



DEPARTMENT OF TRANSPORTATION

MATERIALS TRANSPORTATION BUREAU

WASHINGTON, D.C. 20590

13087

49 CFR Parts 107, 172, 173, 175

[Docket No. HM-166B; Amdt. Nos. 107-6, 172-57, 173-135, 175-12]

Shipment of Hazardous Materials by Air; Miscellaneous Amendments

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

ACTION: Final rule.

SUMMARY: The Materials Transportation Bureau is amending the regulations pertaining to the shipment of hazardous materials by aircraft. The amendments involve package orientation marking requirements, package inspection requirements, and exceptions from certain regulatory requirements for such items as inflatable evacuation slides, transport incubators, aircraft tires and dry ice. Also included are requirements for informing air passengers of hazardous materials restrictions and certain minor and editorial changes to the regulations.

These amendments have the effect of eliminating two exemptions and adding to fourteen petitions for rulemaking.

EFFECTIVE DATE: September 1, 1980; however, shipments may be prepared, offered for transportation, and transported in accordance with these amendments beginning March 1, 1980.

FOR FURTHER INFORMATION CONTACT: Edward T. Mazzullo, Office of Hazardous Materials Regulation, Materials Transportation Bureau, Research and Special Programs Administration, U.S. Department of Transportation, Washington, D.C. 20590, (202) 426-2075.

SUPPLEMENTARY INFORMATION: The Materials Transportation Bureau (MTB) published a Notice of Proposed Rulemaking (Docket HM-166B, Notice 79-8) on May 21, 1979 (44 FR 29503). Notice 79-8 contained miscellaneous proposals pertaining to the shipment of hazardous materials by aircraft, which were based on petitions for rulemaking, on the MTB's own initiative to simplify, clarify, eliminate, or improve regulations, and on the MTB's efforts to convert exemptions into regulations of general applicability. The proposals were discussed under eleven separate subject headings and the public was invited to submit comments on or before October 31, 1979. Public comments received through October 31, 1979, have been

given consideration prior to promulgation of this final rule. Interested persons should refer to Docket HM-166B; Notice 79-8 for the background discussion on each of the eleven separate subject headings of proposals.

Action taken by the MTB and pertinent comments on the proposals are discussed under the same category headings which appeared in Notice 79-8, as follows:

1. *Wheelchairs with nonspillable batteries* (§ 173.250). Public comments concerning this proposal have indicated a need for further study and a consideration of other alternatives prior to promulgation of a final rule. Rather than delay action on other proposals contained in Notice 79-8, this proposal has not been addressed in this final rule and will be considered in a separate docket. Elsewhere in this issue of the *Federal Register*, the MTB has published a notice of public meetings and request for public comment. The notice addresses the transport of wheelchairs equipped with wet cell batteries and other aspects of the regulations applicable to the transportation of batteries, and is part of a general review by the MTB of regulations pertaining to the safe transportation of batteries.

2. *Escape and evacuation slides* (§§ 172.101, 173.906). Four commenters addressed this proposal, all favorably. Based on comments an additional shipping name, "Escape or evacuation slides, inflatable," has been added in § 172.101 and the wording has been changed in § 173.906 to make it clear that the listed examples are not meant to be all inclusive. Otherwise, the provision has been adopted as proposed.

3. *Transport incubators and organ preservation units* (§ 175.10). Based on comments received, changes have been made to the proposal to make the requirements more comparable to requirements contained in the two outstanding exemptions for these units, DOT-E6969 and DOT-E7202, and to some of the requirements currently applicable to the transport of oxygen for personal use as contained in 14 CFR 121.574 and 135.114.

One commenter suggested that the amendment be more specific with regard to requiring any wet cell battery used in a unit to be "of the nonspillable type." The term "nonspillable" refers to a wet cell battery which will not leak corrosive battery fluid under conditions normal to transportation. With this

meaning established, the term has been retained in this final rule. However, the MTB recognizes the need for defining a "nonspillable" battery in terms of an appropriate regulatory standard. A notice of public meetings and request for public comment addressing this and other subjects pertaining to the safe transportation of wet cell batteries appears elsewhere in this issue of the *Federal Register*.

4. *Package orientation markings* (§ 172.312). This provision has been adopted as proposed. Pertinent comments are addressed in the following paragraphs.

Several comments indicate some misunderstanding of existing requirements. One commenter suggested that the regulations currently require the use of absorbent materials for liquid hazardous materials packages transported by air. This is not true in that § 173.6 does not specifically require the use of absorbent materials but merely provides for their use upon the election of the shipper.

One commenter stated that many cosmetics, drugs and medicines are shipped with no package orientation markings. It is the MTB's impression that most cosmetics, drugs and medicines which are hazardous materials are likely to be classed as ORM-D materials and shipped under the description "Consumer Commodity, ORM-D." The MTB advises shippers that there is no exception from package orientation requirements, including marking requirements, for liquid hazardous materials classed ORM-D.

Two commenters suggested that all liquid hazardous materials, when offered for air transportation, should have package orientation markings. The MTB disagrees and feels that for limited quantities of flammable liquids the option of providing for an ample amount of absorbent material, in place of orienting the inner containers, provides an adequate level of safety.

Two commenters questioned the justification for the proposal, claiming an absence of an incident history for packages containing limited quantities of flammable liquids offered for air transportation. A review of hazardous materials incident reports submitted by air carriers during the period 1971 through 1978 reveals that of 822 incidents reported to the MTB, 71 incidents involved flammable liquids in containers of one quart or less. These 71 incident reports represent 8.6% of the total incidents reported to the MTB by air carriers.

5. *Exceptions from transport index limits and separation requirements for non-fissile radioactive materials shipped in cargo-only aircraft* (§ 175.705). This proposal was made as part of the MTB's efforts to convert individual exemptions into regulations

of general applicability. There were eleven comments addressed to this proposal, the majority of which were unfavorable. Commenters pointed out that the requirements of the proposal were less stringent than the current exemption requirements and that the carriage of non-fissile radioactive materials in excess of transport index limits under a professionally supervised radiation program is best regulated under the terms of the existing exemption.

The MTB is of the opinion that a substantial revision of the proposal, to make its conditions more comparable to the terms of exemption DOT-E7060 is possible, but agrees with those commenters who suggested that it would be premature to convert this exemption to a regulation. Therefore, the proposal has been deleted from this final rule.

6. *Exceptions for certain flammable liquids* (§ 172.100(g)(3)). This provision has been adopted as proposed.

7. *Carbon dioxide, solid (Dry Ice)* (§§ 173.615, 175.10). This proposal has been incorporated into the regulations with minor modifications. One air carrier requested the inclusion of a requirement to mark the net weight of the carbon dioxide on packages for manifesting purposes. The MTB agrees that a net weight marking would be useful and § 175.10(a)(13) has been revised to require that either the net weight, or an indication that the net weight is 5 pounds or less, be marked on each package.

Two commenters requested that the proposed exception from documentation requirements be extended to packages containing ten pounds or less of dry ice, rather than the proposed five pound limit. One suggested that ten pounds of dry ice are necessary to protect shipments of frozen seafood samples while the other suggested that a ten pound limit would encompass the majority of dry ice shipments on passenger-carrying aircraft. In the absence of successful shipping experience under the provisions of the exception and considering that the majority of commenters, including an association of seafood processors, supported the proposal, the five pound limit has been retained in this final rule.

8. *Informing passengers of hazardous materials restrictions* (§ 175.25). The proposal has been adopted with revisions. A discussion of the revisions and of significant comments follows.

The Air Transport Association of America strongly opposed the proposal,

contending that airport complexes are cluttered with signs that are rarely read and that any requirement for posting additional signs should be made

applicable to airport authorities rather than air carriers. The MTB disagrees, believing that warning signs are essential to provide information to those passengers who may be unaware of the prohibitions in 49 CFR which apply to them. The MTB also believes that the posting of these signs at ticket counters, baggage check-in areas and areas where passengers check in prior to boarding is best handled by aircraft operators.

One commenter requested that a distinction be made between aircraft operators who engage in for hire transportation of passengers and those who do not. The MTB concurs with this request and in § 175.25 the term "transportation" has been revised to read "for hire transportation."

The MTB has on its own initiative made several changes to the proposal. In order to provide aircraft operators with a degree of flexibility with regard to design and content of the notices, size and color for the notices have not been prescribed and provision has been made for inclusion of additional language in the text. Requirements for the text of notice are prescribed in § 175.25 and include an indication of possible penalties for violations, examples of prohibited and permitted hazardous materials and instructions for obtaining further information. Minimum sizes for lettering are also prescribed in § 175.25. It is anticipated that some aircraft operators may want to supplement the text with additional examples, instructions to passengers, or other information. Because of the flexible format, it is felt that sample notices are not necessary. Accordingly, the proposed reference in § 175.25 to FAA certificate holding offices as a source of "sample notices" has not been included in this final rule.

One other change involves deletion of the term "in baggage" from the introductory text of § 175.25, in order to clarify that restrictions are applicable not only to hazardous materials carried in checked or carry-on baggage, but also to those hazardous materials that are carried on one's person.

9. *Inspection of hazardous materials packages* (§ 175.30). The proposal to except dry ice and magnetized materials from the inspection requirements of § 175.30 has been adopted. The proposal to except all but an originating air carrier from requirements to inspect hazardous materials packages contained in freight containers has been deleted due to the merits of adverse comments. The proposal to require inspections of hazardous materials packages "immediately" prior to loading them on aircraft has been modified to make

allowance for packages which are stowed in freight containers or pallets several hours prior to loading or aircraft. The MTB has made editorial revisions to § 175.30 for purposes of clarity. Significant comments are discussed in the following paragraphs.

One commenter objected to the proposed exception from inspection requirements for packages containing dry ice, contending that the contents being cooled by the dry ice in such packages may pose a threat. The MTB does not believe that this is a valid objection. If the contents being cooled by the dry ice are hazardous materials, then the package is not excepted from the inspection requirements of § 175.30 and if, on the other hand, the contents are not hazardous materials, then they pose no more of a threat than any other package containing materials not subject to 49 CFR. Since there were no other unfavorable comments directed at this portion of the proposal, it has been adopted as proposed.

Several commenters have suggested that there is a need for an air carrier to reinspect packages of hazardous materials contained in freight containers when received from an originating carrier, particularly for shipments originating overseas. The MTB agrees with one commenter who contended that, under the proposed exception, inspection requirements for freight containers, packaging failures occurring during an originating carrier's flight or subsequent handling might go undetected prior to reloading the container on an interlining carrier's aircraft. For this reason the portion of the proposal, which would require only the originating carrier to open and inspect the contents of a freight container loaded with packages of hazardous materials, has been deleted and subsequent carriers must reinspect packages of hazardous materials contained in freight containers.

One commenter contended that packages placed in freight containers or on pallets cannot readily be inspected immediately prior to loading on the aircraft since the containers and pallets are packed several hours prior to the departure time of the flight. The MTB agrees with this contention and has amended the final rule to allow the inspection requirements to be satisfied by inspecting packages immediately prior to placing the packages in a freight container or, for packages which are palletized by an air carrier, immediately prior to placing them on a pallet.

10. *Explosives carried under § 175.28*. Only one comment was addressed to this proposal and it was favorable. The provision has been adopted as proposed.

miscellaneous changes. These miscellaneous changes have been adopted with one minor revision.

The provision to allow tires to be inflated to their rated service pressure, where previously inflation pressure was limited to a maximum of 100 psig at 70° F. in order to qualify for exceptions, was criticized by one commenter on the grounds that the MTB had not shown any need for the proposal or any hazard analysis to support it. The need for the proposal arises from a petition for rulemaking by the Air Traffic Conference of America dated September 14, 1977, which is quoted as follows:

"Most airlines are now inflating their tires at main bases with nitrogen to eliminate the possibility of internal ignition and to present an inert atmosphere which could lengthen the life of inside portions of the tire. The practice of deflating to 100 psig means inflating to service pressure usually at a line station where air only is available. This defeats the purpose of using nitrogen."

The Federal Aviation Administration Standard for Aircraft Tires (14 CFR 37.167) prescribes minimum performance standards that aircraft tires, excluding tailwheel tires, must meet. One provision of this standard requires that tires be capable of meeting an overpressure of at least 4 times their rating to inflation pressures. Additionally, wing aircraft tires are designed and constructed to withstand rigorous loads when installed and in use on aircraft, when transported as cargo they are subject to little, if any, abuse. For these reasons, the MTB feels that aircraft tires inflated to no greater than their rated inflation pressures are inherently safe for transportation purposes.

A requirement that aircraft tires be "serviceable" has been added to § 175.10(a)(2). This requirement is felt necessary to preclude the shipment of defective or worn tires. The change has been restricted to aircraft tires because such tires are inflated to much greater pressures than other tires and because the term "serviceable" has little meaning outside of the aircraft industry. Section 173.307(a)(2) has been revised to include reference to the additional requirement of § 175.10(a)(2).

The phrase "rated service pressure" has been revised to read "rated inflation pressure" in §§ 173.307(a)(2) and 175.10(a)(2)(x) to be consistent with language used in 14 CFR 37.167.

In consideration of the foregoing, 49 CFR Parts 107, 172, 173, and 175 are amended as follows:

PART 172—HAZARDOUS MATERIALS TABLE AND HAZARDOUS MATERIALS COMMUNICATIONS REGULATIONS

1. In Appendix B following Subpart B of Part 107, the title of the second

section and the introductory sentence preceding paragraph (1) is amended to read as follows:

Appendix B—Standard Conditions Applicable to Exemptions

Flights of Cargo-Only Aircraft

Exemptions from the regulations governing the transportation of hazardous materials on cargo-only aircraft are subject to the following conditions:

PART 172—HAZARDOUS MATERIALS TABLE AND HAZARDOUS MATERIALS COMMUNICATIONS REGULATIONS

2. In § 172.100, paragraph (f), the introductory text of paragraph (g), and paragraph (g)(2) are revised; paragraph (g)(3) is deleted as follows:

§ 172.100 Purpose and use of the table.

(f) Column 5 references the applicable packaging section of Part 173 of this subchapter. Exceptions from some of the requirements of this subchapter are noted in column 5(a). Other exceptions relating to the specific mode of transportation are contained in Parts 174, 175, 176 and 177 of this subchapter. Reference to specific packaging requirements and certain additional exceptions are noted in column 5(b).

(g) Column 6 specifies the maximum net quantity in one package for air transportation or passenger railcar. An exception for certain flammable liquids is provided in § 173.118 of this subchapter.

(2) Column 6(b) specifies the maximum net quantity for one package on cargo-only aircraft. A package must bear the CARGO AIRCRAFT ONLY label when the quantity of hazardous material exceeds that authorized on passenger-carrying aircraft, or is forbidden on passenger-carrying aircraft.

(3) [Deleted]

§ 172.101 [Amended]

3. In § 172.101, column (2) of the Hazardous Materials Table is amended by adding in proper sequence the following entry: "Escape or evacuation slides, inflatable. See Life rafts, inflatable."

4. In § 172.312, the introductory text of paragraph (a) is revised, paragraphs (d) and (e) are added as follows:

§ 172.312 Liquid hazardous materials.

(a) Except as provided in this section, each package having an inside

packaging containing liquid hazardous materials must be—

(d) Except when offered for transportation by air, limited quantities of flammable liquids packed in inside packagings of one quart or less are excepted from the requirements of paragraph (a) of this section.

(e) When offered for transportation by air, limited quantities of flammable liquids are excepted from the requirements of paragraph (a) of this section when packed in inside packagings of one quart or less with sufficient absorption material between the inner and outer packagings to completely absorb the liquid contents.

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

5. In § 173.118, paragraph (b) is amended by adding the following sentence at the end of the paragraph:

§ 173.118 Limited quantities of flammable liquids.

(b) * * * Notwithstanding § 172.101 of this subchapter, the net quantity limitation for flammable liquids meeting the conditions of this paragraph is one gallon per package for carriage aboard passenger-carrying aircraft or railcar, and 55 gallons per package for carriage aboard cargo-only aircraft.

6. In § 173.307, paragraph (a)(2) is revised to read as follows:

§ 173.307 Exceptions for compressed gases.

(2) Except as provided in § 175.10(a)(2) of this subchapter, tires when inflated to pressures not greater than their rated inflation pressures.

7. In § 173.615, paragraph (a) is revised to read as follows:

§ 173.615 Carbon dioxide, solid (dry ice).

(a) Solid carbon dioxide, when offered for transportation by aircraft or water, must be packed in packaging designed and constructed to permit the release of carbon dioxide gas to prevent a build-up of pressure that could rupture the packaging. For each shipment by air exceeding five pounds per package, advance arrangements between the shipper and each carrier must be made.

8. Section 173.906 is revised to read as follows:

§ 173.906 Inflatable life rafts, escape slides, and evacuation slides.

An inflatable life raft, escape slide or evacuation slide, serviced and ready for use as a life-saving appliance aboard a vessel or aircraft, containing small quantities of hazardous materials which are required as part of the life-saving appliance, including non-flammable compressed gas packaged in cylinders in accordance with this subchapter, Class C explosives that are pyrotechnic signal devices, and flammable liquids in repair kits, must be packed in a strong outside packaging.

PART 175—CARRIAGE BY AIRCRAFT

9. In § 175.10, paragraph (a)(2)(x) is revised, paragraphs (a)(13) and (a)(14) are added to read as follows:

§ 175.10 Exceptions.

- (a) * * *
- (2) * * *

(x) Items of replacement therefor, except batteries, aerosol dispensers, and signaling devices must be packed in strong outside containers, and tires must be serviceable and may not be inflated to pressures greater than their rated inflation pressures.

(13) Carbon dioxide, solid (dry ice) in quantities not exceeding 5 pounds per package packed as prescribed by § 173.615(a) of this subchapter and used as a refrigerant for the contents of the package. The package must be marked with the name of the contents being cooled, the net weight of the dry ice or an indication that the net weight is 5 pounds or less, and also marked "Carbon Dioxide, Solid" or "Dry Ice."

(14) A transport incubator unit necessary to protect life or an organ preservation unit necessary to protect human organs provided—

(i) The compressed gas used to operate the unit is in an authorized DOT specification cylinder and is marked, labeled, filled and maintained as prescribed by this subchapter;

(ii) Each battery used in the operation of the unit is of the nonspillable type;

(iii) The unit is constructed so that valves, fittings, and gauges are protected from damage;

(iv) The pilot in command is advised when the unit is on board, and when it is intended for use;

(v) The unit is accompanied by a person qualified to operate it;

(vi) The unit is secured in the aircraft in a manner so as not to restrict access to or use of any required emergency or regular exit or of the aisle in the passenger compartment; and,

(vii) Smoking within ten feet of the unit is prohibited.

10. Section 175.25 is added to read as follows:

§ 175.25 Informing passengers about hazardous materials restrictions.

(a) Each aircraft operator who engages in for hire transportation of passengers shall display notices to passengers concerning the requirements and penalties associated with the carriage of hazardous materials aboard aircraft. Such a notice shall be prominently displayed in each location at an airport where the aircraft operator issues tickets, checks baggage, and maintains aircraft boarding areas.

(1) Each notice must contain the following information:

Federal law forbids the carriage of hazardous materials aboard aircraft in your luggage or on your person.

A violation can result in penalties of up to \$25,000 and 5 years imprisonment. (49 U.S.C. 1609)

Hazardous materials include explosives, compressed gases, flammable liquids and solids, oxidizers, poisons, corrosives and radioactive materials.

Examples: Paints, lighter fluid, fireworks, tear gases, oxygen bottles, and radio-pharmaceuticals.

There are special exceptions for small quantities (up to 75 ounces total) of medicinal and toilet articles carried in your luggage and certain smoking materials carried on your person.

For further information contact your airline representative.

(2) The information contained in paragraph (a)(1) of this section must be printed—

(i) In legible English;

(ii) In lettering of at least three eighths of an inch in height for the first three paragraphs and one quarter inch in height for the last three paragraphs; and

(iii) On a background of contrasting color.

(3) Size and color of the notice are optional. Additional information, if not inconsistent with required information, may be included.

(b) Compliance with the requirements of this section is not mandatory until January 1, 1981.

11. In § 175.30, the heading, the introductory text of paragraph (a), paragraphs (a)(1), (b) and (c) are revised; paragraph (d) is added to read as follows:

§ 175.30 Accepting and inspecting shipments.

(a) No person may accept a hazardous material for transportation aboard an aircraft unless the hazardous material is—

(1) Authorized, and is within which quantity limitations specified for carriage aboard aircraft according to § 172.101 of this subchapter or as otherwise specifically provided by this subchapter.

(b) Except as provided in paragraph (d) of this section, no person may carry a package or outside container prepared in accordance with § 173.25 of this subchapter containing a hazardous material aboard an aircraft unless the package or outside container is inspected by the operator of the aircraft immediately before placing it—

(1) Aboard the aircraft; or

(2) In a freight container or on a pallet prior to loading aboard the aircraft.

(c) A hazardous material may only be carried aboard an aircraft if, based on the inspection prescribed in paragraph (b) of this section, the operator determines that the package or outside container containing the hazardous material—

(1) Has no holes, leakage or other indication that its integrity has been compromised; and

(2) For radioactive materials, does not have a broken seal.

(d) The requirements of paragraphs (b) and (c) of this section do not apply to—

(1) An ORM-D material packed in a freight container and offered for transportation by one consignor;

(2) Dry ice (carbon dioxide, solid); and

(3) Magnetized materials.

12. In § 175.33, paragraphs (a), (b) and (c) are redesignated (a)(1), (a)(2) and (a)(3); the material preceding paragraph (a)(1) is designated paragraph (a) and revised to read as follows:

§ 175.33 Notification of pilot-in-command

(a) When materials subject to the provisions of this subchapter are carried in an aircraft, the operator of the aircraft shall give the pilot-in-command the following information in writing before departure:

13. In § 175.85 paragraph (f) is added to read as follows:

§ 175.85 Cargo location.

(f) Paragraphs (a) and (e) of this section do not apply to a person operating an aircraft under § 175.310 which, because of its size and configuration, makes it impossible for that person to comply.

14. In § 175.305, paragraph (a) is revised to read as follows:

§ 175.305 Self-propelled vehicles.

(a) * * *

(4) Each area or compartment in which a self-propelled vehicle is being transported is suitably ventilated to prevent the accumulation of fuel vapors.

15. In § 175.310, paragraph (c)(4)(iii) is deleted; paragraph (e) is revised to read as follows:

§ 175.310 Transportation of flammable liquid fuel in small, passenger-carrying aircraft.

- * * * * *
- (c) * * *
- (4) * * *
- (iii) [Deleted].
- * * * * *

(e) Each area or compartment in which the fuel is loaded is suitably ventilated to prevent the accumulation of fuel vapors.

16. In § 175.320, paragraph (b)(8) is revised to read as follows:

§ 175.320 Cargo-only aircraft; only means of transportation.

- * * * * *
- (b) * * *

(8) When Class A explosives are carried aboard cargo-only aircraft under the provisions of this section, the aircraft operator shall take all possible action to insure that routes over heavily populated areas are avoided commensurate with considerations of flight safety. During the approach and landing phase, the aircraft operator shall request appropriate vectors when under radar control to avoid heavily populated areas.

* * * * *

{49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53 and App. A to Part 1}

Note.—The Materials Transportation Bureau has determined that this document will not have a major economic impact under the terms of Executive Order 12044 and DOT implementing procedures (44 FR 11034), nor an environmental impact under the National Environmental Policy Act (49 U.S.C. 4321 et seq.) A regulatory evaluation is available for review in the docket.

Issued in Washington, D.C., on February 20, 1980.

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

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