



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

4668

[ 49 CFR Part 174 ]

[Docket No. HM-114; Notice No. 74-1]

**RAIL CARS USED TO TRANSPORT CLASS A EXPLOSIVES**

**Selection, Preparation, Inspection, Certification, and Loading**

The Hazardous Materials Regulations Board is considering amendment of § 174.525 which prescribes the requirements for selection, preparation, inspection, certification and loading of railroad cars used to transport Class A explosives.

As a result of recent rail accidents and incidents involving Class A explosives, the Federal Railroad Administration (FRA) issued Emergency Order No. 3 on August 9, 1973, to supplement the Hazardous Materials Regulations (38 FR 21952). This Emergency Order provides that each car transporting Class A explosives must be equipped with certain "low-sparking" type of brake shoes and all brake shoes on the car must be of the same and proper type and design, in safe and suitable condition for service, and comply with prescribed wear limits. In addition, the Order provides that the car must be equipped with a continuous steel sub-floor or metal spark shields of prescribed dimensions. However, if the car is not equipped with prescribed steel sub-floor or metal shields, the car may be used to carry Class A explosives only if it is inspected at intervals and in the manner set forth in the Emergency Order.

On November 2, 1973, the Association of American Railroads (AAR) filed a request for modification of Emergency Order No. 3 or, in the alternative, for review as provided in section 203 of the Federal Railroad Safety Act of 1970 (45 U.S.C. 432). Some of the modifications requested by the AAR deal with matters that are included in this Notice of Proposed Rule Making. They are included in this notice to afford an opportunity for public participation in their resolution. Upon completion of the rule-making proceeding initiated by this notice, FRA intends to terminate Emergency Order No. 3.

Although the accidents involving Class A explosives which occurred on the Southern Pacific Transportation Company at Roseville, California on April 28, 1973, and at Benson, Arizona on May 24, 1973, are still under investigation, the FRA believes that § 174.525 must be amended to eliminate potential fire hazards on rail cars used to transport Class A explosives. These hazards result from overheated friction journal bearings, overheated and "sparking" brake shoes, and the presence of combustible material on the undersides of cars.

Interested persons are invited to give their views on these proposals. Communications should identify the docket number and be submitted in duplicate to the Secretary, Hazardous Materials Regulations Board, Department of Transportation, Washington, D.C. 20590.

Communications received on or before March 31, 1974, will be considered before final action is taken on these proposals. All comments received will be available for examination by interested persons at the Office of the Secretary, Hazardous Materials Regulations Board, Room 6215, Buzzards Point Building, Second and V Streets S.W., Washington, D.C., both before and after the closing date for comments. The proposals contained in this notice may be changed in light of the comments received.

In addition to assure that all interested persons have an opportunity for oral presentation, the FRA will conduct a public hearing commencing at 10 a.m., on March 21, 1974, in Room 2545, Federal Building, 650 Capitol Mall, Sacramento, California.

The purpose of this public hearing is to obtain information to assist the FRA in developing a final rule in this proceeding, not to determine the cause or circumstances surrounding any of the recent rail accidents or incidents involving hazardous materials which are still under investigation.

The hearing will be an informal not a judicial or evidentiary type of hearing. There will be no cross-examination of persons making statements. An FRA staff member will make an opening statement outlining the matter set for hearing. Interested persons will then have an opportunity to present their oral statements. At the completion of all oral statements those persons who wish to make rebuttal statements will be given the opportunity to do so in the order in which they made their initial statement. Additional procedures for conducting the hearing will be announced at the hearing. Interested persons may present oral or written statements at the hearing. All statements will be made a part of the record of the hearing and be a matter of public record. Persons who wish to make oral statements at the hearing should notify the Office of the Chief Counsel, Federal Railroad Administration, Room 5101, Nassif Building, 400 Seventh Street SW., Washington, D.C. 20590, before March 14, 1974 stating the amount of time requested for their initial statement.

The proposed changes in Paragraph (b) of § 174.525 are described below.

*Subparagraph (1).* It is proposed to delete the words "when available" and "on other". The first deletion would make absolute the present conditional specifications contained in the subparagraph. The second is clarifying in nature.

*Subparagraph (3).* It is proposed to substitute "holes" for "loose boards", add "doors" and substitute "which may hold fire from sparks" for "liable to hold sparks and start a fire". The first two changes are merely clarifying in nature while the third change is proposed both for clarification and to conform with the language of subparagraph (4).

*Subparagraph (4).* It is proposed to delete "or broken boards" to conform with similar changes in other subparagraphs.

*Subparagraph (6).* It is proposed to amend this subparagraph to require that after December 31, 1975, each car used to transport Class A explosives must be equipped with roller bearings, and to amend the present first sentence of this subparagraph to reflect this proposal by substituting "The roller bearings or journal boxes, and the trucks" for "The journal boxes and trucks."

Overheating of friction journal bearings often resulting in open flames from burning oil and pads, is recognized as a major hazard in railroad operations. Since roller bearings are much less likely to overheat and even less likely to generate open flames if they should overheat, virtually all of the new freight cars placed in service as well as older cars rebuilt in recent years are equipped with roller bearings. At present, approximately one-half of the national freight car fleet is equipped with roller bearings. In these circumstances, FRA believes that cars carrying Class A explosives should be required to be equipped with roller bearings.

*Subparagraph (11).* The FRA proposes to redesignate existing subparagraph (11) as subparagraph (13) and to add a new subparagraph (11). The proposed new subparagraph provides that after December 31, 1974, each car carrying Class A explosives must be equipped with high-friction composition brake shoes and brake rigging designed for these shoes and that until then the car must be equipped with either high-friction composition brake shoes or high-phosphorous brake shoes and brake rigging designed for the type of brake shoe used. Proposed subparagraph (11) would also require all brake shoes on the car to be of the same type and in safe and suitable condition for service. High-friction composition brake shoes would be required to have a minimum thickness of three-eighths inch and high-phosphorous brake shoes, of one-half inch.

Sparks generated by contact between brake shoes and wheels during braking of trains present a serious fire potential which assumes critical dimensions when a car is carrying Class A explosives. Cast iron brake shoes produce a heavy shower of sparks during braking which could ignite any combustible material under the car. High-phosphorous brake shoes are much less susceptible to this sparking effect but since they are made of metallic material, they do produce some sparks during heavy braking. High-friction composition shoes normally generate almost no sparks. Low-friction composition brake shoes also generate practically no sparks. However, because only a very small portion of the nation's freight car fleet is equipped with low-friction composition brake shoes, this type of brake shoe is virtually unknown to many railroad maintenance employees and is not carried in stock by many railroads. Consequently, there is a strong possibility that worn or missing low-friction composition brake shoes may be improperly replaced with high-friction composition brake shoes thereby creating serious fire

and safety hazards. Mixed types of brake shoes on a car and worn-out brake shoes are also hazardous.

*Subparagraph (12).* The FRA proposes to redesignate existing subparagraph (12) as subparagraph (14) and to add a new subparagraph (12). The proposed new subparagraph provides that a car carrying Class A explosives must have either a metal sub-floor with no combustible material exposed beneath the car or have metal spark shields extending from the center sill to the side sills and from each end sill to at least twelve inches beyond the extreme treads of the inside wheels of each truck. The spark shields must be tightly fitted against the sub-floor so that no vacant space to catch sparks or combustible material is exposed. The new subparagraph also provides that the metal sub-floor or spark shields may not have an accumulation of oil, grease or other debris which could support combustion.

In recent demonstrations using a static wheel dynamometer at speeds up to 45 m.p.h. and blowers to simulate the actual railroad environment, slivers of brake shoe material became embedded in cracks in wood placed at car sub-floor height above the test wheel, at distances of more than thirty-six inches beyond the center of the axle in the direction of rotation. In these demonstrations, radiant heat equivalent to that radiated by an overheated wheel, charred wood sub-flooring protected by a tightly-fitted metal shield but did not cause the wood to burn. Particles of brake shoes deposited in a catchpan at ballast level continued to glow for minutes. Accordingly, metal shielding of the area above each truck is necessary to prevent fire caused by heat radiated from an overheated wheel or by burning fragments of brake shoe material becoming lodged in wood sub-flooring. This shielding is still necessary even when a car is equipped with high-friction composition brake shoes because in the event of "sticking brakes" or sustained heavy braking, the resin in the composition material may ignite and burn freely causing the brake shoe to disintegrate and freely-burning fragments to be propelled and lodged against the bottom of the car. This shielding will also minimize fire hazards resulting from high-friction composition brake shoes being mistakenly replaced with cast iron brake shoes, a not uncommon occurrence.

*Subparagraphs (13) and (14).* In these subparagraphs which presently are numbered (11) and (12), the term "qualified inspector" is proposed to be substituted for "competent employee." This change is proposed to describe more precisely the person required to examine, inspect and certify cars used to transport Class A explosives.

In addition, a number of changes are proposed in paragraph (c) of § 174.525.

*Subparagraph (1).* The term "qualified inspector" is proposed to be substituted for "competent employee" to conform with proposed subparagraphs (13) and (14) of paragraph (b).

*Subparagraph (3).* The FRA proposes to delete "or to the side of wooden cars between car initials and the car door". As a result, all car certificates would be required to be attached to the fixed placard boards which are now standard equipment on freight cars. Also, the text

of Certificate No. 1 would be changed to become a general certification that the car complies with the requirements of the recently issued FRA Freight Car Safety Standards (38 FR 32224) as well as those of this part pertaining to cars used to transport Class A explosives.

Pursuant to the provisions of Section 102(2) (c) of the National Environmental Policy Act (42 U.S.C. 4321 et seq.), the FRA has considered the requirements of that Act concerning Environmental Impact Statements and has determined that the amendments proposed in this notice would not have a significant impact upon the environment. Accordingly, an Environmental Impact Statement is not necessary and will not be issued with respect to the proposed amendments.

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

In consideration of the foregoing it is proposed to amend § 174.525 as set forth below.

Issued in Washington, D.C., on January 28, 1974.

JOHN W. INGRAM,  
Federal Railroad Administrator,  
Member, Hazardous Materials  
Regulations Board.

1. It is proposed to amend § 174.525 as follows:

§ 174.525 Loading packages of explosives in cars, selection, preparation, inspection and certification.

(b) Certified closed cars must be inspected inside and outside, other cars must be inspected as applicable to the type of car, and must conform to the following specifications:

(1) Closed cars of not less than 80,000 pounds capacity, with steel underframes and friction draft gear, must be used except that on narrow-gage railroad explosives may be transported in cars of less than that capacity provided the available cars of greatest capacity and strength are used for this purpose.

(3) Must have no holes or cracks in the roof, sides, ends, or doors through which sparks may enter, or unprotected decayed spots which may hold sparks and start a fire.

(4) The roof of the car must be carefully inspected from the outside for decayed spots, especially under or near the running board, and such spots must be covered or repaired to prevent their holding fire from sparks. A car with a roof generally decayed, even if tight, must not be used.

(6) The roller bearings or journal boxes, and the trucks must be carefully examined and put in such condition as to reduce to a minimum the danger of hotboxes or other failure necessitating the setting out of the car before reaching destination. The lids or covers of journal boxes must be in place. After December 31, 1975, the car must be equipped with roller bearings.

(11) After (effective date), the car must be equipped with high-friction

composition or high-phosphorous brake shoes and the brake rigging designed for the type of brake shoe used. After December 31, 1974, the car must be equipped with high-friction brake shoes and brake rigging designed this type of brake shoe. After (effective date) all brake shoes on the car must be of the same type, in safe and suitable condition for service, and in compliance with the following wear limits: High-friction composition brake shoes must be at least three-eighths inch thick and high-phosphorous brake shoes must be at least one-half inch thick.

(12) The car must have either a metal sub-floor with no combustible material exposed beneath the car, or metal spark shields extending from center sill to side sills and from end sills to at least 12 inches beyond the extreme treads of the inside wheels of each truck, which are tightly fitted against the sub-floor so that there is no vacant space or combustible material exposed. The metal sub-floor or spark shields may not have an accumulation of oil, grease or other debris which could support combustion.

(13) The carrier must have the car examined by a qualified inspector to see that it is properly prepared, and must have a "Car Certificate" signed in triplicate upon the prescribed form (see paragraph (c) (2) and (3) of this section) before permitting the car to be loaded.

(14) Except as provided in § 174.584 (h), a car must not be loaded with any explosives, Class A, until it shall have been thoroughly inspected by a qualified inspector of the carrier who shall certify as to its proper condition under this section and shall sign Certificate No. 1 prescribed in paragraph (c) (2) and (3) of this section.

(c) \* \* \*

(1) For all shipments loaded by the shipper, a qualified inspector of the carrier must inspect the finished load and certify to its compliance with this part before the car shall be accepted for transportation; and Certificate No. 2 as prescribed by subparagraphs (2) and (3) of this paragraph shall be signed before the car is permitted to go forward. When a car is loaded by the carrier, Certificate No. 2 must be signed only by the representative of the carrier.

(3) Car certificate. The following certificate, printed on strong tag board measuring 7 by 7 inches, or 6 by 8 inches, must be duly executed in triplicate by the carrier, and by the shipper, if he loads the shipment; the original must be filed by the carrier at the forwarding station on a separate file; and the other two must be attached, one to each outer side of car to the fixed placard board or as otherwise provided.

----- Railroad  
CAR CERTIFICATE  
No. 1 ----- Station, -----, 191-  
I hereby certify that I have this day personally examined Car Number ----- and that the car complies with the FRA Freight Car Safety Standards (49 CFR Part 215) and with the requirements for freight cars used to transport explosives prescribed by the DOT Hazardous Materials Regulations Board (49 CFR Part 174).

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(Qualified Inspector)  
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