



DEPARTMENT OF TRANSPORTATION  
HAZARDOUS MATERIALS REGULATIONS BOARD  
WASHINGTON, D.C. 20590

7104

[ 49 CFR Parts 173, 179 ]

[ Docket No. HM-101; Notice 72-5 ]

TRANSPORTATION OF HAZARDOUS  
MATERIALS

Markings on Tank Cars

The Hazardous Materials Regulations Board is considering amendment of several sections in Parts 173 and 179 of the Department's Hazardous Materials Regulations. These amendments would require the name of certain hazardous materials being transported to be marked on the sides of tank cars in compliance with specific detailed marking requirements.

Based on the Department's observations during accident situations, and on recommendations from fire, safety and police personnel, the Board believes that existing regulations covering special commodity markings on tank cars are not adequate. Identification by name of certain materials in tank cars by improved markings designed for greater visibility is an area of the regulations which needs upgrading. Improvements in marking would contribute to overall safety in transportation of these hazardous materials by tank car.

Several flammable liquefied compressed gases have been frequently involved in accidents. The present regulations do not require the names of these materials to be identified on tank cars. This proposal is to require the name of any flammable liquefied compressed gas being transported to appear on the tank car. In addition, the proposal is to change the marking requirements for other hazardous materials that are now required to be identified by marking on a tank car. These same changes would be made to cars covered under Docket No. HM-91; Notice No. 71-25 (36 F.R. 20166).

The proposal states that the commodity marking on a tank car must be in compliance with certain detailed requirements. These requirements are found in proposed § 173.31(a)(6) and specify the height of the letters, the size of the marking stroke, the spacing of the letters, and the use of contrasting colors.

Editorial changes are proposed in § 173.31(a)(4) for clarification purposes.

In consideration of the foregoing, it is proposed to amend 49 CFR Parts 173 and 179 as follows:

**PART 173—SHIPPERS**

(A) In § 173.31, paragraph (a)(4) would be amended; paragraph (a)(5) and (6) would be added to read as follows:

§ 173.31 Qualification, maintenance, and use of tank cars.

(a) \* \* \*

(4) Tank cars and appurtenances may be used for the transportation of a

commodity only when this transportation is authorized under Part 170 or 173 of this chapter and when the hazardous material is indicated on the certificate of construction filed with the Association of American Railroads' Committee on Tank Cars. Tank cars, proposed for a service other than indicated on the certificate of construction, are required to be first approved for such service by the Association of American Railroads' Committee on Tank Cars. Transfer of a tank car from one authorized service to another authorized service may be made only by the owner or with the owner's authorization.

(Note 1 remains the same.)

(5) When a tank car is marked with the name of a specific hazardous material (see listing in § 172.5 of this chapter unless otherwise specified in this Part 173), it may not be used for any other service until the marking is changed.

(6) Each name of a hazardous material required to be shown on the tank car must appear on a background of sharply contrasting color and must be readily visible when viewed from each side of the tank car. Each letter may not be less than 6 inches high, using a minimum of 3/4-inch stroke. Separation between each letter may not be less than 1 inch.

\* \* \* \* \*

(B) In § 173.122, paragraph (a)(3) would be amended to read as follows:

§ 173.122 Acrolein, inhibited.

(a) \* \* \*

(3) Specification 105A300W (§§ 179.100, 179.101 of this chapter) tank cars.

(i) Each tank car must be stenciled DOT-105A200W, and must be equipped with the 150 p.s.i.g. safety relief valve required by that specification.

(ii) Each tank car must be marked "ACROLEIN" in accordance with the requirements of § 173.31(a)(6).

\* \* \* \* \*

(C) In § 173.289, paragraph (a)(2) would be amended to read as follows:

§ 173.289 Formic acid and formic acid solutions.

(a) \* \* \*

(2) Specification 103CW or 103EW (§§ 179.200, 179.201 of this chapter) tank cars. Specification 103EW tank cars must be fabricated from Type 316 stainless steel. Each tank car must be marked "FORMIC ACID" in accordance with the requirements of § 173.31(a)(6).

\* \* \* \* \*

(D) In § 173.314 paragraph (c), the table would be amended; Note 23 would be added to read as follows:

§ 173.314 Requirements for compressed gases in tank cars.

(a) \* \* \*

Kind of gas	Maximum permitted filling density, Note 1	Required tank car, see § 173.31(a) (2) and (3)
<i>(change)</i>		
<b>Anhydrous ammonia; Note 23</b> .....	50.....	DOT-106A500X, Note 7.
	57.....	DOT-105A300W.
	57.....	DOT-112A400F, 112A340W, 114A340W, Note 15.
	58.8.....	DOT-112A400F, 112A340W, 114A340W, Note 15.
<b>Butadiene (pressure not exceeding 75 pounds per square inch at 105° F.) inhibited; Note 23.</b>	Notes 18 and 21.	ICC-105A100 <sup>1</sup> , 105A100W, 111A100W4, Note 4.
<b>Butadiene (pressure not exceeding 255 pounds per square inch at 115° F.) inhibited; Note 23.</b>	Notes 18 and 21.	DOT-112A340W, 114A340W, Notes 4 and 20.
<b>Butadiene (pressure not exceeding 300 pounds per square inch at 115° F.) inhibited; Note 23.</b>	Notes 18 and 21.	DOT-112A400W, 114A400W, Notes 4 and 20.
<b>Difluoroethane; Note 23</b> .....	79.....	DOT-106A500X, 110A500W, Note 7.
	84.....	DOT-105A300W.
<b>Difluoromonoethane; Notes 13 and 23</b> .....	100.....	DOT-106A500X, 110A500W, Note 7.
		DOT-105A100W, Note 4.
<b>Dimethylamine, anhydrous; Note 23</b> .....	69.....	DOT-106A500X.
	62.....	DOT-105A300W, Note 4.
<b>Dimethyl ether; Note 23</b> .....	69.....	DOT-106A500X, 110A500W.
	62.....	DOT-105A300W, Note 4.
<b>Hydrogen; Note 23</b> .....	Note 20.....	DOT-107A, Note 2.
<b>Liquid hydrocarbon gas (pressure not exceeding 75 pounds per square inch at 105° F.); Note 23.</b>	Note 21.....	ICC-105A100 <sup>1</sup> , 105A100W, 111A100W4, Note 4.
<b>Liquid hydrocarbon gas (pressure not exceeding 225 pounds per square inch at 105° F.); Note 23.</b>	Note 21.....	DOT-105A300W, Note 4.
<b>Liquid hydrocarbon gas (pressure not exceeding 300 pounds per square inch at 105° F.); Note 23.</b>	Note 21.....	DOT-105A400W, Note 4.
<b>Liquid hydrocarbon gas (pressure not exceeding 375 pounds per square inch at 105° F.); Note 23.</b>	Note 21.....	DOT-105A500W, Note 4.
<b>Liquid hydrocarbon gas (pressure not exceeding 450 pounds per square inch at 105° F.); Note 23.</b>	Note 21.....	DOT-105A600W, Note 4.
<b>Liquefied petroleum gas (pressure not exceeding 75 pounds per square inch at 105° F.); Note 23.</b>	Note 18.....	ICC-105A100 <sup>1</sup> , 105A100W, 111A100W4, Note 4.
<b>Liquefied petroleum gas (pressure not exceeding 150 pounds per square inch at 105° F.); Note 23.</b>	Note 18.....	DOT-105A200W, 105A200ALW, Note 4.
<b>Liquefied petroleum gas (pressure not exceeding 225 pounds per square inch at 105° F.); Note 23.</b>	Note 18.....	DOT-105A300W, Notes 4 and 20.
<b>Liquefied petroleum gas (pressure not exceeding 255 pounds per square inch at 115° F.); Note 23.</b>	Note 18.....	DOT-112A340W, 114A340W, Notes 4 and 20.
<b>Liquefied petroleum gas (pressure not exceeding 300 pounds per square inch at 105° F.); Note 23.</b>	Note 18.....	DOT-105A400W, Notes 4 and 20.
<b>Liquefied petroleum gas (pressure not exceeding 300 pounds per square inch at 115° F.); Note 23.</b>	Note 18.....	DOT-112A400F, 112A400W, 114A400W, Notes 4 and 20.
<b>Liquefied petroleum gas (pressure not exceeding 375 pounds per square inch at 105° F.); Note 23.</b>	Note 18.....	DOT-105A500W, Notes 4 and 20.
<b>Liquefied petroleum gas (pressure not exceeding 450 pounds per square inch at 105° F.); Note 23.</b>	Note 18.....	DOT-105A600W, Notes 4 and 20.
<b>Methylacetylene-propadiene, stabilized; Note 23</b> .....	Note 22.....	DOT-105A300W, 112A340W, 114A340W, 106A500X, Notes 4 and 9.
	84.....	DOT-106A500X, Note 7.
	86.....	DOT-105A300W, Note 4.
<b>Methyl chloride-methylene chloride mixture; Note 23</b> .....	Note 22.....	DOT-106A500X, Note 7, DOT-105A300W, Note 4.
<b>Methyl mercaptan; Note 23</b> .....	80.....	DOT-106A500X, Notes 7 and 14.
	82.....	DOT-105A300W, Note 4.
<b>Monomethylamine, anhydrous; Note 23</b> .....	60.....	DOT-106A500X.
	62.....	DOT-105A300W, Note 4.
<b>Trifluorochloroethylene; Note 23</b> .....	115.....	DOT-106A500X, 110A500W, Note 7.
	120.....	DOT-105A300W, Note 4.
<b>Trimethylamine, anhydrous; Note 23</b> .....	57.....	DOT-106A500X.
	59.....	DOT-105A300W, Note 4.
<b>Vinyl chloride; Notes 9 and 23</b> .....	84.....	DOT-106A500W, Note 7.
	87.....	DOT-105A200W, Notes 4 and 16.
	86.....	DOT-112A340W, Note 4.
<b>Vinyl fluoride, inhibited; Note 23</b> .....	58.....	DOT-105A600W, Note 17.
<b>Vinyl methyl ether, inhibited; Notes 9 and 23</b> .....	68.....	ICC-105A100 <sup>1</sup> , 105A100W, Note 4.
	68.....	DOT-106A500W, Note 7.

<sup>1</sup> Use of existing tank cars authorized, but new construction not authorized.

Note 23: Each tank car tank, except series 106A\*\*\* or 110A\*\*\*, must be marked with the name of the gas (see § 172.5(a) of this chapter) contained in the tank car in accordance with the requirements of section 173.31(a)(6).

(E) In § 173.332, paragraph (a)(3) would be added to read as follows; paragraph (d) would be canceled.

§ 173.332 Hydrocyanic acid, liquid (prussic acid) and hydrocyanic acid liquefied.

(a) \* \* \*

(3) Specification 105A500W or 105A-600W (§§ 179.100, 179.101 of this chapter) tank cars.

(i) Each tank car must be stenciled DOT-105A300W, and must be equipped with the 225 p.s.i.g. safety relief valve required by that specification.

(ii) The maximum permitted filling density is 63 percent of the water capacity of the tank.

(iii) Each tank car must be insulated with not less than 4 inches of corkboard, and must be marked "HYDROCYANIC ACID" in accordance with the requirements of § 173.31(a)(6).

(iv) Written procedure covering details of tank car appurtenances, dome fittings, and safety devices, and covering marking, loading, handling, inspection, and testing practices must be filed with and approved by the Federal Railroad Administration before any tank is offered for transportation of hydrocyanic acid.

\* \* \* \* \*

(d) [Canceled]

(F) In § 173.336, paragraph (a)(4) would be amended to read as follows:

§ 173.336 Nitrogen dioxide, liquid; nitrogen peroxide, liquid; and nitrogen tetroxide, liquid.

(a) \* \* \*

(4) Specification 105A500W (§§ 179.-100, 179.101 of this chapter) tank cars. Authorized for nitrogen tetroxide only.

(i) Each tank car must be insulated with not less than 4 inches of corkboard. All valves and fittings must be protected by a securely attached metal cover not subject to deterioration by the lading. All valve openings except the safety valve, must be fitted with gas-tight screw plugs or caps. Each safety valve must be equipped with a stainless steel or platinum frangible disc.

(ii) Each tank car must be marked "NITROGEN TETROXIDE" in accordance with the requirements of § 173.31(a)(6).

(iii) Written procedure covering details of tank car appurtenances, dome fittings, and safety devices, and covering marking, loading, handling, inspection, and testing practices must be filed with and approved by the Federal Railroad Administration before any tank car is offered for transportation of nitrogen tetroxide.

(G) In § 173.338, paragraph (a)(4) would be amended to read as follows:

§ 173.338 Nitrogen tetroxide-nitric oxide mixtures containing up to 33.2 percent weight nitric oxide.

(a) \* \* \*

(4) Specification 105A500W (§§ 179.-100, 179.101 of this chapter) tank cars.

(i) Each tank car must be insulated with not less than 4 inches of corkboard. All valves and fittings must be protected

by a securely attached metal cover not subject to deterioration by the lading. All valve openings, except the safety valve, must be fitted with gas-tight screw plugs or caps. Each safety valve must be equipped with a stainless steel or platinum frangible disc.

(ii) Each tank car must be marked "NITROGEN TETROXIDE-NITRIC OXIDE MIXTURE" in accordance with the requirements of § 173.31(a)(6).

(iii) Written procedure covering details of tank car appurtenances, dome fittings, and safety devices, and covering marking, loading, handling, inspection, and testing practices must be filed with and approved by the Federal Railroad Administration before any car is offered for transportation of nitrogen tetroxide-nitric oxide mixtures.

(H) In § 173.354, paragraph (a)(4) would be amended to read as follows:

§ 173.354 Motor fuel antiknock compound or tetraethyl lead.

(a) \* \* \*

(4) Specification 105A300W (§§ 179.-100, 179.101 of this chapter) tank car. Use of this tank car not authorized for tetraethyl lead. Each tank car must be marked "MOTOR FUEL ANTIKNOCK COMPOUND" in accordance with the requirements of § 173.31(a)(6).

\* \* \* \* \*

PART 179—SPECIFICATIONS FOR TANK CARS

(A) Section 179.15 would be added to read as follows:

§ 179.15 Marking.

When a tank car is required to be marked with the name of a hazardous material, this marking must appear on a background of sharply contrasting color and must be readily visible when viewed from each side of the tank car. Each letter may not be less than 6 inches high, using a minimum of 3/4-inch stroke. Separation between each letter may not be less than 1 inch.

(B) In § 179.102-2 paragraph (a)(5) would be amended; in § 179.102-3 paragraph (a)(4) would be added; in § 179.102-6 paragraph (a)(6) would be added; in § 179.102-8 paragraph (a)(1) would be amended and (a)(2) would be added; in § 179.102-9 paragraph (a)(1) would be amended, (a)(2) and (a)(3) would be added; in § 179.102-10 paragraph (a)(1) would be amended, (a)(2), (a)(3), and (a)(4) would be added; § 179.102-14 would be amended to read as follows:

§ 179.102 Special commodity requirements for pressure tank car tanks.

§ 179.102-2 Chlorine.

(a) \* \* \*

(5) Each tank car must be marked "CHLORINE" in accordance with the requirements of § 179.15.

§ 179.102-3 Liquefied flammable gases.

(a) \* \* \*

(4) Each tank car must be marked with the proper shipping name of liquefied flammable gas being transported in

accordance with the requirements of § 179.15.

§ 179.102-6 Vinyl chloride or vinyl methyl ether, inhibited.

(a) \* \* \*

(6) Each tank car must be marked "VINYL CHLORIDE" or "VINYL METHYL ETHER, INHIBITED", as appropriate, in accordance with the requirements of § 179.15.

§ 179.102-8 Motor fuel antiknock compound.

(a) \* \* \*

(1) Openings in tank heads to facilitate application of nickel lining are authorized if closed in an approved manner.

(2) Each tank car must be marked "MOTOR FUEL ANTIKNOCK COMPOUND" in accordance with the requirements of § 179.15.

§ 179.102-9 Nitrogen tetroxide or Nitrogen tetroxide-nitric oxide mixtures.

(a) \* \* \*

(1) Each tank car must be insulated with not less than 4 inches of corkboard. All valves and fittings must be protected by a securely attached metal cover not subject to deterioration by the lading. All valve openings, except the safety relief valves, must be fitted with gas-tight screw plugs or caps. Each safety relief valve must be equipped with a stainless steel or platinum frangible disc.

(2) Each tank car must be marked "NITROGEN TETROXIDE" or "NITROGEN TETROXIDE-NITRIC OXIDE MIXTURE", as appropriate, in accordance with the requirements of § 179.15.

(3) Written procedure covering details of tank car appurtenances, manway fittings, and safety relief devices, and covering marking, loading, handling, inspection, and testing practices must be filed with and approved by the Federal Railroad Administration before any car is offered for transportation of these commodities.

§ 179.102-10 Hydrocyanic acid.

(a) \* \* \*

(1) Each tank car must be a DOT-105A500W or higher rated tank so registered.

(2) Each tank car must be stenciled DOT-105A300W and must be equipped with the 225 p.s.i.g. safety relief valve required by that specification.

(3) Each tank car must be insulated with not less than 4 inches of corkboard and must be marked "HYDROCYANIC ACID" in accordance with the requirements of § 179.15.

(4) Written procedure covering details of tank car appurtenances, manway fittings, and safety relief devices, and covering marking, loading, handling, inspection, and testing practices must be filed with and approved by the Federal Railroad Administration before any tank car is offered for transportation of hydrocyanic acid.

§ 179.102-14 Acrolein inhibited.

(a) Tank cars used to transport acrolein inhibited must be in compliance with the following special requirements:

(1) Each tank car must be a DOT-105A300W or higher rated tank so registered.

(2) Each tank car must be stenciled DOT-105A200W and must be equipped with the 150 p.s.i.g. safety relief valve required by such specification.

(3) Each tank car must be marked "ACROLEIN" in accordance with the requirements of § 179.15.

(C) Section 179.202-15 would be amended to read as follows:

§ 179.202 Special commodity requirements for nonpressure tank car tanks.

§ 179.202-15 Formic acid and formic acid solutions.

(a) Tank cars used to transport formic acid and formic acid solutions must be in compliance with the following special requirements:

(1) Specification DOT-103EW tank car tanks must be fabricated from Type 316 stainless steel and must be marked "FORMIC ACID" in accordance with the requirements of § 179.15.

Interested persons are invited to give their views on this proposal. Communications should identify the docket num-

ber and be submitted in duplicate to the Secretary, Hazardous Materials Regulations Board, Department of Transportation, 400 Sixth Street SW., Washington, DC 20590. Communications received on or before July 25, 1972 will be considered before final action is taken on the proposal. All comments received will be available for examination by interested persons at the Office of the Secretary, Hazardous Materials Regulations Board, both before and after the closing date for comments.

This proposal is made under the authority of sections 831-835 of title 18, United States Code, section 9 of the Department of Transportation Act (49 U.S.C. 1657).

Issued in Washington, D.C., on April 3, 1972.

G. H. READ,  
*Captain, Alternate Board Member  
for the U.S. Coast Guard.*

MAC E. ROGERS,  
*Board Member for the  
Federal Railroad Administration.*

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