

DEPARTMENT OF TRANSPORTATION

Research and Special Programs
Administration

49 CFR Parts 171, 172, 173, and 174

[Docket No. HM-180; Amdt. Nos. 171-82,
172-98, 173-189, 174-47]

Placarding of Empty Tank Cars

AGENCY: Materials Transportation
Bureau (MTB), Research and Special
Programs Administration, DOT.

ACTION: Final rule.

SUMMARY: This final rule amends the Department's Hazardous Materials Regulations (HMR) by changing the placarding and shipping paper requirements for "empty" tank cars which contain residues of hazardous materials. The applicable regulations in Parts 173 and 174 which are affected by these changes are also revised as necessary. This action is being taken in response to a petition MTB received from the International Association of Fire Chiefs (IAFC) which indicated that emergency response personnel were being misinformed and misled by the EMPTY placard. The amendments contained in this rule will improve the hazardous materials communications system.

EFFECTIVE DATE: October 1, 1986. However, compliance with the regulations as amended herein is authorized as of November 1, 1985.

FOR FURTHER INFORMATION CONTACT: Lee Jackson, Office of Hazardous Materials Regulations, Materials Transportation Bureau, Department of Transportation Washington, DC 20590, telephone (202) 426-2075.

SUPPLEMENTARY INFORMATION:

I. Background

In June 1981, MTB received a petition from the IAFC which stated that the use of the EMPTY placard on tank cars is "misleading and dangerous" because it implies a lack of hazard even though, in many instances, an "empty" tank car containing a residue of a hazardous material presents a potentially greater danger than a tank car that is filled with the material. For this reason, the IAFC petition requested that MTB eliminate the requirement for display of EMPTY placards on tank cars. In response to this petition, MTB published on June 23, 1981, an advance notice of proposed rulemaking (ANPRM) (Docket HM-180, 46 FR 37953). This ANPRM reiterated the IAFC petition verbatim. Based on MTB's evaluation of the comments which they received on the ANPRM, a notice of proposed rulemaking (NPRM) was prepared by MTB and published on

August 10, 1984, under Docket HM-180 (49 FR 32090). After reviewing the comments received to that NPRM, MTB has prepared this final rule (FR).

The petition from the IAFC alluded in a general way to a potentially hazardous condition. Since residues in a tank car do not provide the cooling capacity of the liquid in tank cars which are fully loaded, tank cars which only contain residues may present a risk of violent rupture in a shorter time than fully loaded cars when in a fire. Under fire impingement conditions, the actions of emergency response personnel involved with a tank car which contains only the residue of a liquefied compressed gas or a flammable liquid may be different from the actions which they might take in responding to a tank car which contains a full load of materials. Upon consideration of the substantive points made in the IAFC petition, MTB prepared an ANPRM.

The ANPRM (46 FR 37953) requested comments from interested persons on eliminating the requirement for display of the EMPTY placard. Evaluation of the comments MTB received to the ANPRM showed that almost half of the commenters favored use of the same placard for a "loaded" and an "emptied" tank car. Other commenters favored retention of the EMPTY placard or use of a placard with the word "residual" in place of the word "empty".

Based on MTB's evaluation of the comments received to the ANPRM, a notice of proposed rulemaking (NPRM) was prepared by MTB and published under Docket No. HM-180 (49 FR 32090). In this NPRM, MTB again proposed to amend the placarding regulations by eliminating the EMPTY placard. This amendment would have required that a tank car which contained only the residue of a hazardous material be placarded with the same hazard warning placard required when the tank car contained a greater quantity of the materials. Although this proposal would increase an individual's awareness, as far as knowing the type of hazardous material contained in the tank car, emergency response personnel would still have no rapid method of determining whether a tank car involved in a fire was loaded or contained only the residue of the material. One rail carrier cited, in his comments to the NPRM, an accident in which a tank car which contained only the residue of anhydrous ammonia exploded in twenty minutes after being subjected to a fire.

With this in mind and after further consideration of comments, MTB prepared this FR. MTB has concluded that a new RESIDUE placard for tank cars is needed to accurately

communicate the appropriate warning to emergency response personnel. Further, to make the hazard communication information on the shipping paper consistent with that of the placard, MTB is revising the shipping paper entry from "EMPTY: Last Contained * * *" to "RESIDUE: Last Contained * * *". It should be noted that the Association of American Railroads stated in their comments to the NPRM that "the shipping paper requirements for empty tank cars which last contained hazardous materials do not apply to tank cars which held combustible liquids." This is incorrect. Under the Provisions of § 174.25(c) the shipping paper (billing) is not required to show the words "Empty" or "Empty: Last Contained", but a shipping paper must be prepared and accompany the shipment.

II. Response to Comments

MTB received forty-eight comments to the NPRM; 30 were from the chemical industry and nine were from rail carriers. The remaining nine comments came from firefighters, a State Department of Transportation, the National Transportation Safety Board (NTSB), and the Department of Defense.

Two commenters recommended that the words "residual" or "residue" be defined if used in place of the word "empty" on the placard. None of these terms are defined in the HMR. The NTSB recommended that the maximum quantity of a hazardous material that may be moved in an "empty" tank car be specified. MTB agrees with these recommendations and is adding, in § 171.8, a definition for "residue" which includes, for tank cars only, a quantitative limitation of three percent or less of the tank car's capacity. Historically, the Department's Federal Railroad Administration has considered a tank car to be "empty" when the residue remaining in the tank car does not exceed three percent of the weight of the car's last loaded movement. This operational definition is derived from Rule 35 of the Uniform Freight Classification Tariff. MTB believes that the quantitative definition for the word "residue" adopted in this rule is consistent with the FRA definition, is easy to understand and will enhance safety by providing emergency response personnel with accurate information regarding the maximum quantity of hazardous material that may remain in the tank car. Since this definition parallels the definition in use today, negligible costs should be incurred by this clarification of terminology. Eight commenters indicated that the word

"residue" or "residual" should not be substituted for the word "empty" on the shipping paper because the name used for shipping several materials that are not subject to the HMR contain the word "residue" or "residual." MTB reviewed the words "residue", "residual", and the "residuum" as listed in the *Uniform Freight Classification (UFC) 6000* and concluded that of the 47 line entries containing these words, five have names that could be confused with the description of hazardous materials. However, because of the format of the description of a hazardous material on the shipping paper, i.e., "RESIDUE: Last Contained Sulfuric acid, Corrosive material, UN 1830", there should be no confusion with UFC entries.

Five chemical industry commenters and five rail carriers, all of whom use tank cars to transport hazardous materials, requested that the present requirements for the EMPTY placard not be changed. When making up trains, the EMPTY placard is used operationally by rail carrier personnel to help them identify the correct tank cars when they are switching, humping and sorting cars. The rail carriers made the point that the EMPTY placard contributed to the safety of those rail employees involved in rail car switching, placement, and humping operations. MTB believes the RESIDUE placard can be used in rail car operations in the same manner as the EMPTY placard is now used. Several commenters who use tank cars regularly emphasized the fact that the residues of some hazardous materials present a greater hazard during a fire than tank cars which contain bulk loads of those same materials. MTB believes this evaluation is correct. Three safety or emergency response organizations and six chemical industry commenters recommended adoption of a RESIDUE or RESIDUAL placard to replace the present EMPTY placard. Eighteen commenters supported the MTB proposal contained in the NPRM to use the same placard on both loaded tank cars and tank cars which only contain the residues of hazardous materials. Fifteen of these comments were from the chemical industry and the other three were from safety or emergency response personnel.

III. Discussion

Notwithstanding a rail carrier's reliance on the EMPTY placard for certain operational procedures (which they say also enhances safety), MTB must consider hazard warning placards in light of their contribution to emergency response as well. Based on the comments received and the knowledge gained by MTB from the

comments MTB concludes that emergency response considerations overwhelmingly favor the use of the RESIDUE placard and that the final rule should be revised from what was proposed in the NPRM. Further, MTB believes that the shipping paper entries for a tank car which contains only the residue of a hazardous material should show the same hazard warning as the revised placard. Therefore, the rule is changed accordingly. The placarding requirements are revised from EMPTY to RESIDUE for a tank car which contains only the residue of a hazardous material. This rule change should resolve the problems emergency response personnel were having with the EMPTY placard, and still indicate a difference between a tank car that is loaded and one that contains only the residue of hazardous material. Revision of the placard will also improve hazard communication by removing the black triangle from the top of the placard, thus allowing display of the hazard symbol.

There should be no significant difference between the purchase price of the EMPTY placard presently required by the regulations and the RESIDUE placard that will be required by this amendment. In addition, the cost of placing the placards on the tank cars would be the same. A year is given from the publication date of this rule for the change over to the RESIDUE placard, during which time on-hand stocks of the EMPTY placard should be depleted.

IV. Review by Sections

1. Section 171.8 is revised by adding a definition for "Residue". This definition was not proposed in the notice, but commenters to the HM-180 Notice requested that "Residue" be defined. From this definition one can determine the maximum quantity of hazardous material that is contained in a tank car placarded with the RESIDUE placard.

2. Paragraph (e) of § 172.203 is revised to change the shipping paper entry for empty packagings and empty portable tanks, cargo tanks, tank cars and multi-unit tank car tanks that contain the residue of a hazardous material to include in the description the word RESIDUE instead of the word EMPTY. The description will be preceded by the words "RESIDUE: Last Contained

3. Footnote 4 to Table 2 in § 172.504 is revised to change the placard name from EMPTY to RESIDUE.

4. Paragraphs (a) and (c) of § 172.510 are revised to change the special placarding provisions for rail from "POISON GAS—EMPTY" to "POISON GAS—RESIDUE" in paragraph (a) and to change the placard name from

EMPTY to RESIDUE in the title of paragraph (c) and in the third line of paragraph (c). Paragraph (c)(1) is also reworded for clarity.

5. Section 172.525, and accompanying paragraph (c)(10) in Appendix B to Part 172 which contains the specifications for the EMPTY placard, have the placard name changed from EMPTY to RESIDUE.

6. Paragraph (b)(3) of § 173.190 prescribes the EMPTY-FLAMMABLE SOLID placarding requirements for tank cars which contain the residue of white or yellow Phosphorus. Since this final rule changes the placard name from EMPTY to RESIDUE, the placarding requirement for Phosphorus in 173.190(b)(3) is changed to FLAMMABLE SOLID-RESIDUE.

7. Paragraph (c) of 174.25 is amended by revising the paragraph to make the requirement consistent with the shipping paper requirements in Subpart C to Part 172.

8. Paragraph (e) of § 174.50 is revised for clarity by rewording the requirement that no open-flame light may be brought near any placarded tank car that is leaking.

9. Section 174.69 is revised to restate the requirement that the person who is responsible for removing the lading from a tank car is also responsible for assuring that if the tank car contains the residue of a hazardous material it is properly placarded before it is offered for transportation.

10. The section title and the text § 174.93 are revised for consistency and clarity to change the car placement requirements for EMPTY placarded tank cars to reflect the change to the RESIDUE placard.

V. Administrative Notice

A. *Executive Order 12291*. MTB has determined the affect of this final rule will not meet the criteria specified in section 1(b) of Executive Order 12291 and is, therefore, not a major rule. This is not a significant rule under DOT regulatory procedures (44 FR 11034) and requires neither a Regulatory Impact Analysis, nor an Environmental Impact Statement under the National Environmental Policy Act (49 U.S.C. 4321 et. seq.). A regulatory evaluation is available for review in the Docket.

B. *Information Collection*. No change in information collection is anticipated as a result of this rulemaking since the RESIDUE placard will replace the EMPTY placard.

C. *Impact on Small Entities*. Based on limited information concerning size and nature of entities likely to be affected, I certify this final rule will not, as

promulgated, have a significant economic impact on a substantial number of small entities under criteria of the Regulatory Flexibility Act.

List of Subjects

49 CFR Part 171

Hazardous materials transportation, Definitions.

49 CFR Part 172

Hazardous materials transportation, Placarding.

49 CFR Part 173

Hazardous materials transportation, Packaging and containers.

49 CFR Part 174

Hazardous materials transportation, Railroad safety.

VI. Rules and Regulations

In consideration of the foregoing, Parts 171 through 174 of Title 49, Code of Federal Regulations are amended as follows:

PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

1. The authority citation for Part 171 continues to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, unless otherwise noted.

2. Section 171.8 is amended by the addition in its correct alphabetic sequence, the following definition.

§ 171.8 Definition and abbreviations.

"Residue" means the hazardous material remaining in a packaging after its contents have been emptied and before the packaging is refilled, or cleaned and purged of vapor to remove any potential hazard. Residue of a hazardous material, as applied to the contents of a tank car (other than DOT Specification 106 or 110 tank cars), means a quantity of material no greater than 3 percent of the car's marked volumetric capacity.

PART 172—HAZARDOUS MATERIALS TABLES AND HAZARDOUS MATERIALS COMMUNICATIONS REGULATIONS

3. The authority citation for Part 172 continues to read as follows:

Authority: 49 U.S.C. 1803, 1804; 49 CFR 1.53, unless otherwise noted.

4. In § 172.203, paragraph (e) is revised to read as follows:

§ 172.203 Additional description requirements.

(c) *Empty packagings.* (1) The description on the shipping paper for a packaging containing the residue of a hazardous material may include the words "RESIDUE: Last Contained * * *" in association with the basic description of the hazardous material last contained in the packaging.

(2) For a tank car containing the residue (as defined in 171.8) of a hazardous material, the requirements of § 174.25(c) and paragraph (e)(3) of this section apply.

(3) If a packaging, including a tank car, contains a residue that is a hazardous substance, the description on the shipping papers must be prefaced with the phrase "RESIDUE: Last Contained * * *" and the letters "RQ" must be entered on the shipping paper either before or after the basic description.

5. In § 172.504, Footnote 4, to Table 2 is revised to read as follows:

§ 172.504 General placarding requirements.

TABLE 2

* A FLAMMABLE placard may be used on a cargo tank, a portable tank and a compartmented tank car during transportation by highway, rail or water, if they contain materials classed as Flammable liquid or Combustible liquid. However, no RESIDUE placard may be displayed on a tank car which only contains residue of a Combustible liquid.

6. In § 172.510, paragraphs (a) and (c) are revised to read as follows:

§ 172.510 Special placarding provisions: Rail.

(a) *Square background required.* Each EXPLOSIVE A placard, POISON GAS placard and POISON GAS-RESIDUE placard affixed to a rail car must be placed on a square background as described in § 172.527.

(c) *RESIDUE placard.* Each tank car containing the residue of a hazardous material must be placarded with the appropriate RESIDUE placards, as required in § 172.525 and paragraph (a) of this section. The RESIDUE placard must correspond to the placard that was required for the material the tank car contained when loaded, unless the tank car—

(1) Contains the residue of a combustible liquid;

(2) Is reloaded with a material requiring no placards or different placards; or

(3) Is sufficiently cleaned of residue and purged of vapor to remove any potential hazard.

7. Section 172.525 is revised to read as follows:

§ 172.525 Standard requirements for the RESIDUE placard.

(a) Each RESIDUE placard must be as follows:

(1) The lower triangle of the RESIDUE placard must be black. The word "RESIDUE" must be in white letters approximately 1 1/2 inches (40 mm) high made with approximately 1/4 inch (6 mm) of an inch stroke.

(2) The midsection of each RESIDUE placard must display the appropriate identification number as specified in § 172.332 (c) and (d).

Otherwise the RESIDUE placard must be specified in § 172.519 and Appendix B to this Part, and §§ 172.528, 172.530, 172.532, 172.536, 172.540, 172.542, 172.546, 172.548, 172.550, 172.552, 172.554, and 172.556, as appropriate for the residue of the hazardous material being transported and required by this subchapter to be placarded. No other placard may be used as a RESIDUE placard.

(b) The lower part of each placard must be specified in Appendix B to this Part and as illustrated on the FLAMMABLE-RESIDUE placard which, except for size and color, must be as follows:



(c) The RESIDUE placard must be as shown in paragraph (b) of this section and may be—

- (1) A separate placard,
- (2) On the reverse side of a placard, or

(3) A composite made according to the specifications in this section, and paragraph (a)(10) of Appendix B to this Part. The lower triangle of the appropriate placard should have a black triangle bearing the word RESIDUE in white letters with the appropriate hazard class number in white.

Appendix B—[Amended]

8. In Appendix B to Part 172, paragraph (c)(10) is revised to read as follows:

Appendix B—Dimensional Specifications for Placards

(c) . . .

(10) RESIDUE placard. The specifications for the FLAMMABLE-RESIDUE placard are the same as the specifications for the following RESIDUE placards: NON-FLAMMABLE GAS; POISON GAS; CHLORINE; OXYGEN; FLAMMABLE GAS; FLAMMABLE; FLAMMABLE SOLID; FLAMMABLE SOLID W; OXIDIZER; ORGANIC PEROXIDE; POISON; and CORROSIVE. The lower triangle of each RESIDUE placard must be black. This triangle must be 2-3/8 inches (50 mm) below the horizontal center line of the placard or adjacent to the lower edge of the white block for the identification number. The letters in the word RESIDUE must be approximately 1 1/2 inches (40 mm) high, made with approximately 1/4 inch (6 mm) stroke. The letters must be located in the lower black triangle and parallel to the horizontal center line of the placard. The hazard class number must be approximately 1 1/2 inches (40 mm) high and centered above the word RESIDUE. The RESIDUE placard may be made in any of the three ways cited in § 172.525(c), Subpart F of Part 172.

★ U.S. Government Printing Office: 1985-491-810/20560

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

9. The authority citation for Part 173 continues to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, unless otherwise noted.

10. In § 173.190, the last sentence of paragraph (b)(3) is revised to read as follows:

§ 173.190 Phosphorus, white or yellow.

(b) . . .

(3) . . . After unloading, the person who unloaded the tank car must fill it to its entire capacity with an inert gas or must fill it with water having a temperature not exceeding 140°F, to not more than 50 percent of the capacity of its dome. Before the car is offered for return movement, it must be placarded with FLAMMABLE SOLID-RESIDUE placards, as described in § 172.525 of this subchapter.

PART 174—CARRIAGE BY RAIL

11. The authority citation for Part 174 continues to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, unless otherwise noted.

12. In § 174.25, paragraph (c) is revised to read as follows:

§ 174.25 Additional information on waybills, switching orders and other billings.

(c) For a tank car that contains only the residue of a hazardous material, the shipping papers must contain the words "RESIDUE: Last Contained . . .", the basic description of the hazardous material last contained in the tank car and the placard notation specified in the second column of the table in paragraph (a)(2) of this section followed by the word RESIDUE. For example,

"RESIDUE: Last Contained Sulfuric acid, Corrosive material, UN 1830, Placarded: CORROSIVE-RESIDUE". For a tank car that contains only the residue of a hazardous substance, the letters "RQ" must also be entered on the shipping paper either before or after the basic description.

13. In § 174.50, paragraph (e) is revised to read as follows:

§ 174.50 Leaking tank cars.

(e) Open-flame lights may not be brought near a placarded tank car that is leaking.

14. Section 174.69 is revised to read as follows:

§ 174.69 Removal of placards and car certifications after unloading.

When lading requiring placards or car certificates is removed from a rail car other than a tank car, each placard and car certificate must be removed by the person unloading the car. For a tank car which contained a hazardous material, the person responsible for removing the lading must assure, in accordance with the provisions of § 172.510(c) of this subchapter, that the tank car is properly placarded for any residue which remains in the tank car.

15. The section title and text of § 174.93 are revised to read as follows: § 174.93 Position in train of a tank car displaying RESIDUE placards.

In a train, a tank car displaying RESIDUE placards may not be placed nearer than the second car from an engine or occupied caboose.

Issued in Washington, D.C. on September 19, 1985 under authority delegated in 49 CFR Part 1, Appendix A.

M. Cynthia Douglass,

Acting Director, Materials Transportation Bureau.

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