DEPARTMENT OF TRANSPORTATION
MATERIALS TRANSPORTATION BUREAU
WASHINGTON, D.C. 20590

[Docket No. HM-160; Amdt. Nos. 172-47, 173-123, 174-33, 175-7, 176-6, 177-44]

TRANSPORTATION OF ASBESTOS

Miscellaneous Amendment

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

ACTION: Final Rule.

SUMMARY: These amendments require shipments of commercial asbestos fibers to be packaged in rigid, airtight or dust and sift proof packagings. Except when the shipment is by private carrier, non-rigid packages, such as bags, must be palletized and unitized using shrink-wrapping or strapped fiberboard wrapping. These amendments represent minimum safety requirements and are intended to reduce the risks to the public health associated with the generation of airborne concentrations of asbestos that may result from the packaging and handling of asbestos fiber shipments in commercial transportation.

EFFECTIVE DATE: These regulations are effective April 30, 1979.

ADDRESS: All written comments received in this rulemaking action are available for examination during regular business hours in the Dockets Branch, Room 6500, Trans Point Building, 2100 Second Street SW., Washington, D.C.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION: On March 2, 1978, a notice of proposed rulemaking (HM-160; Notice 78-3) was published in the FEDERAL REGISTER (43 FR 8562) stating that the MTB was planning to exercise regulatory control over the transportation of asbestos. Specific regulatory requirements were proposed for the control of certain forms of asbestos (e.g., milled or crude asbestos fibers). No requirements were proposed for asbestos fibers which are immersed or fixed in natural or artificial binder material, or manufactured products containing asbestos. Interested persons were invited to participate in the rulemaking proceeding through submission of written comments on the proposal to the MTB. All submissions, including late submissions, that were received on the proposal were fully considered by the MTB in the development of this final rule.

NEED TO REGULATE THE TRANSPORTATION OF ASBESTOS

Several commenters felt that the MTB had failed to establish a need to regulate the transportation of asbestos. One of the commenters suggested that there was no need for the proposed regulatory control of asbestos in transportation because the "methods and procedures now in use for the packaging and transport of asbestos meet the requirements of Part 173. 24(A)(sic) of the Transportation Act, that is 'under conditions normally incident to transportation there will be no significant release of the hazardous materials to the environment' and 'the effectiveness of the packaging will not be substantially reduced * * * (t)he proposal contains no documentation to justify additional regulation." This commenter, while apparently believing that asbestos is a hazardous material, was incorrect in suggesting that asbestos is currently regulated by the MTB; or in suggesting that the purpose of Notice 78-3 was to justify the additional regulation by the MTB of asbestos in transportation. The transportation of asbestos is not now regulated by the MTB. It was precisely the purpose of Notice 78-3 that it should be. If, as the commenter suggests, the transportation of asbestos is now "in compliance with pertinent provisions of the Transportation Act," this rulemaking action will formalize and insure in a uniform and systematic manner that this is the case.

Another commenter stated that Notice 73-8 did "not establish a foundation for regulation, in that it does not document, or even allege for that matter, the actual release of fiber during the transportation of asbestos." As was pointed out in Notice 78-3, the MTB has "no detailed information on the amount of asbestos fibers released during transportation." The MTB does not now regulate asbestos, and has not therefore systematically collected accident data on the amounts of asbestos released in transportation or data on the frequency of such accidents. Most asbestos fiber, however, is currently shipped in bags, and it is undeniable that these bags can and do break, or can be and are being torn or punctured, with a consequent release of some or all of the bag contents. It can be speculated, moreover, that if all of the 750,000 tons of asbestos annually shipped in the United States were packaged in, as one commenter states, the "standard package" of a 100-pound bag; and if as little as one-tenth of one percent of these bags were damaged in transportation during the year (one out of a thousand) and if on the average 1 percent of the contents of the bags so damaged were released, the total amount of asbestos released per year would equal about 7.5 tons. These calculations give a general idea of the magnitude of asbestos fiber that would be released, given a 99.9 percent efficiency factor for "bag integrity" in transportation, and a 99.0 percent efficiency factor in minimizing the amount of asbestos released given a tear in the bag. The rather evident fact that asbestos has been accidentally released during transportation has not been contradicted by anything submitted to the public docket on this rulemaking action. One commenter, for example, in discussing the use of open-bed trailers with side racks and tarpaulins to transport asbestos stated that there is no evidence that the use of such trailers "has contributed to bag breakage and the release of airborne concentrations of asbestos fiber." The Asbestos Information Association, an incorporated nonprofit organization representing 51 firms in the United States and Canada engaged in the manufacture or processing of asbestos-containing products and the mining/milling of asbestos fibers, stated that with "the very large volume of asbestos shipped, occasional container damage may occur."

Although several commenters who discussed this matter do not contend that asbestos has not been released in transportation, they generally are of the view that the amounts that are being released are not significant or of a sufficient amount to pose an unreasonable risk to public health. The MTB does not agree; it believes that the amounts of asbestos fibers that are being released now, or would be released in the future, in the absence of these amendments, *may* pose an unreasonable risk to health.

Several commenters were concerned with the statement appearing in Notice 78-3 that "asbestos in its several commercial forms, poses serious health hazards to individuals subject to long term exposure to airborne asbestos concentrations." One commenter stated that "not all long-term exposures to airborne concentrations pose any health hazards * * *." Another commenter suggested that the statement needed "more explicit definition" and that "reference should have been made to unanswered questions within the scientific community concerning mineral type, fiber size and smoking in the asbestos-cancer relationship." One commenter stated that there is a dose-response relationship between exposure to asbestos and disease causation, and that this conclusion is supported by an OSHA statement from its June 7, 1972 preamble

to its standard for exposure to asbestos dust (37 FR 11318). The OSHA statement is that: "No one has disputed that exposure to asbestos of high enough *intensity and long enough* duration is causally related to asbestosis and cancers" (emphasis added). Although the MTB had also quoted this statement in Notice 78-3, the words underlined for emphasis had been inadvertently omitted. Under these circumstances, some commenters apparently felt that the MTB was asserting the view that because, according to some commenters, asbestos is ubiquitous, long term exposure to ambient levels of asbestos fibers poses serious health hazards to all people, without regard to their occupational or paraoccupational status. It was not the intention of the MTB to assert this view. That there are or can be "undisputed grave consequences from exposure to asbestos" (37 FR 11318) does not depend on the questioned conclusiveness of the evidence reported by OSHA (40 FR 47652) regarding the potential health hazards posed by low-level, brief or intermittent exposure to asbestos. The MTB relies on the foregoing FEDERAL REGISTER references for the general view that exposure to asbestos may pose an unreasonable risk to the public.

SECTION 173.1090(a) AND (b)

Several commenters stated that there are certain mineral ores, ore concentrates and milled mineral products which may have trace amounts of asbestos, or minor amounts of asbestos occurring as contaminants. They suggested that these materials presented no risk to property and little, if any, risk to public health and safety in transportation. Moreover, since the packaging requirements proposed in Notice 78-3 applied to only certain kinds of asbestos, namely milled or crude asbestos fibers produced by an asbestos mill, they further suggested that only "commercial asbestos fibers" be defined as a hazardous material.

The MTB recognizes that there are certain mineral ores, ore concentrates and milled mineral products, as well as other products, that contain certain amounts of asbestos, and that the commercial value of these minerals or products is not dependent on their asbestos content. The specific requirements in these amendments for the control of asbestos fibers in transportation do not apply to such materials or products, nor do they apply to asbestos as a waste product[1] or as a contaminating trace element. The amendments apply only to asbestos *in its several commercial forms* since it is those forms of asbestos that have been firmly established as posing serious health hazards to individuals. A new paragraph has been added which would define commercial asbestos as any material or product containing asbestos that has commercial value because of its asbestos content, and appropriate modifications have been made in the amendments to reflect this clarification. This new paragraph is identified in this amendment as paragraph (b) (paragraphs (b) and (c) in the notice are now paragraphs (c) and (d), respectively).

One commenter recommended that the scope of Notice 78-3 be amended to include, in addition to asbestos fibers, "all mineral and man-made (fibers) which have been identified by U.S. Government agencies as being carcinogenic and which may pose serious health risk." On December 9, 1976, the MTB published an Advance Notice of Proposed Rulemaking (41 FR 53824) in Docket No. HM-145 entitled "Environmental and Health Effects Materials." In that Notice, the MTB announced that it was considering whether new or additional transportation controls are necessary for certain classes of materials which are not generally subject to the existing Hazardous Materials Regulations. The question of whether all mineral and man-made fibers, which have been identified by U.S. Government agencies as being carcinogenic and which pose an unreasonable risk to public health, should be controlled in transportation will be considered in terms of the further development and resolution of the issues associated with Docket HM-145. Notice 78-3 however, pointed out that a large number of comments were received in Docket HM-145, and that a considerable amount of staff evaluation of these comments was still required before it would be possible to issue a notice or notices of proposed rulemaking for environmental and health effects materials, either on a comprehensive or on a selective basis.

SECTION 173.1090(c)(1)

Several commenters objected to the reference made to metal or fiber drums to illustrate the rigid packaging alternative for asbestos fibers. These commenters stated that the asbestos industry has not developed the technology to use this type of packaging alternative; that available technology is not transferable to the use of metal or fiber drums; and that, among other things, the use of this alternative could generate far greater airborne concentrations of asbestos than packaging and shipping practices currently in effect. As one commenter pointed out:

> Commercial asbestos is fluffy. It is difficult to pack this material in a rigid container, and, because the fiber would gradually compact during shipment, it would be difficult to remove it for introduction into the manufacturing process. It would also be extremely cumbersome, if not impossible, to empty rigid containers effectively and rapidly into hoods designed for bags. Spillage would no doubt occur and workers would be unnecessarily exposed to fibers.

Another commenter recommended that a DOT Specification 56 portable tank be included in the amended rule as an acceptable package "for the transportation of asbestos-type products." This commenter stated that "with the use of equipment designed for the purpose, the D.O.T. 56 package can be readily filled or emptied without release of any product dust to the atmosphere or contact with the product by the operator." Another commenter insisted that only metal drums and not fiber drums were acceptable for the transportation of asbestos fibers. These commenters apparently lost sight of the fact that proposed § 173.1090(c)(1) does not "mandate," as one commenter suggested, or even encourage the use of rigid, airtight packaging such as metal or fiber drums or even portable tanks. It provides an alternative method of shipping commercial asbestos fibers. As was indicated in Notice 78-3, the MTB believes that its proposed non-specification packaging standards as applied to the transportation of commercial asbestos is an effective and efficient means of precluding potential problems associated with asbestos airborne emissions occurring during transportation; and that they are consistent with the standards of the EPA and the OSHA. Some of the commenters however were also apparently unaware that the transportation standards for the control of asbestos are designed to be comprehensive in nature such that, once the standards are promulgated, commercial asbestos cannot be packaged and transported in any matter not specified in the amendments. If under more advanced technology the use of rigid, airtight packaging would lessen the likelihood of airborne asbestos emissions associated with bag breakages under current industry wide non-uniform non-standardized packaging practices, then it is necessary that alternative transportation standards be available so as not to preclude the development and utilization of such technology. Although the public record on Notice 78-3 contains statements that the asbestos industry is seeking to improve the technology involved in the shipment and handling of commercial asbestos so as to minimize the possibility for the accidental release of such asbestos incident to

[1] Under Docket HM-145A (43 FR 22626, May 25, 1978), new standards and procedures were proposed for the transportation of hazardous waste materials. That proposal would include waste asbestos if so identified by EPA under Section 3001 of the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (Pub. L. 94-580).

isportation, it is by no means certain that the pace of such technological improvements is rapid enough or that the best, economically feasible technology is being considered. However, the classification of asbestos as an ORM-C will, for the first time, require the submission of incident reports to the MTB by carriers of any unintentional release of asbestos during transportation, and enable the MTB to monitor the safety performance record associated not only with the transportation alternatives available under current technology as provided for by these amendments, but also with any improvements in that technology.

For these reasons, the substance of proposed § 173.1090(c)(1) is being retained but modified to reflect an even broader range of permissible rigid, airtight packaging alternatives. This section now is identified in this amendment as § 173.1090(d)(1) because of the addition of new paragraph (b).

Section 173.1090(c)(2)

Proposed paragraph (c)(2) of Notice 78-3 covered the transportation alternative of shipping commercial asbestos in bags when in closed freight containers, motor vehicles, or rail cars that are loaded by the consignor and unloaded by the consignee. Several commenters noted that, unless reliance was placed on using the rigid, airtight packaging alternative provided in the proposal, this alternative would preclude the shipment of asbestos fibers by open-bed trailers. One commenter noted that there is "no evidence to indicate that the use of open-bed trailers with side racks and tarpaulins has contributed to bag breakage and the release of airborne concentrations of asbestos fiber." Another commenter noted that the type of bag permitted by proposed paragraph (c)(2) was not specified, and that the shipper could package asbestos in burlap bags, or very thin paper or polyethylene bags which could permit asbestos fibers to be easily released into the air during transit. Another commenter was concerned with "small volume users of asbestos and customers who, from time to time, require sample shipments for trial production runs of a few hundred pounds," and who under § 173.1090(c)(2) would be forced to acquire the exclusive use of a railcar or highway trailer, or rely on the alternative provided by § 173.1090(c)(1).

Given the lack of detailed data on the amount of asbestos fibers released [illegible] transportation and the circumstances and causes for such release, the MTB is in general agreement with the thrust of these comments; accordingly, a new paragraph (d)(2) recognizes less restrictive handling of bagged asbestos than was proposed.

Sections 174.840, 175.640, 176.906, 177.844

In these Sections, Notice 78-3 had proposed that, incident to its transportation, asbestos must be loaded, handled, and any asbestos contamination removed, in a manner that will *prevent* occupational exposure to airborne asbestos particles (emphasis added).

Some commenters objected to the word "prevent," believing that this word was intended to mean completely precluding the possibility of an accident occurring in which asbestos fibers would be released; or completely isolating people involved in the transportation, loading and unloading of asbestos from exposure to asbestos fibers from whatever source such fibers were generated. One commenter pointed out that with "the very large volume of asbestos shipped, occasional container damage may occur." Another commenter pointed out, although in a somewhat contradictory fashion, that since "asbestos is ubiquitous," therefore "airborne levels of asbestos fibers *can* be present in any place of employment, regardless of whether or not asbestos or products containing known quantities of asbestos are handled" (emphasis added). The Asbestos Information Association in its comments stated that "asbestos is ubiquitous, and there are *no workplaces where there is zero occupational exposure to asbestos*" (original emphasis). If Notice 78-3 was not as clear as it might have been on this point, it is only necessary to say that the basic purpose of these amendments is to minimize the exposure to airborne asbestos particles accidentally released during or incident to transportation; and appropriate changes to Parts 174, 175, 176, and 177 have been made to reflect this purpose.

ORM-C Classification

Notice 78-3 proposed that the classification for "asbestos" would be as an ORM-C, (Other Regulated Material, Group C). Several commenters were uncertain and concerned about the marking requirements associated with ORM-C classifications. One commenter noted that the designation ORM-C would "carry no meaningful warning to the person handling or opening the package." Another noted that the present regulations of the Occupational Safety and Health Administration (OSHA) on labeling requirements for asbestos convey much more information than an ORM-C marking requirement. These commenters were apparently not completely familiar with the marking requirements associated with ORM-C designated materials. The ORM-C marking not only warns when a package contains hazardous material, but it is also a certification by the person offering the package for transportation that the material is properly described, classed, packaged, marked, and labeled (when appropriate) and in proper condition for transportation according to applicable regulations of the Department. Neither function precludes or preempts OSHA labeling requirements or creates "contradictory regulatory requirements for labeling" as one commenter suggested. For these reasons, no changes have been made with respect to any marking requirements for asbestos packages.

Economic/Inflationary Impact

In reviewing the potential economic and inflationary impacts associated with the final rule, the MTB has determined that such impacts will be minimal. Based on the comments received, and the consequent modification of Notice 78-3, the only economic costs associated with final amendment pertain to the reporting requirements to be submitted to MTB on the accidental releases of commercial asbestos fibers during or incident to transportation. The absolute annual magnitude of these costs will be, of course, a function of the total number of incident reports that are submitted on accidental releases of asbestos fibers; but in view of the undisputed grave consequences from exposure to asbestos fibers, these reporting requirements will not impose an unnecessary burden on the economy, on individuals, or on public and private organizations.

In consideration of the foregoing, Title 49, Code of Federal Regulations, Parts 172, 173, 174, 175, 176, and 177 are amended as follows:

PART 172—HAZARDOUS MATERIALS TABLE AND HAZARDOUS MATERIALS COMMUNICATIONS REGULATIONS

1. In § 172.101 the Hazardous Materials Table is amended by adding a new entry, immediately following "Arsine," to read as follows:

§ 172.101 **Hazardous materials table.**

(1)	(2)	(3)	(4)	(5) Packaging		Maximum net quantity in one package		(7) Water shipments		
*/ W/ A	Hazardous materials descriptions and proper shipping names	Hazard class	Labels(s) required (if not excepted)	(a) Exception	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirement
	(Add)									
*	Asbestos	ORM-C	None	173.1090 (c)	173.1090 (d)	No Limit	No Limit	1, 2	1, 2	Stow and handle to avoid airborne particles.

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

2. Section 173.1090 is added preceding Subpart N to read as follows:

§ 173.1090 Asbestos.

(a) Asbestos includes any of the following hydrated mineral silicates: chrysotile, crocidolite, amosite, anthophyllite asbestos, tremolite asbestos, actinolite asbestos, and every product containing any of these minerals.

(b) Commercial asbestos is any material or product containing asbestos that has commercial value because of its asbestos content.

(c) Asbestos which is immersed or fixed in a natural or artificial binder material (such as cement, plastic, asphalt, resins or mineral ore) and manufactured products containing asbestos or any materials or products whose commercial value is not dependent on their asbestos content, are not subject to the requirements of this subchapter.

(d) Commercial asbestos must be offered for transportation and transported in—

(1) Rigid, airtight packagings such as metal or fiber drums, portable tanks, or

(2) Bags and other non-rigid packagings that are dust and sift proof. When transported by other than a private carrier by highway, bags and other non-rigid packagings containing asbestos must be palletized and unitized by methods such as shrink-wrapping in plastic film or wrapping in fiberboard secured by strapping.

PART 174—CARRIAGE BY RAIL

3. A Subpart M Heading is added immediately following § 174.812 to read as follows:

Subpart M—Detailed Requirements for Other Regulated Materials

4. Section 174.840 is added to read as follows:

§ 174.840 Special loading and handling requirements for asbestos.

Asbestos must be loaded, handled, and unloaded, and any asbestos contamination of rail cars removed, in a manner that will minimize occupational exposure to airborne asbestos particles released incident to transportation. (See § 173.1090 of this subchapter.)

PART 175—CARRIAGE BY AIRCRAFT

5. Section 175.640 is added to read as follows:

§ 175.640 Special requirements for other regulated materials.

Asbestos must be loaded, handled, and unloaded, and any asbestos contamination of aircraft removed, in a manner that will minimize occupational exposure to airborne asbestos particles released incident to transportation. (See § 173.1090 of this subchapter.)

PART 176—CARRIAGE BY VESSEL

6. Section 176.906 is added to read as follows:

§ 176.906 Stowage and handling of asbestos.

Asbestos must be stowed, handled, and unloaded, and any asbestos contamination of vessels removed, in a manner that will minimize occupational exposure to airborne asbestos particles released incident to transportation. (See § 173.1090 of this subchapter.)

PART 177—CARRIAGE BY PUBLIC HIGHWAY

7. Section 177.844 is added to read as follows:

§ 177.844 Other regulated materials.

Asbestos must be loaded, handled, and unloaded, and any asbestos contamination of transport vehicles removed, in a manner that will minimize occupational exposure to airborne asbestos particles released incident to transportation. (See § 173.1090 of this subchapter.)

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53(e).)

NOTE.—The Materials Transportation Bureau has determined that these amendments do not require a regulatory analysis under the items of Executive Order 12044 and DOT implementing procedures (43 FR 9582). A regulatory evaluation is available for review in the docket.

Issued in Washington, D.C., on November 27, 1978.

L. D. SANTMAN,
Director, Materials Transportation Bureau.

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