



DEPARTMENT OF TRANSPORTATION
HAZARDOUS MATERIALS REGULATIONS BOARD

WASHINGTON, D. C. 20590

41365

[Docket No. HM-114; Amdt. No. 174-24]

PART 174—CARRIERS BY RAIL FREIGHT
Rail Cars Used To Transport Class A Explosives

This amendment prescribes standards to eliminate potential fire hazards resulting from overheated friction journal bearings, overheated and sparking brake shoes, and the presence of combustible material on the undersides of cars used to transport Class A explosives. It establishes new requirements for selection, preparation, inspection, certification and loading of these railroad cars.

On February 6, 1974, the Hazardous Materials Regulations Board published a notice of proposed rulemaking (NPRM), Docket No. HM-114; Notice No. 74-1 (39 FR 4668), which proposed this amendment. The reasons for this amendment were discussed in that notice of proposed rulemaking. Interested persons were invited to comment and several comments were received by the Board. In addition, a public hearing was held on March 21, 1974, to provide interested persons an opportunity to present information orally to assist the Board in developing a final rule in this proceeding. All written comments received and those made at the hearing have been fully considered by the Board. The interest shown and the views expressed are appreciated by the Board.

The major issues raised in these comments involve bearings, brake shoes, and spark shields. These issues were discussed at length in the NPRM and are also discussed separately below.

Bearings. One commenter strongly opposed requiring all box cars used to transport Class A explosives to be equipped with roller bearings. He noted that solid bearing cars travel an average of one million miles before occurrence of an overheated journal or "hot box" and that only four percent of these result in reportable accidents. This average mileage figure is expected to improve as more cars are equipped with stabilized bearings under an industry specification which requires the owning railroad to stabilize bearings whenever it disassembles a truck. Because of the expected improvement in the ratio of overheated journals and freight car miles operated, the present requirement that trucks and journals be inspected before a car is loaded with Class A explosives, and the substantial investment of the railroad industry in "hot box" detectors, this commenter contended that there is no factual

basis for excluding solid bearing box cars from Class A explosives service. Any type of bearing can fail for any number of reasons, including poor design, bad maintenance and undetected structural flaws. Since the primary cause of solid bearing failure is inadequate servicing and any existing service-related defects will be corrected during the required pre-loading inspection, he concluded that cars equipped with solid bearings should remain acceptable for the transportation of Class A explosives.

One commenter stated that if the proposed roller bearing requirement were adopted it would create a serious shortage of cars available to transport Class A explosives.

After carefully considering these arguments, the Board still believes that safety considerations require that all box cars used to transport Class A explosives be equipped with roller bearings after December 31, 1975. Cars transporting Class A explosives should be equipped with the safest journal bearings available because a major cause of derailments due to equipment failures is the overheating of journals. In its report entitled "Journal Failure Report" dated October 1972, the FRA established that in the years 1968, 1969 and 1970, the failure ratio of plain bearings to roller bearings was 11.4, 8.1 and 5.1, respectively. The report projected that the failure rate of plain bearings would probably level off at about three times the failure rate of roller bearings. By January 1, 1976, sufficient time will have elapsed since issuance of Emergency Order No. 3, by the Federal Railroad Administration (FRA) on August 9, 1973 (38 FR 22172), for car owners and railroads to locate and equip a sufficient number of cars to transport Class A explosives. Approximately one-half of the national rail car fleet is equipped with roller bearings and all new cars placed in service are equipped with roller bearings.

Brake Shoes. None of the commenters opposed the proposed elimination of cast iron brake shoes. However, two commenters vigorously opposed elimination of high phosphorous brake shoes on cars used to transport Class A explosives. One commenter submitted extensive test data to support its contention that with respect to the fire hazard, the high phosphorous shoe coupled with the Association of American Railroads standard spark shield, is the safest material developed for braking railroad freight cars.

Both commenters also stated that the sparking of high phosphorous shoes under heavy sustained braking promptly stops when the brakes are released. On the other hand, it was noted that, while

high friction composition brake shoes do not spark under these conditions, they may ignite and burn freely and will continue to burn freely with an open flame after the brakes have been released.

Both commenters recognized the hazards inherent in the possible misapplication of standard metal brake shoes instead of high phosphorous brake shoes. One commenter relied upon a program for positive identification of high phosphorous brake shoes which is now underway within the railroad supply industry to resolve this problem. The other commenter indicated that the high phosphorous brake shoe may soon replace the cast iron brake shoe and that this would eliminate any possibility for misapplication of metal shoes.

FRA has carefully considered these comments but still believes that the exclusive use of high-friction composition brake shoes on cars transporting Class A explosives is necessary to assure safety. Sparks resulting from the friction of a brake shoe wearing on a wheel tread provide a high potential for ignition of any exposed combustible material. The high-friction composition brake shoe has a practically zero sparking effect.

The risk of high friction composition shoes igniting and burning is rather remote since combustion occurs only under the most severe and sustained braking conditions. Although the high phosphorous type brake shoe exhibits a dramatically reduced tendency for sparking compared to the common cast iron shoe, it is still a metallic material which can produce sparks under certain braking conditions.

Spark Shields. Two commenters opposed the spark shields proposed by FRA. They contended that composition brake shoes alone provide sufficient protection on cars not equipped with spark shields and that high phosphorous shoes on cars equipped with the smaller AAR standard spark shields provide a sufficient degree of safety.

FRA does not agree. The criteria requiring spark shields is the flammability of material exposed to ignition from truck effects such as overheated journals, dragging equipment, and sparks from braking. Although the high-friction composition brake shoe has minimal sparking characteristics, there is no positive assurance that metal type brake shoes will not be substituted in error. Although measures have been developed recently to prevent misapplication of cast iron shoes on brake heads intended for none other than high-friction composi-

tion type brake shoes, it will be years before these measures are implemented and become totally effective. In the interim, and pending availability of sufficient cars with all-metal sub-flooring, the security of Class A Explosives demands the protection of the larger FRA spark shields.

Several commenters suggested that the FRA require the placement of at least one spacer car not containing hazardous materials regulated under 49 CFR Parts 170-189 between cars of explosives. This suggestion and a number of other suggestions which were beyond the scope of a notice of proposed rulemaking are being studied by the FRA and may be the subject of future rulemaking proceedings.

Several commenters requested clarification of the term "qualified inspector" in the proposed amendment. Accordingly, FRA has changed this term to "qualified person designated under § 215.15."

In consideration of the foregoing, Title 49 of the Code of Federal Regulations, § 174.525 is amended by revising paragraphs (b) (1), (3), (4), (6), (11), (12), (13), and (14) and by revising paragraphs (c) (1) and (3) 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 cars 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-gauge 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) The car must be equipped with high-friction composition brake shoes only and brake rigging designed for this type of brake shoe. Each brake shoe on the car must be at least three-eighths inch thick, and in safe and suitable condition for service.

(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 person designated under § 215.15 of this title to see that it is properly prepared, and must have a "Car Certificate" signed in triplicate upon the form prescribed in paragraphs (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 person designated under § 215.15 of this title who shall certify as to its proper condition under this section and shall sign Certificate No. 1 prescribed in paragraphs (c) (2) and (3) of this section.

(1) For all shipments loaded by the shipper, a qualified person designated under § 215.15 of this title 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 paragraphs (c) (2) and (3) of this section 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 in 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 -----
19--

I hereby certify that I have this day personally examined Car Number -- and that the car is in condition for service and 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 (49 CFR Part 174).

(Qualified Person Designated Under 49 CFR 215.15)

This amendment is effective July 1, 1975. However, compliance with the regulations, as amended herein, is authorized immediately. The Federal Railroad Administration will publish a separate notice revoking Emergency Order No. 3 published in the August 16, 1973, issue of the FEDERAL REGISTER (38 FR 22172); this revocation will also become effective July 1, 1975.

(Secs. 831-835 of Title 18, United States Code; sec. 9, Department of Transportation Act (49 U.S.C. 1657); § 1.49 (f) of the regulations of the Secretary of Transportation (49 CFR 1.49 (f)))

Issued in Washington, D.C. on November 19, 1974.

ASAPH H. HALL,
Acting Administrator, FRA
Board Member for the Federal
Railroad Administration.

[FR Doc. 74-27763 Filed 11-26-74; 8:45 am]