS



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*Referford  
§173.247 (g)  
Applicability  
05-0120*

May 16, 2005

Mr. Edward T. Mazzullo, Director  
Office of Hazardous Materials  
DHM 10, Room 8422  
DOT PHMSA  
400 Seventh Street, S.W.  
Washington, DC 20590

Re: Molten Sulfur Bulk Transport Requirements

Dear Mr. Mazzullo:

This letter is to request clarification of the Code of Federal Regulations (CFR) as they relate to the transportation of molten sulfur using non-DOT specification cargo tank motor vehicles. Given the general requirements of 49CFR171.2:

(b) No person may transport a hazardous material in commerce unless that person is registered in conformance with subpart G of part 107 of this chapter, if applicable, and the hazardous material is handled and transported in accordance with applicable requirements of this subchapter, or an exemption, approval or registration issued under this subchapter or subchapter A of this chapter.

I want to follow up on some parts of the regulations that are not specific as to how one can insure that they have complied with the intent and requirements of the regulations in the ongoing continuous use of non-DOT specification cargo tank motor vehicles in the transportation of molten sulfur.

From the table in the 49 CFR § 172.101 HAZARDOUS MATERIALS TABLE, molten sulfur is designated as a hazardous substance for both domestic and international transportation. I have taken the liberty to provide an excerpt of the table including the two classes, domestic and international, of molten sulfur for your review:

Symbols (1)	D	I
Hazardous materials descriptions and proper shipping names (2)	Sulfur, molten	Sulfur, molten
Hazard class or Division (3)	9	4.1
Identification Numbers (4)	NA2448	UN2448
PG (5)	III	III
Label Codes (6)	9	4.1
Special provisions (§172.102) (7)	IB3, T1, TP3	IB1, T1, TP3
Packaging (§173.***) (8)		
Exceptions (8A)	None	None
Nonbulk (8B)	213	213
Bulk (8C)	247	247
Quantity limitations (9)		
Passenger aircraft/rail (9A)	Forbidden	Forbidden
Cargo aircraft only (9B)	Forbidden	Forbidden
Vessel stowage (10)		
Location (10A)	C	C
Other (10B)	61	61

In this table, there is an exception provided for bulk packaging (8C) under 49CFR173.247 that allows for the use of non-DOT specification cargo tank motor vehicles as long as they are equivalent in structural design and accident damage resistance to specification packagings. An excerpt of the exemption from 49CFR173.247 is included.

(b) Cargo tanks: Specification MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, MC 312, MC 330, MC 331 cargo tank motor vehicles; DOT 406, DOT 407, DOT 412 cargo tank motor vehicles; and non-DOT specification cargo tank motor vehicles equivalent in structural design and accident damage resistance to specification packagings. A non-DOT specification cargo tank motor vehicle constructed of carbon steel which is in elevated temperature material service is excepted from § 178.345-7(d)(5) of this subchapter.

This section goes on to explain that under general requirements of 49CFR173.247:

(g) General requirements. Bulk packagings authorized or used for transport of elevated temperature materials must conform to the following requirements:

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and under subsection (3) of these general requirements, it addresses strength:

(3) Strength. Each packaging must be designed and constructed to withstand, without exceeding the yield strength of the packaging, twice the static loading produced by the lading in any orientation and at all operating temperatures.

Given the corrosiveness of molten sulfur and the potential for a significant amount of hydrogen sulfide, a corrosive and toxic material, to be contained within the molten sulfur, I would like clarification for the type and degree of ongoing inspections and measurements for non-DOT specification cargo tank motor vehicles to verify that they are suitable for transport of molten sulfur and specifically that they comply with 49CFR173.247(b) with regard to being "equivalent in structural design and accident damage resistance to specification packagings." As an example of comparison, an MC 307 or DOT 407 specification cargo tank motor vehicle under 49CFR180.407 would be required to undergo testing which would include, for an insulated MC 307 / DOT 407 cargo tank, an internal and external visual inspection every year, a leakage test every year, a pressure test every 5 years, and a thickness test every 2 years specifying, in Table 1, a minimum materials thicknesses for such cargo tanks.

I appreciate any help and assistance you can provide in this matter and look forward to your response.

Very truly yours,



John Cayias  
Consultant

JC:jc