

**DEPARTMENT OF TRANSPORTATION****Research and Special Programs  
Administration****49 CFR Chapter I**

[Notice No. 96-10]

**Advisory Guidance; Offering,  
Accepting, and Transporting  
Hazardous Materials****AGENCY:** Research and Special Programs  
Administration (RSPA), DOT.**ACTION:** Advisory guidance.

**SUMMARY:** Preliminary findings in the investigation of a recent passenger aircraft accident in Florida indicate a possibility that hazardous materials carried as cargo aboard the aircraft may have caused or contributed to the severity of the accident. This is advisory guidance to remind persons involved in the transportation of hazardous materials of their responsibilities to ensure that hazardous materials are properly identified, packaged, authorized for transportation, handled, loaded, and transported in conformance with the Hazardous Materials Regulations.

**FOR FURTHER INFORMATION CONTACT:** Edward T. Mazzullo, Director, Office of Hazardous Materials Standards, RSPA, Department of Transportation, 400 Seventh Street, S.W., Washington, DC 20590-0001, Telephone (202) 366-8553.

**SUPPLEMENTARY INFORMATION:****I. General****A. Background**

A May 11, 1996 aircraft accident in Florida resulted in 110 fatalities. Preliminary evidence indicates that oxygen generators (chemical) were carried as cargo on board the aircraft and may have caused or contributed to the severity of the accident. In an interim final rule published on May 24, 1996 (61 FR 26418), RSPA has temporarily prohibited the transportation of oxygen generators (chemical) as cargo on passenger aircraft, while RSPA and the Federal Aviation Administration (FAA) determine what further regulatory actions may be necessary.

This accident serves to point out the risks posed by hazardous materials in transportation. RSPA is publishing this advisory notice to remind persons who offer, accept for transportation, or transport hazardous materials of their responsibilities to ensure that authorized hazardous materials are transported safely and that prohibited

hazardous materials are not offered for transportation or transported.

**B. Regulation of Hazardous Materials  
Transportation in Commerce**

The Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) specify requirements for the safe transportation of hazardous materials in commerce by rail car, aircraft, vessel, and motor vehicle. These comprehensive regulations govern transportation-related activities by offerors (e.g., shippers, brokers, forwarding agents, freight forwarders, and warehousemen); carriers (i.e., common, contract, and private); packaging manufacturers, reconditioners, testers, and retesters; and independent inspection agencies. The HMR apply to each person who performs, or causes to be performed, functions related to the transportation of hazardous materials such as determination of, and compliance with, basic conditions for offering; filling packages; marking and labeling packages; preparing shipping papers; handling, loading, securing and segregating packages within a transport vehicle, freight container or cargo hold; and transporting hazardous materials.

In general, the HMR prescribe requirements for classification, packaging, hazard communication, incident reporting, handling and transportation of hazardous materials. The HMR are enforced by RSPA and DOT's modal administrations: the FAA, the Federal Highway Administration (FHWA), the Federal Railroad Administration (FRA), and the United States Coast Guard (USCG). Federal law provides for civil penalties of not more than \$25,000 and not less than \$250 for each violation. An individual who willfully violates a provision of the HMR may be fined, under Title 18 U.S.C., up to \$250,000, be imprisoned for not more than 5 years, or both; a business entity may be fined up to \$500,000.

The information presented in this document highlights some of the requirements of the HMR which can affect transportation safety, but does not address many of the specific provisions and exceptions contained in the HMR. This advisory notice is intended to provide general guidance. It should not be used as a substitute for the HMR to determine compliance.

**II. Basic Requirements****A. Training**

The terms "hazmat employee" and "hazmat employer" are defined in detail in 49 CFR 171.8. Stated briefly, a hazmat employee is anyone who

directly affects hazardous materials transportation safety, and a hazmat employer is anyone who uses employees in connection with transporting hazardous materials in commerce, causing hazardous materials to be transported, or manufacturing or offering packagings as authorized for use in transportation of hazardous materials.

Before any hazmat employee performs a function subject to the HMR, that person must be provided initial training in the performance of that function. Also, if a new regulation is adopted, or an existing regulation is changed that relates to a function performed by a hazmat employee, that hazmat employee first must be instructed in those new or revised function-specific requirements. For example, if a new requirement is added to the shipping paper requirements, a hazmat employee must be instructed regarding the new requirement prior to performance of a function affected by the new or revised rule. As an interim measure, a hazmat employee may perform a required function under the direct supervision of a properly trained and knowledgeable hazmat employee for a period of 90 days, or until the required training is provided, whichever comes first.

Each hazmat employee must be initially trained, and periodically retrained at least every three years (previously two years; see final rule under Docket HM-222B; 61 FR 27166, May 30, 1996) in three areas: General awareness/familiarization training designed to provide familiarity with requirements of the HMR and to enable the employee to recognize and identify hazardous materials; function-specific training concerning requirements of the HMR which are specifically applicable to the functions the employee performs; and safety training concerning emergency response information, measures to protect the employee from the hazards posed by materials, and methods and procedures for avoiding accidents.

Hazmat employers are responsible for training. Each hazmat employee must be trained and tested, and the employer must keep a record of training to include certification of training and testing, date of training, a description of the training material, and the name and address of the person providing the training.

RSPA stresses the importance of hazmat employer compliance with the hazmat employee training requirement. Effective training of hazmat employees reduces the potential for incidents and accidents and is essential for the protection of people (employees,

passengers, emergency response personnel, and the general public), property, and the environment.

See Subpart H (Training) of Part 172 for detailed requirements.

#### *B. Classification and Identification of Hazardous Materials.*

The HMR set forth the procedures and criteria for determining the hazard class (see § 173.2) and the proper shipping name (see § 172.101) for hazardous materials. Some materials are so hazardous that they are specifically designated as "forbidden" in the Hazardous Materials Table in § 172.101 (the Table) and may not be offered for transportation or transported in commerce. Some require special review and approval. Others are designated as "forbidden" from transportation by specific modes, such as air transportation. Section 173.21 extends the "forbidden" designation beyond those materials listed by name in the Table to additional general categories, including materials (other than materials classed as explosives) that will detonate in a fire; combinations of materials that are likely to cause a dangerous evolution of heat, create flammable or poisonous gases or vapors, or produce corrosive materials; and packages that give off a flammable gas or vapor likely to create a flammable mixture with air in a transport vehicle. In the May 24, 1996 interim final rule, RSPA added a provision to § 173.21 to temporarily prohibit the transportation of oxygen generators (chemical) as cargo in passenger aircraft.

The Table lists, by name, several thousand of the most commonly transported hazardous materials. Tens of thousands of other hazardous materials that pose similar hazards as specifically listed materials are addressed by generic descriptions like "flammable liquids, n.o.s." ("n.o.s." means not otherwise specified).

The Table is a key element and primary guide to offerors, carriers, and enforcement personnel in determining compliance with the regulations. For each entry, the Table specifies the proper shipping name, hazard class or division, identification number, packing group, required hazard warning labels, packaging authorizations, per-package quantity limitations for passenger and cargo aircraft, and special provisions.

#### *C. Protective Packaging.*

The packaging required for a hazardous material is the first line of defense in ensuring that the material is not released during transportation. An inadequately packaged hazardous

material may not be offered for transportation, accepted or transported.

Generally, the HMR specify various performance levels for packagings for hazardous materials, based on the nature and level of hazards posed by the specific material to be packaged therein. All packagings must be designed to ensure that under normal conditions of transportation there will be no release of the contents, and that the effectiveness of the packaging will not be substantially reduced by temperature changes. Packagings used to transport liquids by aircraft must be able to withstand significant changes in ambient pressure. In the case of combination packagings, the inner packagings containing a liquid must be packed so that the closures are properly installed and tight, are upright, and the outer packaging must be marked to show the proper orientation. All inner packagings must be adequately secured and cushioned within the outer packaging to prevent breakage or leakage and to control their movement within the outer packaging under conditions normally incident to transportation. Substances that may react dangerously with each other may not be placed within the same package.

See Subpart B (Preparation of Hazardous Materials for Transportation) of Part 173 for general packaging requirements.

#### *D. Hazard Communication.*

Essential elements of hazard warning information are required to be communicated through shipping documents, package markings and labels, placards on transport vehicles and bulk packagings, written emergency response information, and emergency response telephone numbers to be used in the event of an emergency involving the hazardous material.

*Shipping papers* can be in the form of a bill of lading, freight bill, hazardous waste manifest, or other shipping document. At a minimum, a properly prepared shipping paper clearly identifies a hazardous material by its proper shipping name, hazard class or division number, identification number, packing group (if any), and total quantity. Additional hazard warning and handling information, such as "POISON" and "CARGO AIRCRAFT ONLY," must be entered on the shipping paper. This information is intended to enhance safety by informing hazmat employees of the presence of hazardous materials and prompting them to ensure that required actions, such as placarding and segregation of incompatible materials, are accomplished. This same information is

used by emergency responders in responding to incidents and accidents involving hazardous materials.

The "shipper's certification" is a positive endorsement that the offeror is required to provide when tendering a shipment of hazardous materials to a carrier for transportation. The person signing the certification must be trained in appropriate areas of the HMR (e.g., classification, description, packaging, marking, and labeling) pertaining to the shipment.

See Subpart C (Shipping papers) of Part 172 and related sections for detailed requirements.

*Package markings and labels* convey information on packages, such as the proper shipping name, identification number, and hazard class of a hazardous material. This information readily identifies that a package contains a hazardous material. It is used by carriers and other persons to ensure compliance with loading and stowage requirements designed to prevent potentially dangerous situations that may occur with incompatible hazardous materials, or to prevent contamination of foodstuffs, feed, or other edible materials. Also, the information provided by package markings and hazard warning labels can be used by emergency responders when shipping papers are destroyed or otherwise not immediately available. Hazardous materials markings must be durable, in English, and unobscured by other information appearing on the package. Hazard warning labels must conform to size and color specifications, be placed on the package near the marked proper shipping name, be clearly visible and be unobscured by other information.

See Subparts D (Marking) and E (Labeling) of Part 172 and related sections for detailed requirements.

*Hazard warning placards and identification numbers* are displayed on the outside of motor vehicles, freight containers, and bulk packagings loaded with hazardous materials. They provide a readily visible warning that hazardous materials are present. The information they provide can be critical to emergency responders in mitigating the impacts of a hazardous materials incident or accident.

See Subparts D (Marking) and F (Placarding) of Part 172 and related sections for detailed requirements.

*Emergency response information and an emergency response telephone number* must be provided by the offeror and maintained by the carrier for use in the mitigation of an accident or incident involving the hazardous material. The offeror must provide information concerning immediate hazards to

health, risks of fire or explosion, immediate precautions to be taken in event of an accident or incident, immediate methods for handling fires, initial methods for handling spills or leaks in the absence of fire, and preliminary first-aid measures. Furthermore, the shipping paper must contain the emergency response telephone number of a person who is either knowledgeable of the hazardous material and has comprehensive emergency response and incident mitigation information for that material, or has immediate access to a person who possesses such knowledge and information.

The required emergency response information provided by the offeror must be immediately accessible to train crew personnel, drivers of motor vehicles, flight crew members, and bridge personnel on vessels.

See Subpart G (Emergency Response Information) of Part 172 and related sections for detailed requirements.

#### *E. Incident Reporting and Modal-Specific Requirements.*

##### *Incident Reporting*

The HMR require carriers to report incidents involving hazardous materials. These incident reports are maintained by RSPA in its automated Hazardous Materials Information System (HMIS) database. RSPA uses this information to identify problems, such as inadequate or improper packagings; operational problems occurring during loading, unloading, or handling of packages; and inadequate blocking, bracing, or securing of packages within transport vehicles, freight containers, and cargo holds. When potentially serious problems are detected, regulatory or enforcement actions may be initiated.

Each person who discovers a discrepancy relative to the shipment of a hazardous material following its acceptance for transportation aboard an aircraft is required to notify the nearest FAA Civil Aviation Security Office, by telephone, as soon as practicable following discovery. This reporting requirement (see § 175.31) applies to packages which are found to contain hazardous materials that are: other than as described or certified on shipping papers; in quantities exceeding authorized limits; in inside containers which are not authorized or have improper closures; in inside containers not oriented as shown by package markings; or with insufficient or improper absorption materials, when required. Also, a telephonic report is required when a package or bag is found

to contain a hazardous material subsequent to its being offered and accepted as other than a hazardous material shipment.

See §§ 171.15, 171.16, 175.31, 176.48 and related sections for detailed requirements concerning the reporting of incidents, discrepancies, and other hazardous conditions.

##### *Stowage and Segregation*

Hazard warning labels and package markings are used by carrier personnel and other persons to ensure that hazardous materials are properly segregated or stowed, when required. For example, the HMR generally prohibit the loading of Class 8 (corrosive) material above or adjacent to Division 4.1 (flammable solid) materials or Division 5.1 (oxidizing) materials. Furthermore, there are modal-specific rules, such as quantity limitation requirements for transportation by passenger aircraft.

See §§ 173.21, 173.24, 173.24a, 174.81, 175.75, 175.78, 176.83, 177.848 and related sections for detailed stowage and segregation requirements.

#### *III. Common-Sense Reminders*

The HMR are only effective when persons who engage in day-to-day transportation-related activities make a concerted effort to ensure their own compliance, as well as that of others from whom they may receive shipments. The following reminders, as a minimum, are provided for consideration to ensure that hazardous materials are recognized and handled safely in conformance with the regulations.

##### *A. Know Your Customer*

Does your customer manufacture, ship or transport products that are hazardous materials? If so, what kind and in what quantities?

##### *B. Know the Packaging*

Is each hazardous material packaged in an authorized packaging that conforms to a DOT specification or United Nations standard, or other packaging authorization of the HMR? (See Parts 172, 173, 178–180, including §§ 172.101, 173.24, 173.24a, and 173.27).

##### *C. Know/Verify the Proper Hazardous Material Description*

Does the shipping description used match the proper shipping name, hazard class or division, identification number, and packing group listed in the Hazardous Materials Table in § 172.101? Is there a conflict between the documentation and the package

marking? Is there an emergency response telephone number on the shipping paper? Does emergency response information accompany the shipping paper? Is the shipper's certification entered on the shipping paper, as required by § 172.204?

##### *D. Visually Inspect Shipments*

Is there damage to a package that makes it unsuitable for transportation? Are hazardous materials warning labels clearly visible? Is the transport vehicle, freight container, or bulk packaging properly marked and placarded?

##### *E. Advise Your Customer of Possible Discrepancies*

Do not take independent action to correct known or suspected deficiencies. DON'T GUESS. If you know or suspect there is a problem, advise your customer and work together to bring the shipment into conformance with the HMR.

##### *F. Report Violations*

RSPA operates a toll-free telephone number (800-467-4922) that may be used to voluntarily report suspected violations of the HMR. Reported violations that concern a single mode of transportation are forwarded to the appropriate DOT modal administration for follow-up action.

#### *IV. Obtaining Federal Assistance in Complying With the HMR*

Numerous resources of the Department of Transportation are readily available to assist offerors, carriers, packaging manufacturers and other persons in understanding particular requirements of the HMR. RSPA operates a hazardous materials information center that responds to inquiries regarding the HMR. The information center operates during normal business hours. After-hours callers may leave a recorded message. Calls will be returned by the end of the next business day. The telephone number is 800-467-4922 or, in Washington, DC, 202-366-4488.

Modal-specific information may be obtained directly from DOT's modal administrations (i.e., FAA, FHWA, FRA, and USCG) at their Washington, DC headquarters or local field offices.

RSPA has a variety of training materials and compliance guides available in limited quantities to interested persons. Information on those publications and related materials is available via the Internet @ [hmix.dis.anl.gov](mailto:hmix.dis.anl.gov) (146.137.100.54) or by calling 800-467-4922, ext. 3.

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Materials Safety.*

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