



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

24125

[ 49 CFR Part 177 ]

[ Docket No. HM-95; Notice 71-31 ]

TRANSPORTATION OF BLASTING  
CAPS WITH OTHER EXPLOSIVES BY  
MOTOR VEHICLE

Notice of Proposed Rule Making

The Hazardous Materials Regulations Board of the Department of Transportation is considering amending § 177.835 of the Hazardous Materials Regulations to remove authorization for the transportation of blasting caps in the same motor vehicle with other explosives, except under certain stowage conditions. The Board proposes to continue the authorization for use of specification MC 201 containers for all types of blasting caps. It further proposes to provide for use of another type of container for electric blasting caps.

The major concern with the transportation of blasting caps in the same vehicle with other explosives is the detonation of the other explosives should the blasting caps be subjected to heat, heavy shock, or other potential initiation forces.

The Board has two basic choices to consider in addressing itself to this matter. It could prohibit the transportation of blasting caps in the same vehicle with other explosives, or it could recognize containment of the blasting caps in a manner so that they would not initiate other explosives under evaluated credible circumstances. A total prohibition does not appear justifiable if a reasonable and safe alternative is available. Under a prohibition, a separate vehicle would be required for a small quantity of blasting caps on a move to a blast site possibly several hundred miles distant. The costs of blasting operations, a vital function of the construction industry, would be greatly increased.

In considering a possible alternative to prohibition, explosives experts were contacted to obtain information and suggestions on methods that would provide for increased safety in the transportation of blasting caps with explosives.

Two major problems presented for solution were heat transfer and blast penetration. Blasting caps initiate at relatively low temperatures and their blast effects cause penetration of most ordinary packaging materials. Various persons were asked to examine different methods whereby a container could be constructed to protect packages containing blasting caps from high rates of heat input in a fashion that would preclude penetration by a cap or caps should they be initiated.

A container has been developed and tested. It is constructed of 1/2-inch plywood, 1/2-inch gypsum wallboard, 1/8-inch low carbon steel and 1/4-inch plywood put together in sandwich fashion which hereafter is described as a barrier lamination. All sides, the bottom, and the lid are constructed of this material. On October 8, 1971, a fire test on the container was witnessed by representatives of the Department. A test container was loaded with electric blasting caps and placed in a wood fire for 62 minutes before the first blasting cap initiated. During the next 20 minutes there were many detonations but the structure of the steel shell of the container was not affected. There was no indication of penetration of the steel shell whatsoever. Later the same day, a second test was performed on another type container presently in use. The results were nearly identical—66 minutes before first detonation and no penetration. Complete reports of the tests, including photographs and 8-mm. movies, are available for examination in the Board's public docket room.

The Institute of Makers of Explosives (IME) has prepared a document entitled "IME Standard for the Transportation of Electric Blasting Caps in the Same Vehicle With Other Explosives," for distribution by the IME Safety Library. It contains specific requirements for construction of containers and compartments with barrier laminate material, and diagrams to illustrate vehicle configuration. The Board is proposing to adopt the IME Standard by reference. Copies are available upon request from the Secretary, Hazardous Materials Regulations Board, or from the Institute of Makers of Explosives, 420 Lexington Avenue, New York, NY 10017.

The Board believes that, by adoption of this proposed amendment, the safe transportation of blasting caps in the same vehicle with other explosives would be better assured if the proposed method of containment is used and that adoption of a complete prohibition would not be necessary.

In consideration of the foregoing, it is proposed to amend 49 CFR Part 177 as follows:

In § 177.835, paragraphs (g) and (m) would be amended to read as follows:

§ 177.835 Explosives.

(g) No blasting cap, regardless of type, may be transported on the same motor vehicle with any other type of explosive unless it is packed in a specification MC 201 (§ 178.318 of this chapter) container except:

(1) Electric blasting caps may be transported on the same motor vehicle with other explosives, except liquid nitroglycerin, desensitized liquid nitro-

glycerin, diethylene glycol dinitrate, or any initiating explosives, if:

(i) The total explosive energy of the blasting cap does not result in the penetration of the barrier lamination described in the Standard specified in subdivision (ii) of this subparagraph when the blasting cap is fired mounted perpendicular to the lamination with the base charge end of the cap flush on the inside plywood layer of the lamination; and

(ii) The caps are packed in packagings prescribed in § 173.66(g) of this chapter which in turn are loaded into portable containers or separate compartments meeting the requirements of the Institute of Makers of Explosives' Standard entitled "IME Standard for the Safe Transportation of Electric Blasting Caps in the Same Vehicle With Other Explosives," dated November 5, 1971 (IME Safety Library Publication No. 22).

(m) Caps or other explosives. Any explosive, including desensitized liquid explosives as defined in § 173.53(e) of this chapter, other than liquid nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate, transported on any motor vehicle transporting liquid nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate, must be segregated, each kind from every other kind, and from tools or other supplies. Blasting caps must be packed in specification MC 201 (§ 178.318 of this chapter) containers.

Interested persons are invited to give their views on this proposal. Communications should identify the docket number 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 March 28, 1972, will be considered before final action is taken on this 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, and section 9 of the Department of Transportation Act (49 U.S.C. 1657).

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Alternate Board Member, for the  
Federal Highway Administration.

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