

(7) If the operator conforms to the provisions of this section, the carrier requirements of § 171.15 except § 171.15(c) of this subchapter shall be deemed to have been satisfied.

(b) The following information shall be furnished in each report:

- (1) Name of reporting person;
- (2) Name and address of carrier represented by reporter;
- (3) Phone number where reporter can be contacted;
- (4) Date, time, and location of incident;
- (5) The extent of the injuries, if any; and

(6) Classification, name and quantity of hazardous material involvement and whether a continuing danger to life exists at the scene.

(c) Each operator who transports hazardous materials shall report in writing, in duplicate, on DOT Form F 5800.1 within 15 days of the date of discovery, each incident that occurs during the course of transportation (including loading, unloading, or temporary storage) in which, as a direct result to hazardous materials, any of the circumstances set forth in paragraph (a) of this section occurs or there has been an unintentional release of hazardous materials from a package. Each operator making a report under this section shall send that report to the Research and Special Programs Administration, Information Systems Manager, Department of Transportation, Washington, D.C. 20590, with a separate copy to the FAA facility indicated in paragraph (a) of this section.

(d) [Reserved]

[Amdt. 175-1, 41 FR 16106, Apr. 15, 1976, as amended by Amdt. 175-1A, 41 FR 40686, Sept. 20, 1976; Amdt. 175-14, 45 FR 32691, May 19, 1980; Amdt. 174-37, 45 FR 74669, Nov. 10, 1980; Amdt. 175-23, 47 FR 43066, Sept. 30, 1982; Amdt. 175-29, 48 FR 50461, Nov. 1, 1983; Amdt. 175-40, 52 FR 8592, Mar. 19, 1987]

Subpart B—Loading, Unloading and Handling

§ 175.75 Quantity limitations aboard aircraft.

(a) Except as provided in § 175.85(c)(3), no person may carry on an aircraft:

(1) A hazardous material except as permitted by this subchapter:

(2) More than 50 pounds net weight of hazardous material (and in addition thereto, 150 pounds net weight of non-flammable compressed gas) permitted to be carried aboard passenger-carrying aircraft:

(i) In an inaccessible cargo compartment,

(ii) In any freight container within an accessible cargo compartment, or

(iii) In any accessible cargo compartment in a cargo aircraft only in a manner that makes it inaccessible unless in a freight container;

(3) Packages containing radioactive materials when their combined transport index number (determined by adding together the transport index numbers shown on the labels of the individual packages and/or overpacks):

(i) In passenger carrying aircraft, exceeds 50.0 or, for any single package, exceeds 3.0, or

(ii) In cargo aircraft only, exceeds 200.00 (for fissile radioactive materials, see § 175.702(b)(2)(iv)) or, for any single package, exceeds 10.0.

(b) No limitation applies to the number of packages of ORM material aboard an aircraft.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 175-1A, 41 FR 40686, Sept. 20, 1976, as amended by Amdt. 175-13, 45 FR 20101, Mar. 27, 1980; Amdt. 175-18, 45 FR 81572, Dec. 11, 1980; Amdt. 175-25, 47 FR 54823, Dec. 6, 1982; Amdt. 175-29, 48 FR 50461, Nov. 1, 1983]

§ 175.78 Stowage compatibility of cargo.

(a) Packages containing hazardous materials which might react dangerously with one another may not be stowed in an aircraft next to each other or in a position that would allow a dangerous interaction in the event of leakage. As a minimum, the segregation prescribed in the following Table must be maintained.

TABLE 1

	A	B	C	D	E	F	G
A Explosives and Blasting Agents or ICAO Class 1.....	Note 3.....	Note 4.....	X				
B Compressed gases or ICAO Class 2.....	Note 4.....					X.....	
C Flammable liquids or ICAO Class 3.....	Note 4.....					X.....	X
D Flammable liquids and solids (labeled SPONTANEOUSLY COMBUSTIBLE) or ICAO Division 4.2.....	Note 4.....					X.....	X
E Flammable solids (labeled DANGEROUS WHEN WET) or ICAO Division 4.3.....	Note 4.....					X.....	X
F Oxidizers or ICAO Division 5.1 and Organic peroxides or ICAO Division 5.2.....	Note 4.....		X.....	X.....	X.....	X.....	
G Corrosive materials or ICAO Class 8.....	X.....			X.....	X.....	X.....	

Note 1: The letters across the top of the Table have the same meaning as the letters along the left side of the Table.

Note 2: An "X" at the intersection of a row and a column in the Table means that packages containing the indicated classes of hazardous materials may not be stowed next to or in contact with each other, or in a position which would allow interaction in the event of leakage of the contents.

Note 3: For import or export shipment, explosives other than explosives of ICAO Division 1.4, Compatibility Group S, that do not belong to the same compatibility group according to the ICAO Technical Instructions may not be stowed together, except that compatibility groups C, D and E may be stowed together. Explosives of ICAO Division 1.4, Compatibility Group S may be stowed with explosives of all compatibility groups with the exception of A and L.

Note 4: Explosives, other than safety explosives (ICAO Division 1.4, Compatibility Group S) must not be stowed together with this class.

(b) No person may stow a package labeled **BLASTING AGENT** on an aircraft next to, or in a position that will allow contact with a package of special fireworks or railway torpedoes.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 175-1, 41 FR 16106, Apr. 15, 1976, as amended by Amdt. 175-8, 44 FR 31184, May 31, 1979; Amdt. 175-22, 47 FR 24587, June 7, 1982; Amdt. 175-25, 47 FR 54823, Dec. 6, 1982; Amdt. 175-30, 48 FR 53713, Nov. 29, 1983]

§ 175.79 Orientation of cargo.

(a) A package containing hazardous materials marked "**THIS SIDE UP**" or "**THIS END UP**", or with arrows to indicate the proper orientation of the package, must be stored and loaded aboard an aircraft in accordance with such markings.

(b) A package containing liquid hazardous materials not marked as indicated in paragraph (a) of this section, must be stored and loaded with closures up (other than side closures in addition to top closures).

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 175-25, 47 FR 54823, Dec. 6, 1982]

§ 175.81 Securing of packages containing hazardous materials.

(a) Packages containing hazardous materials must be secured in an aircraft in a manner that will prevent any movement in flight which would result in damage to or change in the orientation of the packages.

(b) Packages containing radioactive materials must be secured in a manner that insures that the separation requirements of §§ 175.701 and 175.702 will be maintained at all times during flight.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 175-25, 47 FR 54823, Dec. 6, 1982]

§ 175.85 Cargo location.

(a) Except as provided in § 175.10, no person may carry a hazardous material subject to the requirements of this subchapter in the cabin of a passenger-carrying aircraft or on the flight deck of any aircraft. Hazardous materials may be carried in a main deck

cargo compartment of a passenger-aircraft provided that the compartment is inaccessible to passengers and that it meets all certification requirements for a Class B aircraft cargo compartment as provided in 14 CFR 25.857(b).

(b) Each package containing a hazardous material acceptable only for cargo aircraft must be loaded in such a manner that a crew member or other authorized person can see, handle and when size and weight permit, separate such packages from other cargo during flight.

(c) Notwithstanding the provisions of paragraph (b) of this section:

(1) When packages of the following hazardous materials are carried on cargo aircraft only, they may be carried in a location which is inaccessible to a crewmember during flight and are not subject to the weight limitation specified in paragraph (a)(2) of § 175.75 of this subchapter.

(i) Radioactive (ICAO Class 7) materials,

(ii) Poison B (ICAO Division 6.1) liquids and solids (except those labeled **FLAMMABLE**),

(iii) Irritating (ICAO Division 6.1) materials,

(iv) Etiologic (ICAO Division 6.2) agents,

(v) Flammable liquids with a flash-point above 73° F. (23° C.) that do not meet the definition of another hazardous class,

(vi) Materials classified as Class 9 materials according to the ICAO Technical Instructions and that are being transported under that classification as provided in § 171.11 of this subchapter, and,

(vii) ORM-A, C, D or E materials.

(2) When packages of hazardous materials acceptable for cargo-only or passenger-carrying aircraft are carried on cargo aircraft only where other means of transportation are impracticable or not available, packages may be carried in accordance with procedures approved in writing by the FAA Air Transportation Security Field Office responsible for the operator's overall aviation security program or the FAA Air Transportation Security Division in the region where the operator is located.

(3) When packages of hazardous materials acceptable for cargo-only or passenger-carrying aircraft are carried on small, single pilot, cargo aircraft only being used where other means of transportation are impracticable or not available, they may be carried without quantity limitation as specified in § 175.75 in a location that is not accessible to the pilot if:

(i) No person other than the pilot, an FAA inspector, the shipper or consignee of the material or a representative of the shipper or consignee so designated in writing, or a person necessary for handling the material is carried on the aircraft;

(ii) The pilot is provided with written instructions on characteristics and proper handling of the materials; and

(iii) Whenever a change of pilots occurs while the material is on board, the new pilot is briefed under a hand-to-hand signature service provided by the operator of the aircraft.

(d) [Reserved]

(e) No person may carry a material subject to the requirements of this subchapter that is acceptable for carriage in a passenger-carrying aircraft (other than magnetized materials) unless it is located in the aircraft in a place that is inaccessible to persons other than crew-members.

(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.

(g) No person may load magnetized material (which might cause an erroneous magnetic compass reading) on an aircraft, in the vicinity of a magnetic compass, or compass master unit, that is a part of the instrument equipment of the aircraft, in a manner that affects its operation. If this requirement cannot be met, a special aircraft swing and compass calibration may be made.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 175-1, 41 FR 16106, Apr. 15, 1976]

EDITORIAL NOTE: For Federal Register citations affecting § 175.85, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 175.88 Inspection of unit load devices.

A unit load device may not be loaded on an aircraft unless the device has been inspected and found to be free from any evidence of leakage from, or damage to, any package containing hazardous materials.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 175-25, 47 FR 54824, Dec. 6, 1982]

§ 175.90 Damaged shipments.

(a) Packages or overpacks containing hazardous materials must be inspected for damage or leakage after being unloaded from an aircraft. When packages or overpacks containing hazardous materials are carried in a unit load device, the area where the unit load device was stowed must be inspected for evidence of leakage or contamination immediately upon removal of the unit load device from the aircraft, and the packages or overpacks inspected for evidence of damage or leakage when the unit load device is unloaded. In the event of leakage or suspected leakage, the compartment in which the package, overpack, or unit load device was carried must be inspected for contamination and any dangerous level of contamination removed.

(b) Except as provided for in § 175.700, the operator of an aircraft shall remove from the aircraft any package subject to this subchapter that appears to be damaged or leaking. In the case of a package which appears to be leaking, the operator must insure that the remainder of the packages in the same shipment are in proper condition for transport aboard the aircraft and that no other package has been contaminated.

(c) No person shall place a package that is damaged or appears to be damaged or leaking aboard an aircraft subject to this part.

(d) If a package containing an etiologic agent is found to be damaged or leaking, the person finding the package shall:

(1) Avoid handling the package or keep handling to a minimum;

(2) Inspect packages adjacent to the leaking package for contamination and withhold from further transportation any contaminated packages until

it is ascertained that they can be safely transported;

(3) Comply with the reporting requirement of § 171.15 of this subchapter; and

(4) Notify the consignor or consignee.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 175-25, 47 FR 54824, Dec. 6, 1982]

Subpart C—Specific Regulations Applicable According to Classification of Material

§ 175.305 Self-propelled vehicles.

(a) Self-propelled vehicles are exempt from the drainage requirements of § 173.120 of this subchapter when carried in aircraft designed or modified for vehicle ferry operations and when all of the following conditions are met:

(1) Authorization for this type operation has been given by the appropriate authority in the government of the country in which the aircraft is registered;

(2) Each vehicle is secured in an upright position;

(3) Each fuel tank is filled in a manner and only to a degree that will preclude spillage of fuel during loading, unloading, and transportation; and

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

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 175-1, 41 FR 16106, Apr. 15, 1976, as amended by Amdt. 175-12, 45 FR 13091, Feb. 28, 1980; Amdt. 175-25, 47 FR 54824, Dec. 6, 1982]

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

A small aircraft or helicopter operated entirely within the State of Alaska or into a remote area elsewhere in the United States may carry, in other than scheduled passenger operations, not more than 20 gallons of flammable liquid fuel, if:

(a) Transportation by air is the only practical means of providing suitable fuel;

(b) The flight is necessary to meet the needs of a passenger;

(c) The fuel is carried in metal containers that are either:

(1) In strong tight metal containers of not more than 5 gallons capacity, each packed inside a DOT Specification 12B fiberboard box or each packed inside a DOT Specification 15A, 15B, 15C, 16A, 19A or 19B wooden box, or in the case of a small aircraft in Alaska, each packed inside a wooden box of at least one-half inch thickness;

(2) Airtight, leakproof, inside containers of not more than 10 gallons capacity and of at least 28-gauge metal, each packed inside a DOT Specification 15A, 15B, 15C, 16A, 19A, or 19B wooden box or, in the case of a small aircraft in Alaska, each packed inside a wooden box of at least one-half inch thickness;

(3) DOT Specification 17E containers of not more than 5 gallons capacity; or

(4) Fuel tanks attached to flammable liquid fuel powered equipment under the following conditions:

(i) Each piece of equipment is secured in an upright position;

(ii) Each fuel tank is filled in a manner that will preclude spillage of fuel during loading, unloading, and transportation; and

(d) In the case of a helicopter, the fuel is carried on external cargo racks;

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

(f) Before each flight, the pilot-in-command:

(1) Informs each passenger of the location of the fuel and the hazards involved; and

(2) Prohibits smoking, lighting matches, the carrying of any lighted cigar, pipe, cigarette or flame, and the use of anything that might cause an open flame or spark, while loading or unloading or in flight; and

(g) Fuel is transferred to the fuel tanks only while the aircraft is on the surface.

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[Amdt. 175-1, 41 FR 16106, Apr. 15, 1976, as amended by Amdt. 175-1A, 41 FR 40686, Sept. 20, 1976; Amdt. 175-12, 45 FR 13091, Feb. 28, 1980; Amdt. 175-21, 46 FR 58696, Dec. 3, 1981]

§ 175.320 Cargo aircraft only; only means of transportation.

(a) Notwithstanding § 172.101 of this subchapter, when means of transport-

tation other than air are impracticable or not available, hazardous materials listed in the following table may be carried on a cargo aircraft only, subject to the conditions stated in the table and in paragraph (b) of this section and, when appropriate, paragraph (c) of this section:

Material description	Class	Conditions
Detonators and detonating primers.	Class A explosives.....	Permitted only when no other hazardous material is aboard the aircraft.
Detonators and detonating primers.	Class C explosives.....	Permitted only when there are no Class A explosives aboard aircraft.
Fuel, aviation, turbine engine; Methyl alcohol; or Toluene.	Flammable liquid.....	Permitted in DOT specification metal drums having rated capacities of 55 gallons or less. May not be transported in the same aircraft with materials classed as Class A, B, or C explosives, blasting agents, corrosive materials or oxidizing materials. Permitted in installed tanks each having a capacity of more than 110 gal. subject to the conditions specified in paragraph (c) of this section.
Gasoline.....	Flammable liquid.....	Permitted in metal drums having rated capacities of 55 gal. or less. May not be transported in the same aircraft with materials classed as Class A, B, or C explosives, blasting agents, corrosive materials or oxidizing materials. Permitted in installed tanks each having a capacity of more than 110 gal. Subject to the conditions specified in para. (c) of this section.
High explosives.....	Class A explosives.....	Limited to explosives to be used for blasting. Permitted only when no other cargo is aboard the aircraft or when being transported in the same aircraft with an authorized shipment of any 1 or more of the following materials to be used for blasting: Ammonium nitrate-fuel oil mixtures Blasting agent, n.o.s. Detonating cord. Propellant explosive (solid) Class B (water gels only). Propellant explosive (liquid) Class B (water gels only).
Oil n.o.s.; petroleum oil or petroleum oil, n.o.s.	Flammable liquid.....	Permitted in metal drums having rated capacities of 55 gal. or less. May not be transported in the same aircraft with materials classed as Class A, B, or C explosives, blasting agents, corrosive materials, or oxidizing materials. Permitted in installed tanks each having a capacity of more than 110 gal. subject to the conditions specified in para. (c) of this section.
Combustible liquid, n.o.s.....	Combustible liquid.....	Permitted in installed tanks each having a capacity of more than 110 gal subject to the conditions specified in par. (c) of this section.

(b) The following conditions apply to the carriage of hazardous materials performed under the authority of this section:

(1) No person other than a required flight crewmember, an FAA inspector, the shipper or consignee of the material or a representative of the shipper or consignee so designated in writing, or a person necessary for handling the material may be carried on the aircraft.

(2) The operator of the aircraft must have advance permission from the

owner or operator of each manned airport where the material is to be loaded or unloaded or where the aircraft is to land while the material is on board. When the destination is changed after departure because of weather or other unforeseen circumstances, permission from the owner or operator of the alternate airport should be obtained as soon as practicable before landing.

(3) At any airport where the airport owner or operator or authorized representative thereof has designated a location for loading or unloading the

material concerned, the material may not be loaded or unloaded at any other location.

(4) If the material concerned can create destructive forces or have lethal or injurious effects over an appreciable area as a result of an accident involving the aircraft or the material, the loading and unloading of the aircraft and its operation in takeoff, en route, and in landing must be conducted at a safe distance from heavily populated areas and from any place of human abode or assembly.

(5) If the aircraft is being operated by a holder of a certificate issued under 14 CFR Part 121, Part 127 or Part 135, operations must be conducted in accordance with conditions and limitations specified in the certificate holder's operations specifications or operations manual accepted by the FAA. If the aircraft is being operated under 14 CFR Part 91, operations must be conducted in accordance with an operations plan accepted and acknowledged in writing by the Civil Aviation Security Office serving the operator's location or the place where the material is to be loaded.

(6) Each pilot of the aircraft must be provided written instructions stating the conditions and limitations of the operation being conducted and the name of the airport official[s] granting the advance permission required by the first sentence of paragraph (b)(2) of this section.

(7) The aircraft and the loading arrangement to be used must be approved for safe carriage of the particular materials concerned by the FAA Civil Aviation Security Office responsible for the operator's overall aviation security program or the appropriate FAA Civil Aviation Security Office serving the place where the material is to be loaded.

(8) When Class A explosives are carried aboard cargo aircraft only 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.

(9) During loading and unloading, no person may smoke, carry a lighted cigarette, cigar, or pipe, or operate any device capable of causing an open flame or spark within 50 feet of the aircraft.

(10) If the movement involves international transportation, permission for the shipment may also be required from the appropriate authorities of the countries of origin, destination, transit and overflight prior to departure.

(c) The following additional conditions apply to the carriage of flammable liquids and combustible liquids in tanks each having a capacity of more than 110 gallons under the authority of this section:

(1) The tanks and their associated piping and equipment and the installation thereof must have been approved for the material to be transported by the appropriate FAA Regional Office.

(2) In the case of an aircraft being operated by a certificate holder, the operator shall list the aircraft and the approval information in its operating specifications. If the aircraft is being operated by other than a certificate holder, a copy of the FAA Regional Office approval required by this section must be carried on the aircraft.

(3) The crew of the aircraft must be thoroughly briefed on the operation of the particular bulk tank system being used.

(4) During loading and unloading and thereafter until any remaining fumes within the aircraft are dissipated:

(i) Only those electrically operated bulk tank shutoff valves that have been approved under a supplemental type certificate may be electrically operated.

(ii) No engine or electrical equipment, avionic equipment, or auxiliary power units may be operated, except position lights in the steady position and equipment required by approved loading or unloading procedures, as set forth in the operator's operations manual, or for operators that are not certificate holders, as set forth in a written statement.

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(iii) No person may fill a container, other than an approved bulk tank, with a flammable or combustible liquid or discharge a flammable or combustible liquid from a container, other than an approved bulk tank, while that container is inside or within 50 feet of the aircraft.

(iv) When filling an approved bulk tank by hose from inside the aircraft, the doors and hatches must be fully open to insure proper ventilation.

(v) Static ground wires must be connected between the storage tank or fueler and the aircraft, and between the aircraft and a positive ground device.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 175-1, 41 FR 16106, Apr. 15, 1976]

EDITORIAL NOTE: For Federal Register citations affecting § 175.320, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 175.630 Special requirements for poisons and etiologic agents.

(a) Hazardous materials bearing the **POISON** or **ETIOLOGIC AGENT** label may not be carried in the same compartment of an aircraft with material which is marked as or known to be foodstuffs, feed, or any other edible material intended for consumption by humans or animals unless either the poisons or etiologic agents and the foodstuffs, feed, or other edible materials are loaded in separate unit load devices which, when stowed on the aircraft, are not adjacent to each other, or the poisons or etiologic agents are loaded in one closed unit load device and the foodstuffs, feed or other materials are loaded in another closed unit load device.

(b) No person may operate an aircraft that has been used to transport any package bearing a **POISON** label unless, upon removal of such package, the area in the aircraft in which it was carried is visually inspected for evidence of leakage, spillage, or other contamination. All contamination discovered must be either isolated or removed from the aircraft. The operation of an aircraft contaminated with such poisons is considered to be the carriage of poisonous materials under paragraph (a) of this section.

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(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 175-1, 41 FR 16106, Apr. 15, 1976, as amended by Amdt. 175-25, 47 FR 54824, Dec. 6, 1982; Amdt. 175-30, 48 FR 53713, Nov. 29, 1983]

§ 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.)

[Amdt. 175-7, 43 FR 56688, Dec. 4, 1978]

§ 175.700 Special limitations and requirements for radioactive materials.

(a) In addition to other requirements, no person may carry in a passenger-carrying aircraft any package required to be labeled in accordance with § 172.403 of this subchapter with a **Radioactive Yellow-II** or **Radioactive Yellow-III** label unless:

(1) For a package required to be labeled **Radioactive Yellow-II**, the transport index does not exceed 1.0;

(2) For a package required to be labeled **Radioactive Yellow-III**, the transport index does not exceed 3.0;

(3) The package is carried on the floor of the cargo compartment, or freight container; and

(4) The package is carried in the aircraft in accordance with §§ 175.701 and 175.703(c).

(b) In addition to the reporting requirements of § 175.45, the carrier must also notify the shipper at the earliest practicable moment following any incident in which there has been breakage, spillage, or suspected radioactive contamination involving radioactive materials shipments. Aircraft in which radioactive materials have been spilled may not again be placed in service or routinely occupied until the radiation dose rate at any accessible surface is less than 0.5 millirem per hour and there is no significant removable radioactive surface contamination as determined in accordance with § 173.443 of this subchapter. When contamination is present or sus-

pected, the package and/or materials it has touched must be segregated as far as practicable from personnel contact until needed radiological advice or assistance is obtained. The Regional Office of the U.S. Department of Energy or appropriate State or local radiological authorities can provide advice or assistance, and should be notified in cases of obvious leakage, or if it appears likely that the inside container may have been damaged. For personnel safety the carrier must take care to avoid possible inhalation, ingestion, or contact with radioactive materials that may have leaked or spilled from its package. Any loose radioactive materials and associated packaging materials must be left in a segregated area pending disposal instructions from responsible radiological authorities.

(c) Except as provided in §§ 173.4, 173.421-1 and 173.421-2 of this subchapter, no person may carry any radioactive material aboard a passenger-carrying aircraft unless that material is intended for use in, or incident to, research, medical diagnosis or treatment.

(d) Type B(M) packages may not be offered or accepted for transportation, nor transported, on passenger-carrying aircraft.

[Amdt. 175-13, 45 FR 20101, Mar. 27, 1980, as amended by Amdt. 175-19, 46 FR 24185, Apr. 30, 1981; Amdt. 175-26, 48 FR 10245, Mar. 10, 1983; Amdt. 175-31, 49 FR 38134, Sept. 27, 1984; 50 FR 18668, May 2, 1985]

§ 175.701 Separation distance requirements for packages containing radioactive materials in passenger-carrying aircraft.

(a) *General.* No person may carry in a passenger-carrying aircraft any package required by § 172.403 of this subchapter to be labeled Radioactive Yellow-II, or Radioactive Yellow-III unless the package is placed in the aircraft in accordance with the minimum separation distances prescribed in paragraph (b) or (c) of this section.

(b) *Separation distances.* (1) Except as provided in paragraph (c) of this section, the minimum separation distances prescribed in paragraph (b)(2) of this section are determined by measuring the shortest distance be-

tween the surfaces of the radioactive materials package and the surfaces bounding the space occupied by passengers or animals. If more than one package of radioactive materials is placed in a passenger-carrying aircraft, the minimum separation distance for these packages shall be determined in accordance with paragraph (b)(2) of this section on the basis of the sum of the transport index numbers of the individual packages or overpacks.

(2) The following table prescribes minimum separation distances for the carriage of packages containing radioactive materials labeled Radioactive Yellow-II or Radioactive Yellow-III in passenger-carrying aircraft:

Transport index or sum of transport indexes of all packages in the aircraft or predesignated area	Minimum separation distances	
	Centimeters	Inches
0.1 to 1.0.....	30	12
1.1 to 2.0.....	50	20
2.1 to 3.0.....	70	28
3.1 to 4.0.....	85	34
4.1 to 5.0.....	100	40
5.1 to 6.0.....	115	46
6.1 to 7.0.....	130	52
7.1 to 8.0.....	145	57
8.1 to 9.0.....	155	61
9.1 to 10.0.....	165	65
10.1 to 11.0.....	175	69
11.1 to 12.0.....	185	73
12.1 to 13.0.....	195	77
13.1 to 14.0.....	205	81
14.1 to 15.0.....	215	85
15.1 to 16.0.....	225	89
16.1 to 17.0.....	235	93
17.1 to 18.0.....	245	97
18.1 to 20.0.....	260	102
20.1 to 25.0.....	290	114
25.1 to 30.0.....	320	126
30.1 to 35.0.....	350	138
35.1 to 40.0.....	375	148
40.1 to 45.0.....	400	157
45.1 to 50.0.....	425	167

(c) *Predesignated areas.* A package required by § 172.403 of this subchapter to be labeled Radioactive Yellow-II or Radioactive Yellow-III may be carried in a passenger-carrying aircraft in accordance with a system of predesignated areas established by the aircraft operator. Each aircraft operator that elects to use a system of predesignated areas shall submit a detailed description of the proposed system to the Director, OHMT for approval prior to implementation of the system. A proposed system of predesignated areas is

approved if the Director, OHMT determines that it is designed to assure that:

(1) The packages can be placed in each predesignated area in accordance with the minimum separation distances prescribed in paragraph (b)(2) of this section; and

(2) The predesignated areas are separated from each other by minimum distance equal to at least four times the distances required by paragraphs (b)(1) and (b)(2) of this section for the predesignated area containing packages with the largest sum of transport indexes.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)
[Amdt. 175-13, 45 FR 20102, Mar. 27, 1980, as amended by Amdt. 175-23, 47 FR 43066, Sept. 30, 1982; Amdt. 175-25, 47 FR 54824, Dec. 6, 1982]

§ 175.702 Requirements for carriage of packages containing radioactive materials in a cargo aircraft only.

(a) As used in this section, the term "group of packages" means packages that are separated from each other in an aircraft by a distance of 20 feet (6 meters) or less.

(b) No person may carry in a cargo aircraft only any package required by § 172.403 of this subchapter to be labeled Radioactive Yellow-II or Radioactive Yellow-III unless:

(1) The total transport index for all of the packages does not exceed 50.0

and the package is carried in accordance with § 175.701(a); or

(2) The total transport index for all of the packages exceeds 50.0 and:

(i) The separation distance between the surfaces of the radioactive materials packages and the surfaces bounding the space occupied by persons or animals is at least 30 feet (9 meters);

(ii) The transport index for any group of packages does not exceed 50.0; and

(iii) Each group of packages is separated from every other group in the aircraft by not less than 20 feet (6 meters), measured from the outer surface of each group; and

(iv) The total transport index for all packages containing fissile radioactive materials does not exceed 50.0.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)
[Amdt. 175-13, 45 FR 20102, Mar. 27, 1980, as amended by Amdt. 175-29, 48 FR 50461, Nov. 1, 1983]

§ 175.703 Other special requirements for the acceptance and carriage of packages containing radioactive materials.

(a) No person may carry in an aircraft any package of radioactive materials required by § 172.403 of this subchapter to be labeled Radioactive Yellow-II or Radioactive Yellow-III closer than the distances shown in the following table to any package marked as containing undeveloped film:

Transport Index	Minimum separation distance to nearest undeveloped film for various times of transit									
	Up to 2 hours		2 to 4 hours		4 to 8 hours		8 to 12 hours		Over 12 hours	
	Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters	Feet
0.1 to 1.0.....	0.3	1	0.6	2	0.9	3	1.2	4	1.5	6
1.1 to 5.0.....	0.9	3	1.2	4	1.8	6	2.4	8	3.3	11
5.1 to 10.0.....	1.2	4	1.8	6	2.7	9	3.3	11	4.5	15
10.1 to 20.0.....	1.5	5	2.4	8	3.6	12	4.8	16	6.6	22
20.1 to 30.0.....	2.1	7	3.0	10	4.5	15	6.0	20	8.7	29
30.1 to 40.0.....	2.4	8	3.3	11	5.1	17	6.6	22	9.9	33
40.1 to 50.0.....	2.7	9	3.6	12	5.7	19	7.2	24	10.8	36

(b) No person may accept for carriage in an aircraft packages of radioactive materials, other than limited quantities, contained in a rigid or non-rigid overpack, including a fiberboard box or plastic bag, unless they have been prepared for shipment in accordance with § 173.448(g) of this subchapter.

(c) No person may carry in an aircraft any package containing Fissile Class III radioactive materials (as defined in § 173.455(a)(3) of this subchapter), except:

(1) In a cargo aircraft only which has been assigned for the exclusive use of the shipper for the specific shipment of fissile radioactive material. Instructions for the exclusive use must be developed by the shipper and carrier, and the instructions issued with the shipping papers; or

(2) In an aircraft in which there are no other packages required to bear a radioactive label as prescribed in § 172.403 of this subchapter. Specific arrangements must be made between the shipper and carrier, with instructions to that effect issued with the shipping papers.

(d) No person may offer or accept for transportation, nor transport, by air:

(1) Any Type B(U) or Type B(M) package with an accessible surface temperature in excess of 50°C (122°F);

(2) Continuously vented Type B(M) packages, packages which require external cooling by an ancillary cooling system or packages subject to operational controls during transport; or

(3) Liquid pyrophoric radioactive materials.

(e) Packages with radiation levels at the package surface or a transport index in excess of the limits specified in § 173.441(a) of this subchapter may not be transported by aircraft except under special arrangements approved by RSPA.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 175-13, 45 FR 20102, Mar. 27, 1980, as amended by Amdt. 175-26, 48 FR 10245, Mar. 10, 1983; Amdt. 175-26, 48 FR 31220, July 7, 1983; Amdt. 175-29, 48 FR 50461, Nov. 1, 1983]

§ 175.705 Inspection of aircraft for contamination by radioactive materials.

(a) Aircraft used routinely for the carriage of radioactive materials shall be periodically checked for radioactive contamination. The frequency of checks shall be related to the likelihood of contamination and the extent to which radioactive materials are carried.

(b) An aircraft must be taken out of service if the level of contamination exceeds that provided in § 175.700(b).

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 175-25, 47 FR 54824, Dec. 6, 1982]

PART 176—CARRIAGE BY VESSEL

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AUTHORITY: 49 U.S.C. 1803, 1804, 1805, 1808; 49 CFR 1.53, App. A to Part 1.

SOURCE: Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, unless otherwise noted.

EDITORIAL NOTE: Nomenclature changes affecting Part 176 appear at 50 FR 45731, Nov. 1, 1985.

Subpart A—General

§ 176.1 Purpose and scope.

This part prescribes requirements in addition to those contained in Parts 171, 172, and 173 of this subchapter to be observed with respect to the transportation of hazardous materials by vessel.

§ 176.3 Unacceptable hazardous materials shipments.

(a) A carrier may not transport by vessel any shipment of a hazardous material that is not prepared for transportation in accordance with Parts 172 and 173 of this subchapter.

(b) A carrier may not transport by vessel any explosive or explosive composition described in § 176.5(c).

§ 176.5 Application to vessels.

(a) Except as provided in paragraphs (b) and (e) of this section, this subchapter applies to each domestic or foreign vessel when in the navigable waters of the United States, regardless of its character, tonnage, size, or service, and whether self-propelled or not, whether arriving or departing, under-

way, moored, anchored, aground, or while in dry dock.

(b) With the exception of paragraph (c) of this section, this subchapter does not apply to:

(1) A public vessel not engaged in commercial service;

(2) A vessel constructed or converted for the principal purpose of carrying flammable or combustible liquid cargo in bulk in its own tanks, when only carrying these liquid cargoes;

(3) A vessel of 15 gross tons or smaller when not engaged in carrying passengers for hire;

(4) A vessel used exclusively for pleasure;

(5) A vessel of 500 gross tons or smaller when engaged in fisheries;

(6) A tug or towing vessel except when towing another vessel having explosives, flammable liquids or flammable compressed gas on board on deck in which case the tug or towing vessel shall make such provisions to guard against and extinguish fire as the Coast Guard may prescribe;

(7) A cable vessel, dredge, elevator vessel, fireboat, icebreaker, pile driver, pilot boat, welding vessel, salvage vessel, or wrecking vessel; or

(8) A foreign vessel transiting the territorial sea of the United States without entering the internal waters of the United States, if all hazardous materials being carried on board are being carried in accordance with the requirements of the IMDG Code.

(c) [Reserved]

(d) The bulk carriage of hazardous materials by water is governed by 46 CFR Subchapters D, I, O, and N.

(e) The transportation of military explosives on board vessels is governed by 46 CFR Part 146.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40887, Sept. 20, 1976; Amdt. 176-14, 47 FR 44471, Oct. 7, 1982; Amdt. 176-24, 51 FR 5974, Feb. 18, 1986]

§ 176.9 "Order-Notify" or "C.O.D." shipments.

(a) A carrier may not transport Class A explosives, detonators, or detonating primers which are—

(1) Consigned to "Order-notify" or "C.O.D.", except on a through bill of

loading to a place outside the United States; or

(2) Consigned by the shipper to himself unless he has a resident representative to receive the shipment at the port of discharge.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-10, 44 FR 70732, Dec. 10, 1979]

§ 176.11 Exceptions.

(a) A hazardous material may be offered and accepted for transportation by vessel when in conformance with the requirements of the IMDG Code in place of the corresponding requirements of this subchapter pertaining to packaging, marking, labeling, classification, description, certification and placarding. All hazardous materials must otherwise be stowed and carried in accordance with this subchapter.

(1) Hazardous materials prepared in compliance with the above requirements may also be offered and accepted for transportation and transported by a motor vehicle used in connection with the discharge or loading of a vessel and not operating on a public street or highway.

(2) This exception does not apply to the following:

(i) A hazardous material classed as Explosive A or B, or Radioactive material, or

(ii) A material which is a hazardous material under this subchapter, but which is not a hazardous material under the provisions of the IMDG Code.

(b) Canadian shipments and packages may be transported by vessel if they are transported in accordance with this subchapter. (See § 171.12a of this subchapter.)

(c) The requirements of this subchapter governing the transportation of combustible liquids do not apply to the transportation of combustible liquids in containers of 110 gallons or less on board vessels.

(d) Transport vehicles, containing hazardous materials loaded in accordance with specific requirements of this subchapter applicable to such vehicles, may be transported on board a ferry vessel or carfloat, subject to the applicable requirements specified in

§§ 176.76, 176.100, and Subpart E of this part.

(e) Hazardous materials classed and shipped as ORM-D are not subject to the requirements of this part unless they are offered for transportation as hazardous wastes.

(f) The stowage requirements of § 172.101 of this subchapter notwithstanding, a hazardous material which is classed, labeled and described in accordance with § 172.102 may be stowed as provided in that section.

(g) The requirements of this subchapter do not apply to atmospheric gases used in a refrigeration system.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976]

EDITORIAL NOTE: For Federal Register citations affecting § 176.11, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 176.13 Responsibility for compliance.

Unless this subchapter specifically provides that another person must perform a duty, each carrier, including a connecting carrier, shall comply with all applicable regulations in this part, and shall thoroughly instruct his employees in relation thereto.

§ 176.15 Enforcement.

(a) An enforcement officer of the U.S. Coast Guard may at any time and at any place, within the jurisdiction of the United States, board any vessel for the purpose of enforcement of this subchapter and inspect any shipment of hazardous materials as defined in this subchapter.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40687, Sept. 20, 1976; Amdt. 176-24, 51 FR 5974, Feb. 18, 1986]

§ 176.18 Assignment and certification.

(a) The National Cargo Bureau, Inc., is authorized to assist the Coast Guard in administering this subchapter with respect to the following:

(1) Inspection of vessels for suitability for loading hazardous materials;

(2) Examination of stowage of hazardous materials;

(3) Making recommendations for stowage requirements of hazardous materials cargo; and

(4) Issuance of certificates of loading setting forth that the stowage of hazardous materials is in accordance with the requirements of this subchapter.

(b) A certificate of loading issued by the National Cargo Bureau, Inc., may be accepted by the Coast Guard as prima facie evidence that the cargo is stowed in conformity with the requirements of this subchapter.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-24, 51 FR 5974, Feb. 18, 1986]

Subpart B—General Operating Requirements

§ 176.24 Shipping papers.

A carrier may not transport a hazardous material by vessel unless the material is properly described on the shipping paper in the manner prescribed in Part 172 of this subchapter.

§ 176.27 Certificate.

(a) A carrier may not transport a hazardous material by vessel unless he has received a certificate prepared in accordance with § 172.204 of this subchapter.

(b) In the case of an import or export shipment of hazardous materials which will not be transported by rail, highway, or air, the shipper may certify on the bill of lading or other shipping paper that the hazardous material is properly classed, described, marked, packaged, and labeled according to Part 172 of this subchapter or in accordance with the requirements of the IMDG Code. See § 171.12 of this subchapter.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40687, Sept. 20, 1976; Amdt. 176-12, 45 FR 81572, Dec. 11, 1980; Amdt. 176-14, 47 FR 44471, Oct. 7, 1982]

§ 176.30 Dangerous cargo manifest.

(a) The carrier, its agents, and any person designated for this purpose by the carrier or agents shall prepare a dangerous cargo manifest, list, or stowage plan. This document may not include a material which is not subject

to the requirements of 49 CFR or the IMDG Code. This document must be kept in a designated holder on or near the vessel's bridge. It must contain the following information:

(1) Name of vessel and official number. (If the vessel has no official number, the international radio call sign must be substituted.);

(2) Nationality of vessel;

(3) Shipping name and identification number of each hazardous material on board as listed in § 172.101 or § 172.102 of this subchapter or as listed in the IMDG Code.

(4) The number and description of packages (barrels, drums, cylinders, boxes, etc.) and gross weight for each type of packaging;

(5) Classification of the hazardous material in accordance with either:

(i) The Hazardous Materials Table, § 172.101 of this subchapter; or

(ii) The International Maritime Organization's Dangerous Goods Code as follows:

(A) For Classes 7, 8 and 9, either the class name or numerical designation of the class must be used.

(B) For Classes 1, 3, 4, 5, and 6, either the division name or numerical designation of the division must be used.

(C) For Class 2, the class name or numerical designation of the Class must be accompanied by the description "Flammable gas", "Nonflammable gas" or "Poison gas", as appropriate.

(6) Any additional description required by § 172.203 of this subchapter.

(7) Stowage location of the hazardous material on board the vessel.

(8) In the case of a vessel used for the storage of explosives or other hazardous materials, the following additional information is required:

(i) Name and address of vessel's owner;

(ii) Location of vessel's mooring;

(iii) Name of person in charge of vessel;

(iv) Name and address of the owner of the cargo; and

(v) A complete record, by time intervals of one week, of all receipts and disbursements of hazardous materials. The name and address of the consignee must be shown against all receipts

and the name and address of the consignee against all deliveries.

(b) The hazardous material information on the dangerous cargo manifest must be the same as the information furnished by the shipper on the shipping order or other shipping paper, except that the IMO "correct technical name" and the IMO class may be indicated on the manifest as provided in paragraphs (a)(3) and (a)(5) of this section. The person who supervises the preparation of the manifest, list, or stowage plan shall ensure that the information is correctly transcribed, and shall certify to the truth and accuracy of this information to the best of his knowledge and belief by his signature and notation of the date prepared.

(c) The carrier and its agents shall insure that the master, or a licensed deck officer designated by the master and attached to the vessel, or in the case of a barge, the person in charge of the barge, acknowledges the correctness of the dangerous cargo manifest, list or stowage plan by his signature.

(d) For barges, manned or unmanned, the requirements of this section apply except for the following:

(1) In the case of a manned barge, the person in charge of the barge shall prepare the dangerous cargo manifest.

(2) In the case of an unmanned barge, the person responsible for loading the barge is responsible for the preparation of a dangerous cargo manifest, list, or stowage plan and must designate an individual for that purpose.

(3) For all barges, manned or unmanned, the dangerous cargo manifest must be on board the barge in a readily accessible location and a copy must be furnished to the person in charge of the towing vessel.

(e) Each carrier who transports or stores hazardous materials on a vessel shall retain a copy of the dangerous cargo manifest, list, or stowage plan for at least one year, and shall make that document available for inspection in accordance with § 176.36(b) of this subchapter.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976]

EDITORIAL NOTE: For Federal Register citations affecting § 176.30, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 176.31 Exemptions.

If a hazardous material is being transported by vessel under the authority of an exemption and a copy of the exemption is required to be on board the vessel, it must be kept with the dangerous cargo manifest.

§ 176.33 Labels.

Each carrier shall maintain an adequate supply of the labels required in Subpart E of Part 172 of this subchapter to replace those that become lost or detached. Replacement must be based on information taken from the shipping order, delivery receipt, or other shipping paper covering the shipment.

§ 176.36 Preservation of records.

(a) When this part requires shipping orders, manifest, cargo lists, stowage plans, reports, or any other papers, documents or similar records to be prepared, the carrier shall preserve them or copies of them in his place of business or office in the United States for a period of one year after their preparation.

(b) Any record required to be preserved must be made available upon request to an authorized representative of the Department of Transportation.

§ 176.39 Inspection of cargo.

(a) *Manned vessels.* The carrier, its agents, and any person designated for this purpose by the carrier or agents shall cause an inspection of each hold or compartment containing hazardous materials to be made after stowage is complete, and at least once every 24 hours thereafter, weather permitting, in order to ensure that the cargo is in a safe condition and that no damage caused by shifting, spontaneous heating, leaking, sifting, wetting, or other cause has been sustained by the vessel or its cargo since loading and stowage. However, freight containers or individual barges need not be opened. A vessel's holds equipped with smoke or fire detecting systems having an automatic

monitoring capability need not be inspected except after stowage is complete and after periods of heavy weather. The carrier, its agents, and any person designated for this purpose by the carrier or agents shall cause an entry to be made in the vessel's deck log book for each inspection of the stowage of hazardous materials performed.

(b) *Unmanned and magazine vessels.* An inspection of the cargo must be made after stowage has been completed to ensure that stowage has been accomplished properly and that there are no visible signs of damage to any packages or evidence of heating, leaking, or sifting. This inspection must be made by the individual who is responsible to the carrier and who is in charge of loading and stowing the cargo on the unmanned vessels or the individual in charge in the case of a magazine vessel.

(c) The carrier, its agents, and any person designated for this purpose by the carrier or agents of each ocean-going vessel carrying hazardous material shall, immediately prior to entering a port in the United States, cause an inspection of that cargo to be made.

(d) When inspecting a cargo of hazardous materials capable of evolving flammable vapors, any artificial means of illumination must be of an explosion-proof type.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-8, 44 FR 23228, Apr. 19, 1979; Amdt. 176-9, 44 FR 49458, Aug. 23, 1979]

§ 176.45 Emergency situations.

(a) When an accident occurs on board a vessel involving hazardous materials, and the safety of the vessel, its passengers or crew are endangered, the master shall adopt such procedures as will, in his judgment, provide maximum safety for the vessel, its passengers, and its crew. When the accident results in damaged packages or the emergency use of unauthorized packagings, these packages may not be offered to any forwarding carrier for transportation. The master shall notify the nearest Captain of the Port,

U.S. Coast Guard, and request instructions for disposition of the packages.

(b) Hazardous materials may be jettisoned only if the master believes this action necessary to prevent or substantially reduce a hazard to human life or reduce a substantial hazard to property.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1B, 41 FR 57072, Dec. 30, 1976]

§ 176.48 Situation requiring report.

(a) When a fire or other hazardous condition exists on a vessel transporting hazardous materials, the master shall notify the nearest Captain of the Port as soon as possible and shall comply with any instructions given by the Captain of the Port.

(b) When an incident occurs during transportation in which a hazardous material is involved, a report may be required (see §§ 171.15 and 171.16 of this subchapter).

(c) If a package, portable tank, freight container, highway or railroad vehicle containing hazardous materials is jettisoned or lost, the master shall notify the nearest Captain of the Port as soon as possible of the location, quantity, and type of the material.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40687, Sept. 20, 1976; Amdt. 176-1B, 41 FR 57072, Dec. 30, 1976; Amdt. 176-24, 51 FR 5974, Feb. 18, 1986; Amdt. 176-25, 52 FR 8592, Mar. 19, 1987]

§ 176.50 Acceptance of damaged or leaking packages.

A carrier may not transport by vessel any package that is so damaged as to permit the escape of its contents, that appears to have leaked, or that gives evidence of failure to properly contain the contents unless it is restored or repaired to the satisfaction of the master of the vessel. A package containing radioactive materials (other than low specific activity materials) may not be repaired or restored.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40687, Sept. 20, 1976]

§ 176.52 Rejections of shipments in violation.

(a) A carrier may not knowingly transport by vessel any hazardous material offered under a false or deceptive name, marking, invoice, shipping paper or other declaration, or without the shipper furnishing written information about the true nature of the material at the time of delivery.

(b) If a shipment in violation is found in transit, the master of the vessel shall adopt procedures which in his judgment provide maximum safety to the vessel, its passengers and its crew and which are in compliance with § 176.45. If the vessel is in port, the material may not be delivered to any party, and the master shall immediately notify the nearest Captain of the Port and request instructions for disposition of the material.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1B, 41 FR 57072, Dec. 30, 1976]

§ 176.54 Repairs involving welding or burning.

(a) Except as provided in paragraph (b) of this section, repairs or work involving welding or burning, or the use of power-actuated tools or appliances which may produce intense heat may not be undertaken on any vessel having on board explosives or other hazardous materials as cargo.

(b) Paragraph (a) of this section does not apply if:

(1) The repairs or work are approved by the local Coast Guard Captain of the Port or his authorized representative; or

(2) Emergency repairs to the vessel's main propelling or boiler plant or auxiliaries are necessary.

Subpart C—General Handling and Stowage

§ 176.57 Supervision of handling and stowage.

(a) Hazardous materials may be handled or stowed on board a vessel only under the direction and observation of a qualified person assigned for this duty.

(b) For a vessel engaged in voyages coastwise, or on rivers, bays, sounds or

lakes, including the Great Lakes when the voyage is not foreign-going, the person may be an employee of the carrier and assigned to this duty by the carrier, or a licensed officer attached to the vessel and assigned by the master of the vessel.

(c) For a domestic vessel engaged in a foreign-going or intercoastal voyage, the person must be an officer possessing an unexpired license issued by the U.S. Coast Guard and assigned to this duty by the carrier or master of the vessel.

(d) For a foreign vessel, the person must be an officer of the vessel assigned to this duty by the master of the vessel.

§ 176.58 Preparation of the vessel.

Each hold or compartment in which hazardous materials are to be transported must be swept clean of all debris before the hazardous materials are stowed therein. Bilges must be examined and all residue of previous cargo removed.

§ 176.60 "No Smoking" signs.

When smoking is prohibited during the loading, stowing, storing, transportation, or unloading of hazardous materials by this part, the carrier and the master of the vessel are jointly responsible for posting "NO SMOKING" signs in conspicuous locations.

§ 176.63 Stowage locations.

(a) The table in § 172.101 of this subchapter specifies generally the locations authorized for stowage of the various hazardous materials on board vessels. This part prescribes additional requirements with respect to the stowage of specific hazardous materials in addition to those authorized in § 172.101 of this subchapter. This section sets forth the basic physical requirements for the authorized locations.

(b) To qualify as "on deck" stowage, the location must be on the weather deck. If it is in a house on the weather deck, it must have a permanent structural opening to the atmosphere, such as a door, hatch companionway or manhole, and must be vented to the atmosphere. It may not have any

structural opening to any living quarters, cargo, or other compartment unless the opening has means for being closed off and secured. Any deck house containing living quarters, a steering engine, a refrigerating unit, a refrigerated stowage box, or a heating unit may not be used unless that area is isolated from the cargo stowage area by a permanent, and tight metallic bulkhead. Stowage in a shelter or 'tween deck is not considered to be "on deck". A barge which is vented to the atmosphere and is stowed on deck on a barge-carrying ship is considered to be "on deck". When an entry in § 172.101 of this subchapter requires "on-deck" stowage and is qualified by the requirement "shade from radiant heat", the stowage must be protected from the direct rays of the sun by means of structural erections or awnings except that such protection is not required for shipment in portable tanks.

(c) To qualify as "under deck" stowage, the location must be in a hold or compartment below the weather deck capable of being ventilated and allotted entirely to the carriage of cargo. It must be bounded by permanent steel decks and bulkheads or the shell of the vessel. The deck openings must have means for effectively closing the hold or compartment against the weather, and in the case of superimposed holds, for effectively closing off each hold. A hold or compartment containing a crew passage formed by battens or by mesh or wire screen bulkhead may not be used for the stowage of any hazardous material unless a watchman is provided for this area.

(d) To qualify as "under deck away from heat", the location must be under deck and have built-in means for ventilation. If it is subject to heat from any artificial source, it only qualifies for the stowage of those hazardous materials for which "under deck" stowage is authorized.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40687, Sept. 20, 1976; Amdt. 176-1B, 41 FR 57072, Dec. 30, 1976; Amdt. 176-12, 45 FR 81572, Dec. 11, 1980]

§ 176.65 Alternative stowage procedures.

When a hazardous material is to be loaded on board a vessel and it is shown to the satisfaction of the Coast Guard Captain of the Port for the place where the vessel is being loaded that it is impracticable to comply with a stowage location requirement specified in the table in § 172.101 of this subchapter or a handling or stowage requirement prescribed in this part, the Captain of the Port may authorize in writing the use of an alternate stowage location or method of handling or stowage subject to such conditions as he finds will insure a level of safety at least equal to that afforded by the regulatory requirement concerned.

[Amdt. 176-1A, 41 FR 40687, Sept. 20, 1976, as amended by Amdt. 176-12, 45 FR 81573, Dec. 11, 1980]

§ 176.69 General stowage requirements for hazardous materials.

(a) Hazardous materials (except as provided in paragraph (c) of this section and ORM) must be stowed in a manner that will facilitate inspection during the voyage, its removal from a potentially dangerous situation, and the removal of packages in case of fire.

(b) Each package marked "THIS SIDE UP" must be stowed so as to remain in the position indicated during transportation.

(c) If a vessel designed for and carrying hazardous materials in freight containers or a vessel designed for and carrying hazardous materials in barges is equipped with a fixed fire extinguishing and fire detection system, the freight containers or barges need not be stowed in the manner required by paragraph (a) of this section. When freight containers or barges containing hazardous materials are stowed on deck, they need not be stowed in the manner required by paragraph (a) of this section if fire fighting equipment capable of reaching and piercing the freight container or barge is on board the vessel.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40687, Sept. 20, 1976; Amdt. 176-12, 45 FR 81573, Dec. 11, 1980]

§ 176.72 Handling of break-bulk hazardous materials.

(a) A metal bale hook may not be used for handling any package of hazardous materials.

(b) The use of equipment designed to lift or move cargo by means of pressure exerted on the packages may not be used for handling any package of hazardous materials if the device can damage the package or the package is not designed to be moved in that manner.

(c) Pallets, slings, cargo nets and other related equipment used in loading packages of hazardous materials must give adequate support to the packages. The packages must be contained so that they are not able to fall during loading.

§ 176.74 On deck stowage of break-bulk hazardous materials.

(a) Packages containing hazardous materials must be secured by enclosing in boxes, cribs or cradles and proper lashing by use of wire rope, strapping or other means, including shoring and bracing, or both. Lashing of deck cargo is permitted if eye pads are used to attach the lashings. Lashings may not be secured to guard rails. Bulky articles must be shored.

(b) A packaging susceptible to weather or water damage must be protected so that it will not be exposed to the weather or to sea water.

(c) Not more than fifty percent of the total open deck area should be used for stowage of hazardous materials (except ORM material).

(d) Fireplugs, hoses, sounding pipes, and access to these must be free and clear of all cargo.

(e) Crew and passenger spaces and areas set aside for the crew's use may not be used to stow any hazardous material.

(f) A hazardous material may not be stowed within a horizontal distance of 25 feet of an operating or embarkation point of a lifeboat.

(g) Hazardous materials must be stowed to permit safe access to the crew's quarters and to all parts of the deck required in navigation and necessary working of the vessel.

(h) When runways for use of the crew are built over stowed hazardous

materials, they must be constructed and fitted with rails and lifelines so as to afford complete protection to the crew when in use.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1B, 41 FR 57072, Dec. 30, 1976]

§ 176.76 Highway vehicles, railroad vehicles, freight containers, and portable tanks containing hazardous materials.

(a) Except as provided in paragraphs (b) through (f) of this section, hazardous materials (other than Class A explosives unless otherwise approved by the Commandant (G-MTH)) authorized to be transported by vessel may be carried on board a vessel in a highway vehicle, railroad vehicle, or freight container subject to the following conditions:

(1) The material must be in proper condition for transportation according to the requirements of this subchapter;

(2) All packages in the transport vehicle or container must be secured to prevent movement in any direction. However, vertical restraint is not required if the shape of the packages and the stuffing pattern precludes shifting of the load;

(3) Bulkheads made of dunnage which extend to the level of the cargo must be provided unless the packages are stowed flush with the sides or ends;

(4) Dunnage must be secured to the floor when the cargo consists of dense materials or heavy packages;

(5) Each package marked "THIS SIDE UP" must be so stowed;

(6) Any slack spaces between packages must be filled with dunnage;

(7) The weight in a container must be distributed throughout as evenly as possible and the maximum permissible weight must not be exceeded.

(8) Adjacent levels of bagged and baled cargo must be stowed in alternate directions so that each tier binds the tier above and below it.

(9) Packages containing solids should be stowed on top of packages containing liquids.

(10) The lading must be contained entirely within the freight container or vehicle body without overhang or

projection except that oversized machinery such as tractors or vehicles with batteries attached may overhang or project outside the intermodal container provided all of that portion of the lading that consists of hazardous materials is contained entirely within the freight container. No open-bed container or vehicle is permitted to carry hazardous materials unless it is equipped with a means of properly securing the lading.

(b) A highway vehicle containing hazardous materials may be carried only on board a trailership, ferry vessel or a carfloat.

(c) A railroad vehicle containing hazardous materials may be carried only on board a trainship, railroad car ferry or a carfloat.

(d) A transport vehicle or freight container equipped with heating or refrigeration equipment may be operated on board a vessel. However, the equipment may not be operated in any hold or compartment in which any flammable liquid or gas is stowed. Any heating or air conditioning equipment having a fuel tank containing a flammable liquid or gas may be stowed only "on deck". Equipment electrically powered and designed to operate within an environment containing flammable vapors may be operated below deck in a hold or compartment containing a flammable liquid or gas. (See § 176.79.)

(e) A transport vehicle, loaded with any hazardous material which is required to be stowed "on deck" by § 172.101 of this subchapter, may be stowed one deck below the weather deck when transported on a trainship or trailership which is unable to provide "on deck" stowage because of the vessel's design. Otherwise, the transport vehicle or container must be transported "on deck."

(f) Each transport vehicle, freight container, and portable tank being transported by vessel must be placarded in accordance with the requirements of Subpart F of Part 172 of this subchapter.

(g) A hazardous material may be carried on board a vessel in a portable tank subject to the following conditions:

(1) The material must be in proper condition for transportation according to the requirements of this subchapter.

(2) Small passenger vessels of 100 gross tons, or less, may carry a hazardous material in a portable tank only when 16 or less passengers are on board and only when specifically authorized by the Officer-in-Charge, Marine Inspection, by endorsement of the vessel's Certificate of Inspection.

(3) Portable tanks containing flammable liquids or gases, Combustible liquids with flashpoints below 141° F. that are insoluble in water, or organic peroxides, spontaneously combustible materials, or water reactive materials must be stowed on deck irrespective of the stowage authorized in § 172.101 of this subchapter. Portable tanks containing hazardous materials not restricted to on deck stowage by the previous sentence must be stowed in accordance with the requirements specified in § 172.101 of this subchapter.

(4) ORM and corrosive materials must be stowed as authorized in the Hazardous Materials Table in § 172.101 of this subchapter.

(5) Aluminum, magnesium, and their alloys are specifically prohibited as materials of construction of portable tanks.

(h) *Cryogenic liquids.* For shipment of cryogenic liquids on board a vessel the packaging must be designed and filled so that:

(1) Any cryogenic liquid being transported in a cargo tank, regardless of the pressure in the package, must be contained in a steel jacketed Specification MC-338 (§ 178.338 of this subchapter) insulated cargo tank, or a cargo tank approved under the provisions of § 173.33(b)(2) of this subchapter.

(2) Any valve or fitting with moving or abrading parts that may come in contact with any cryogenic liquid may not be made of aluminum.

(3) For a flammable cryogenic liquid being transported in a cargo tank, the elapsed time between the loading of the cargo tank and the subsequent unloading of the cargo tank at its final destination may not exceed the marked rated holding time (MRHT) of the cargo tank for the cryogenic liquid

being transported, which must be displayed on or adjacent to the specification plate.

(4) Portable tanks, cargo tanks, and tank cars containing cryogenic liquids must be stowed "on deck" regardless of the stowage authorized in § 172.101 of this subchapter. Cargo tanks or tank cars containing cryogenic liquids may be stowed one deck below the weather deck when transported on a trailership or trainship that is unable to provide "on deck" stowage because of the vessel's design. Tank cars must be Class DOT-113 or AAR-204W tank cars.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 176-1, 41 FR 18110, Apr. 15, 1976]

EDITORIAL NOTE: For Federal Register citations affecting § 176.76, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 176.77 Stowage of barges containing hazardous materials on board barge-carrying vessels.

(a) A barge which contains hazardous materials may be transported on board a barge-carrying vessel if it is stowed in accordance with the requirements of this section.

(b) A barge which contains hazardous materials for which only "on deck" stowage is authorized must be stowed above the weather deck and be vented to the atmosphere.

(c) A barge which contains hazardous materials for which both "on deck" and "below deck" storage is authorized may be stowed above or below the weather deck.

§ 176.78 Use of power-operated industrial trucks on board vessels.

(a) A power-operated truck (including a power-operated tractor, forklift, or other specialized truck used for cargo handling) may not be used on board a vessel in a space containing a hazardous material unless the truck complies with the requirements of this section.

(b) Each truck must have a specific designation of Underwriter's Laboratories or Factory Mutual Laboratories. Any repair or alteration to a truck must be equivalent to that required on the original designation.

(c) *Description of designations.* The recognized testing laboratory type designations are as follows:

(1) An "E" designated unit is an electrically-powered unit that has minimum acceptable safeguards against inherent fire hazards.

(2) An "EE" designated unit is an electrically-powered unit that has, in addition to all the requirements for the "E" unit, the electric motor and all other electrical equipment completely enclosed.

(3) An "EX" designated unit is an electrically-powered unit that differs from the "E" and "EE" unit in that the electrical fittings and equipment are so designed, constructed, and assembled that the unit may be used in certain atmospheres containing flammable vapors or dusts.

(4) A "G" designated unit is a gasoline-powered unit having minimum acceptable safeguards against inherent fire hazards.

(5) A "GS" designated unit is a gasoline-powered unit that is provided with additional safeguards to the exhaust, fuel, and electrical systems.

(6) An "LP" designated unit is similar to a "G" unit except that it is powered by liquefied petroleum gas instead of gasoline.

(7) An "LPS" designated unit is a unit similar to a "GS" unit except that liquefied petroleum gas is used for fuel instead of gasoline.

(8) A "D" designated unit is a unit similar to a "G" unit except that it is powered by a diesel engine instead of a gasoline engine.

(9) A "DS" designated unit is a unit powered by a diesel engine provided with additional safeguards to the exhaust, fuel, and electrical systems.

(d) *Explosives.* A truck may not be used in a hold or compartment containing explosives unless its use is approved by the Commandant (G-MTH). In a space in which packaged small arms ammunition without explosive bullets is stowed, a power operated truck (except "E," "G," or "LP") may be used if approved by the local Captain of the Port.

(e) *Other hazardous materials.* (1) Only an "EX", "EE", "GS", "LPS", or "DS" truck may be used in a hold or compartment containing flammable

liquids, flammable compressed gases, flammable solids, oxidizers, organic peroxides, articles of a fibrous nature, or bulk sulfur.

(2) Only a designated truck may be used to handle any other hazardous material not covered in paragraph (d) or (e)(1) of this section.

(f) *Minimum safety features.* In addition to the construction and design safety features required, each truck must have at least the following minimum safety features:

(1) The truck must be equipped with a warning horn, whistle, gong, or other device that may be heard clearly above normal shipboard noises.

(2) When the truck operation may expose the operator to danger from a falling object, the truck must be equipped with a driver's overhead guard. When the overall height of the truck with forks in the lowered position is limited by head room the overhead guard may be omitted. This overhead guard is only intended to offer protection from impact of small packages, boxes, bagged material, or similar hazards.

(3) A fork lift truck which handles small objects or unstable loads must be equipped with a load backrest extension having height, width, and strength sufficient to prevent any load, or part of it, from falling toward the mast is in a position of maximum backward tilt. It must be constructed in a manner that does not interfere with good visibility.

(4) The forks on a fork lift truck must be secured to the carriage so as to prevent any unintentional lifting of the toe which could create a hazard. The forks may not display permanent deformation when subjected to a test load of three times the rated capacity.

(5) Each fork extension or other attachment must be secured to prevent unintentional lifting or displacement on primary forks.

(6) Tires extending beyond the confines of the truck shall be provided with a guard to prevent the tires from throwing particles at the operator.

(7) Unless the steering mechanism is a type that prevents road reactions from causing the steering handwheel to spin, a mushroom type steering knob must be used to engage the palm

of the operator's hand, or the steering mechanism must be arranged in some other manner to prevent injury. The knob must be mounted within the perimeter of the wheel.

(8) All steering controls must be confined within the clearnace of the truck or guarded so that movement of the controls will not result in injury to the operator when passing stanchions, obstructions or other.

(g) *Special operating conditions.* (1) A truck may not be used on board a vessel unless prior notification of its use is given to the master or senior deck officer on board.

(2) Before a truck is operated on board a vessel, it must be in a safe operating condition as determined by the master or senior deck officer on board.

(3) Any truck that emits sparks or flames from the exhaust system must immediately be removed from service and may not be returned to service until the cause of these sparks or flames has been eliminated.

(4) A truck may not be operated on board a vessel when the temperature of any part of the truck is found to be in excess of a safe operating temperature.

(5) All truck motors must be shut off immediately when an emergency condition arises on board a vessel.

(6) All truck motors must be shut off immediately when a breakage or leakage of packages containing flammable liquids or gases, flammable solids, oxidizers, or organic peroxides occurs or is discovered.

(7) The rated capacity of the truck must be posted on the truck at all times in a conspicuous place. This capacity may not be exceeded.

(8) At least one Coast Guard approved marine type size 1 Type B, or UL approved 5BC portable fire extinguisher, or its approved equivalent, must be affixed to the truck in a readily accessible position or must be kept in close proximity, available for immediate use.

(9) The vessel's fire fighting equipment, both fixed (where installed) and portable, must be kept ready for immediate use in the vicinity of the space being worked.

(h) *Refueling.* (1) A truck using gasoline as fuel may not be refueled in the

hold or on the weather deck of a vessel unless a portable non-spilling fuel handling system of not over five gallons capacity is used. Gasoline may not be transferred to a portable non-spilling fuel handling device on board the vessel.

(2) A truck using liquefied petroleum gas as fuel may not be refueled in the hold or on the weather deck of a vessel unless it is fitted with a removable tank and the hand-operated shutoff valve of the depleted tank is closed. In addition, the motor must be run until it stalls from lack of fuel and then the hand-operated shut off valve closed before the quick disconnect fitting to the fuel tank is disconnected.

(3) A truck using diesel oil as fuel may not be refueled on the weather deck or in the hold of a vessel unless a portable container of not over a five gallon capacity is used. A truck may be refueled or a portable container may be refilled from a larger container of diesel fuel on the weather deck of a vessel if a suitable pump is used for the transfer operation and a drip pan of adequate size is used to prevent any dripping of fuel on the deck.

(4) Refueling must be performed under the direct supervision of an experienced and responsible person specifically designated for this duty by the person in charge of the loading or unloading of the vessel.

(5) Refueling may not be undertaken with less than two persons specifically assigned and present for the complete operation, at least one of whom must be experienced in using the portable fire extinguishers required in the fuel area.

(6) At least one Coast Guard approved marine type size 1 Type B or UL approved 5BC portable fire extinguisher or its approved equivalent, must be provided in the fueling area. This is in addition to the extinguisher required by paragraph (g)(8) of this section.

(7) The location for refueling trucks must be designated by the master or senior deck officer on board the vessel. "NO SMOKING" signs must be conspicuously posted in the area.

(8) The location designated for refueling must be adequately ventilated to insure against accumulation of any

hazardous concentration of vapors. When a truck is being refueled, the ventilation requirements of § 176.79 apply.

(9) Before any truck in a hold is refueled or before any fuel handling device or unmounted liquefied petroleum gas cylinder is placed in a hold, the motors of all trucks in the same hold must be stopped.

(10) All fuel handling devices and unmounted liquefied petroleum gas containers must be removed from a hold before any truck motor is started and the trucks are placed in operation in that hold.

(1) *Replacing batteries.* Batteries for electrically powered trucks and for the ignition systems of internal combustion powered trucks may be changed in the hold of a vessel subject to the following conditions:

(1) Only suitable handling equipment may be employed.

(2) Adequate precautions must be taken to avoid damage to the battery, short circuiting of the battery, and spillage of the electrolyte.

(j) *Charging of batteries.* Batteries of industrial trucks may be recharged in a hold of a vessel subject to the following conditions:

(1) The batteries must be housed in a suitable, ventilated, portable metal container with a suitable outlet at the top for connection of a portable air hose, or must be placed directly beneath a suitable outlet at the top for connection of a portable air hose. The air hose must be permanently connected to an exhaust duct leading to the open deck and terminate in a gooseneck or other suitable weather head. If natural ventilation is not practicable or adequate, mechanical means of exhaust must be employed in conjunction with the duct. The air outlet on the battery container must be equipped with an interlock switch so arranged that the charging of the battery cannot take place unless the air hose is properly connected to the box.

(2) If mechanical ventilation is used, an additional interlock must be provided between the fan and the charging circuit so that the fan must be in operation in order to complete the charging circuit for operation. It is preferable that this interlock switch be of a

centrifugal type driven by the fan shaft.

(3) The hold may not contain any hazardous materials.

(4) The charging facilities may be part of the truck equipment or may be separate from the truck and located inside or outside the cargo hold. The power supply or charging circuit (whichever method is used) must be connected to the truck by a portable plug connection of the break-away type. This portable plug must be so engaged with the truck battery charging outlet that any movement of the truck away from the charging station will break the connection between the plug and receptacle without exposing any live parts to contact with a conducting surface or object and without the plug falling to the deck where it may become subject to damage.

(5) All unmounted batteries must be suitably protected or removed from an area in the hold of the vessel before any truck is operated in that area.

(k) *Stowage of power-operated industrial trucks on board a vessel.* (1) Trucks may be stowed in any location on board a vessel subject to the following conditions:

(i) Each gasoline-powered truck must have all the fuel expended from the fuel system.

(ii) Each liquefied petroleum gas-operated truck must have the fuel tank removed and all the fuel expended from the fuel system.

(2) Any truck not meeting the conditions set forth in paragraph (k)(1) of this section must be stowed on the open deck except for intervals such as lunch hours, between work shifts, and interdock and intraport movements. If a truck is stowed in a fixed metal enclosure located on or above the weather deck, this enclosure must have access from the weather deck only and must have adequate ventilation arranged to remove vapors from both the upper and lower portions of the space.

(1) *Packaging and stowage of fuel on board a vessel.* (1) *Packaging.* Flammable liquids and gases to be used as fuels for trucks must be packaged in DOT specification containers, A.S.M.E. containers, or portable safety containers approved by a recognized

testing laboratory and authorized for the contents.

(2) *Marking and labeling.* The appropriate DOT label must be affixed to each container of flammable liquid or flammable gas.

(3) *Stowage.* Each container must be stowed on or above the weather deck as designated by the master. However, a DOT specification container, A.S.M.E. container, or portable safety container having a capacity of five gallons or less and approved by a recognized testing laboratory may be stowed below deck in a paint locker and diesel fuel may be stowed in any location designated by the master.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40687, Sept. 20, 1976; Amdt. 176-21, 50 FR 11055, Mar. 19, 1985]

§ 176.79 Spaces exposed to carbon monoxide or other hazardous vapors.

When hazardous materials are transported by vessel in an enclosed space which is exposed to carbon monoxide or other hazardous vapors from exhausts of power-operated industrial trucks or other mechanized equipment, the space must be provided with adequate ventilation to prevent the accumulation of dangerous vapors. The senior deck officer shall insure that a test of the carbon monoxide content of the atmosphere is made as frequently as conditions require to detect the presence of any dangerous concentration of vapors in areas where persons may be working. The test must be made by a person acquainted with the test equipment and procedure. The carbon monoxide concentration in any hold or intermediate deck where any person is working may not exceed 50 parts per million (0.005 percent) as a time weighted average. Persons may not be permitted to remain in any hold or intermediate deck where the concentration exceeds 75 parts per million (0.0075 percent). Portable blowers of adequate size and location may be used to remove any vapors not removed by installed ventilation systems.

Subpart D—General Segregation Requirements

§ 176.80 Application.

(a) This subpart sets forth segregation requirements in addition to any segregation requirements set forth elsewhere in this subchapter.

(b) Hazardous materials in limited quantities when loaded in transport vehicles and freight containers, are excepted from the segregation requirements of this subpart and any additional segregation specified in this subchapter for transportation by vessel.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-3, 42 FR 57967, Nov. 7, 1977]

§ 176.83 Segregation requirements for cargo vessels and passenger vessels.

(a) The following table (Table I) specifies the categories of explosives which may not be loaded or stowed together within the same hold or compartment. The letter "X" at an intersection of a horizontal and vertical column indicates that these categories may not be stowed together in the same hold or compartment.

(b) The following table (Table II) specifies the minimum separation requirements that apply when transporting different classes of hazardous materials on board a vessel, other than a ferry vessel. The symbols used in the table below mean the following:

- (1) "1"—Away from.
- (2) "2"—Separated from.
- (3) "3"—Separated by a complete cargo compartment or hold from.
- (4) "4"—Separated longitudinally by an intervening complete cargo compartment or hold from.

(5) "0"—No general segregation specified; individual entries in the Hazardous Material Table in § 172.101 of this subchapter should be consulted.

(6) "*"—Consult Table I of this section for segregation requirements between different explosives.

(c) *Definition of terms.*

(1) *Legend.*

(i) Reference package * * *



(ii) Incompatible package * * *

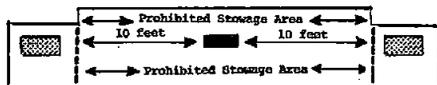


(iii) Deck resistant to liquid and fire * * *

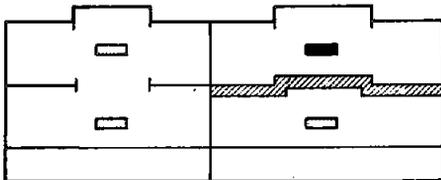


NOTE: Solid vertical lines represent transverse watertight bulkheads between holds.

(2) *Away from.* "Away from" means effectively segregated so that materials may not interact dangerously in the event of an accident. These materials may be stowed in the same cargo compartment, hold, deck area or barge provided a minimum horizontal separation of 10 feet, projected vertically, is provided.



(3) *Separate from.* (i) "Separate from" means in separate holds when stowed "under deck". If the intervening deck is resistant to fire and liquid, a vertical separation, i.e., in different cargo compartments, is considered equivalent to this requirement. For "on deck" stowage, "away from" segregation is authorized.

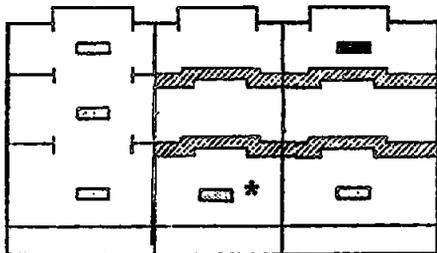
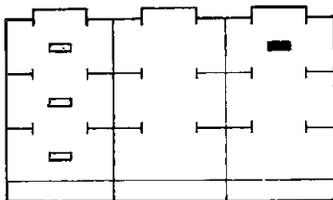


(ii) On barge-carrying vessels, separate barges are required if the barges are constructed of steel. Otherwise separate holds are required.

TABLE II

		1(A)	1(B)	1(C)	2(A)	2(B)	3	4(A)	4(B)	4(C)	5(A)	5(B)	6(A)	6(B)	7	8	9
EXPLOSIVES A.....	1(A)	*	*	*	4	2	4	4	4	4	4	4	2	2	2	4	0
EXPLOSIVES B.....	1(B)	*	*	*	4	2	4	3	3	4	4	4	2	2	2	2	0
EXPLOSIVES C, BLASTING AGENTS.....	1(C)	*	*	*	2	1	2	2	2	2	2	2	1	0	2	2	0
FLAMMABLE COMPRESSED GASES.....	2(A)	4	4	2	0	0	2	1	2	1	2	4	0	0	2	1	0
NONFLAMMABLE COMPRESSED GASES.....	2(B)	2	2	1	0	0	2	0	1	0	0	2	0	0	1	0	0
FLAMMABLE OR COMBUSTIBLE LIQUIDS.....	3	4	4	2	2	2	2	2	2	2	2	3	2	0	2	1	0
FLAMMABLE SOLIDS.....	4(A)	4	3	2	1	0	2	1	1	1	1	2	0	0	2	1	0
FLAMMABLE SOLIDS LABELED SPONTANEOUSLY COMBUSTIBLE.....	4(B)	4	3	2	2	1	2	1	1	2	2	2	1	0	2	1	0
FLAMMABLE SOLIDS LABELED DANGEROUS WHEN WET.....	4(C)	4	4	2	1	0	2	1	1	2	2	2	0	0	2	1	0
OXIDIZERS.....	5(A)	4	4	2	2	0	2	1	2	2	2	2	0	1	1	2	0
ORGANIC PEROXIDES.....	5(B)	4	4	2	4	2	3	2	2	2	2	2	2	1	2	2	0
CLASS A POISONS.....	6(A)	2	2	1	0	0	2	0	1	0	0	2	0	0	1	0	0
CLASS B POISONS OR IRRITATING MATERIALS.....	6(B)	2	2	0	0	0	0	0	0	0	1	1	0	0	0	0	0
RADIOACTIVE MATERIALS.....	7	2	2	2	2	1	2	2	2	2	1	2	1	0	2	0	0
CORROSIVE MATERIALS.....	8	4	2	2	1	0	1	1	1	1	2	2	0	0	2	0	0
OTHER REGULATED (ORM) MATERIALS.....	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(4) *Separate by a complete cargo compartment or hold from.* (i) "Separate by a complete cargo compartment or hold from" means either a vertical or horizontal separation. If the decks are not resistant to fire and liquid, a longitudinal separation by an intervening complete cargo compartment is required. For "on deck" stowage this segregation means a separation by a corresponding horizontal distance.



* When the stowage location of the incompatible package is in this relation to the reference package, at least one of the intervening decks in the vertical plane must be resistant to fire and liquid.

(ii) For barges aboard barge-carrying vessels, the following requirements apply:

(A) For barges loaded on ships having vertical holds, separate barge holds are required.

(B) For barges loaded on ships having horizontal barge levels, separate barge levels are required.

(5) *Separate longitudinally by an intervening complete cargo compartment or hold or engine room from.* (i) "Separate longitudinally by an intervening complete cargo compartment or hold or engine room from" means a horizontal separation by a complete intervening hold (two intervening bulkheads) or engine room. Vertical separation alone does not meet this requirement. For "on deck" stowage, this segregation means a separation by the vessel's bridge or superstructure:

(ii) For barges aboard barge-carrying vessels the following requirements apply:

(A) For barges loaded on ships having vertical holds, separation by an intervening barge hold or engine room is required.

(B) For barges loaded on ships having horizontal barge levels, separate barge levels and a longitudinal separation by at least two intervening barges are required.

(d) In applying the minimum separation requirements specified in Table II to freight containers containing hazardous materials, the following additional requirements apply:

(1) *Class segregation.* Materials for which any segregation is specified in Table II may not be stowed in the same freight container.

(2) *Vertical stowage requirements.* Freight containers either closed or open may not be stowed in the same vertical line when segregation is required unless separated by a deck resistant to fire and liquid. When a solid substance is required to be stowed "Away from" another substance, it may be stowed above the other provided a minimum distance of eight feet intervenes. When "Separate by a complete cargo compartment or hold from" is required, freight containers separated by a deck resistant to fire and liquid may not be stowed in the same vertical line unless two such decks intervene.

(3) *Horizontal stowage requirements.* (i) "Away from":

(A) For closed freight containers stowed on or under deck there are no restrictions in regard to freight container location in relation to other freight containers.

(B) For open containers stowed on or under deck, a minimum separation of 20 feet must be provided in the fore

and aft direction unless separated by a bulkhead resistant to fire and water or a minimum athwartships separation of 8 feet must be provided.

(ii) "Separated from"—(A) For closed freight containers on or under deck a fore and aft separation of at least 20 feet must be provided unless separated by a bulkhead resistant to fire and water or a minimum athwartships separation of 16 feet must be provided.

(B) For open freight containers stowed on deck a minimum separation of 20 feet must be provided in the fore and aft direction or a minimum separation of 16 feet must be provided in the athwartships direction.

(C) Open freight containers stowed under deck must be separated by a bulkhead resistant to fire and water.

(iii) "Separate by a complete cargo compartment or hold from":

(A) For closed or open freight containers on deck a minimum separation of 20 feet must be provided in the fore and aft direction or a minimum separation of 24 feet must be provided in the athwartships direction.

(B) Closed freight containers under deck must be segregated by one bulkhead resistant to fire and water.

(C) Open freight containers under deck must be segregated by two bulkheads resistant to fire and water.

(iv) "Separated longitudinally by an intervening complete cargo compartment or hold from":

(A) Closed or open freight containers on deck must be separated by a distance of 80 feet.

(B) Closed freight containers under deck must be separated by at least two bulkheads resistant to fire and water or one bulkhead resistant to fire and water and a total distance of at least 80 feet provided the containers are not stowed less than 20 feet from the intervening bulkhead.

(C) Open freight containers under deck must be separated by at least two bulkheads resistant to fire and water.

(e) In applying the minimum separation requirements specified in Table II to portable tanks and railroad and highway vehicles containing hazardous materials, paragraph (d) of this section pertaining to freight containers applies.

(f) A ferry vessel (when operating either as a passenger or cargo vessel) which cannot provide the type of separation required in this section may carry incompatible hazardous materials in separate highway or railroad vehicles if they are stowed to give the maximum possible separation.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amtd. 176-1, 41 FR 16110, Apr. 15, 1976]

EDITORIAL NOTE: For Federal Register citations affecting § 176.83, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

Subpart E—Special Requirements for Transport Vehicles Loaded With Hazardous Materials and Transported on Board Ferry Vessels

§ 176.88 Application.

The requirements in this subpart are applicable to transport vehicles containing hazardous materials being transported on board ferry vessels and are in addition to any prescribed elsewhere in this subchapter. Vessels in a service similar to a ferry service, but not over a designated ferry route, may be treated as a ferry vessel for the purpose of this subpart if approved in writing by the District Commander.

[Amtd. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amtd. 176-1A, 41 FR 40890, Sept. 20, 1976]

§ 176.89 Control of transport vehicles.

(a) A transport vehicle containing hazardous materials may be transported on board a ferry vessel, subject to the following conditions:

(1) The operator or person in charge of the vehicle shall deliver to the vessel's representative a copy of the shipping papers and certificate required by §§ 176.24 and 176.27;

(2) The vehicle shall be placed at the location indicated by the vessel's representative;

(3) The parking brakes of the vehicle shall be set securely to prevent movement;

(4) The motor of a highway vehicle shall be shut off and not restarted until the vessel has completed its voyage and docked;

(5) All vehicle lights shall be cut off and not relighted until the vessel has completed its voyage and docked;

(6) The operator of a highway vehicle shall remain with the vehicle;

(7) No repairs or adjustments must be made to the vehicle while it is on the vessel;

(8) No hazardous materials are to be released from the vehicle; and

(9) Any instructions given by the vessel's representative during the voyage, and during "roll on" and "roll off" operations must be observed.

(b) Smoking by any person in or around a vehicle is prohibited.

§ 176.90 Private automobiles.

A private automobile which is carrying any explosive (except permitted fireworks or small arms ammunition) may not be transported on a passenger-carrying ferry vessel unless the explosive is in compliance with packaging, labeling, marking, and certification requirements of this subchapter. Permitted fireworks and small arms ammunition may be carried without the required packaging, labeling, marking, or certification if they are in tight containers.

§ 176.91 Motorboats.

A motorboat may be transported on board a ferry vessel with gasoline in the tank and two other containers not exceeding six gallons capacity each if they are in the motorboat, closed, and in good condition.

§ 176.92 Cylinders laden in vehicles.

Any cylinder of compressed gas which is required to have a valve protection cap fitted in place may be transported on board a ferry vessel without having the valve protection cap in place when it is laden in a transport vehicle and is not removed from the vehicle while on the vessel.

§ 176.93 Vehicles having refrigerating or heating equipment.

(a) A transport vehicle fitted with refrigerating or heating equipment using a flammable liquid or gas, or diesel oil as fuel, may be transported on a ferry vessel. However, the refrigerating or heating equipment may not be operated while the vehicle is on the

vessel, unless the equipment complies with the following requirements:

(1) The installation is rigidly mounted and free of any movement other than normal vibration in operation;

(2) An easily accessible shutoff control is fitted to the fuel and electrical supply of the refrigerating or heating equipment; and

(3) The fuel storage tank, the fuel lines, the carburetor and any other fuel devices are tight and show no signs of leakage.

(b) If the vehicle operator desires to operate the refrigerating or heating equipment while on the vessel and the equipment is not fitted with automatic starting and stopping devices, it must be started before the vehicle is taken on board. It may continue in operation while the vehicle is on the vessel, but if the motor stops it may not be restarted.

(c) In the case of a ferry vessel on a voyage exceeding 30 minutes' duration, stowage must be provided for transport vehicles having refrigerating or heating equipment operated by internal combustion engines which will permit ready diffusion of exhaust gases to the open air. Passenger vehicles may not be stowed in a position adjacent to vehicles operating internal combustion motors which expose the occupants of the passenger vehicles to excessive concentrations of exhaust fumes from such motors.

(d) A transport vehicle containing solid carbon dioxide as a refrigerant may be transported on a ferry vessel only if it is stowed in a well ventilated location.

Subpart F—Special Requirements for Barges

AUTHORITY: 49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1.

SOURCE: Amdt. 176-8, 44 FR 23228, Apr. 19, 1979, unless otherwise noted.

§ 176.95 Application.

The requirements prescribed in this subpart are applicable to the transportation of packaged hazardous materials on board barges. The requirements prescribed elsewhere in this subchapter for vessels similarly apply, except

as provided in this subpart, to the transportation of packaged hazardous materials on board barges.

§ 176.96 Materials of construction.

Only barges constructed of steel may be used to transport hazardous materials.

[Amdt. 176-24, 51 FR 5974, Feb. 18, 1986]

§ 176.97 Prohibition of dump scows.

Dump scows are barges having cargo carrying compartments of the hopper type and fitted with a bottom dump or a side dump. This type of barge is prohibited from the carriage of any class of hazardous material.

§ 176.98 Stowage of hazardous materials on board barges.

A material for which "on deck" stowage only is required by Column (7) of the Hazardous Materials Table (§ 172.101 of this subchapter) may be stowed "under deck" on unmanned barges.

§ 176.99 Permit requirements for certain hazardous materials.

The permits required by §§ 176.100 and 176.415 for loading, unloading, and handling Class A Explosives, blasting agents, and certain ammonium nitrates must be obtained when these materials are loaded on, unloaded from, or handled on board a barge or barge carrying vessel. However, a barge loaded with these materials being placed on, removed from, or handled on board a barge carrying vessel is not subject to these permit requirements.

Subpart G—Detailed Requirements for Explosives

§ 176.100 Permit for Class A explosives.

Before a shipment of Class A explosives may be discharged from, loaded on, handled, or restowed on board a vessel at any place in the United States, its territories, or its possessions (except the Panama Canal Zone), the carrier must obtain a permit from the Captain of the Port or his authorized representative. Exceptions to this permit requirement may be given only

by the Captain of the Port or his authorized representative.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 176-8, 44 FR 23229, Apr. 19, 1979]

§ 176.105 Loading and unloading explosives.

(a) In any particular port, Class A or Class B explosives (except special fireworks), may not be loaded on a vessel until all other cargo has been loaded on board the vessel. No explosives may be loaded or unloaded at the same time that other cargo is being handled.

(b) All explosives must be handled carefully. Packages of explosives may not be thrown, dropped, rolled, dragged, or slid over each other or over a deck.

(c) Packaged Class A explosives must be loaded and discharged from a vessel by using a chute as provided for in § 176.163 or by a mechanical pallet, skipboard, tray or pie plate, fitted with a cargo net or sideboards. A stuffed mattress at least 4 feet wide by 6 feet long and not less than 4 inches thick, or a heavy jute or hemp mat of these dimensions, must be used for depositing explosives lifted by mechanical means or slid on a chute. The maximum load handled in a pallet, shipboard, tray, or pie plate may not exceed 2,640 pounds. A rope net sling with a pallet, skidboard, pie plate or similar base must be loaded so that a minimum displacement of items occurs when it is lifted; the cargo net must completely encompass the cotton and sides of the load. Not more than one-third of the vertical dimension of any package may extend above the sideboard of a tray. A landing mattress and cargo net are not needed for palletized Class A explosives.

(d) Detonators, detonating primers, detonating fuzes, fulminate of mercury, and other initiating or priming explosives defined in this subchapter constitute distinct types of explosives. They must be handled with extreme care. A chute and mattress may not be used when loading or discharging this type of explosive.

(e) A "can" hook may not be used for raising or lowering a barrel, drum, or other container of explosives.

(f) A fire hose of sufficient length to cover the area of the loading operation and connected with an adequate water supply must be laid out and ready for use.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40890, Sept. 20, 1976; Amdt. 176-10, 44 FR 70732, Dec. 10, 1979]

§ 176.110 Condition of package.

A package of an explosive which is damp, moldy, stained or in any condition that indicates leakage may not be transported by vessel. The shipper must substantiate any claim that a stain is due to accidental contact with grease, oil, or a similar substance. In case of doubt, the package may not be transported.

§ 176.115 On deck stowage of explosives.

(a) The following requirements apply to the stowage of explosives on deck:

(1) An explosive may not be stowed on or under a bridge deck.

(2) An explosive may not be stowed nearer than 25 feet in a horizontal plane to the crew's quarters.

(b) Explosives being transported on deck on a vessel between receiving points and delivery points within the same harbor, bay, sound, lake, or river including explosive anchorages must be covered with a fire resistant or flame-proof tarpaulin securely lashed in place.

§ 176.120 Preparation of decks, gangways, hatches, and cargo ports.

(a) All decks, gangways, and hatches over or through which explosives must be passed or handled in loading or unloading must be freed of all loose material and must be swept broom clean before loading and unloading.

(b) All hatches and cargo ports opening into a compartment in which any explosives are stowed must be kept closed, except during loading or unloading of the compartment. After loading, hatches must be securely closed against the weather. If tarpaulins are used, they must be securely battened.

§ 176.125 Handling over deck loads on break-bulk vessels.

A deck load over which explosives must be passed may not exceed the height of the hatch coaming, bulwark, or three feet, whichever is greater.

§ 176.130 Securing and dunnaging of packages of explosives.

(a) Each package of explosives must be secured and dunnaged to prevent movement in any direction. Vertical restraints are not required if the shape of the package and the stuffing pattern precludes shifting of the load.

(b) Each keg of black powder must be stowed in an upright position with the bungs up and each tier must be completely dunnaged.

(c) Each package of explosives must be braced and dunnaged so that it is not likely to be pierced by the dunnaging or crushed by any superimposed weight.

§ 176.135 Location of magazines.

(a) Each magazine must be located in a hold, preferably a 'tween deck hold, that is dry and well ventilated. It may not be located in horizontal proximity to crew or passenger accommodations or below their living spaces. A magazine may not be built on or under the principal bridge structure or any navigation spaces. Except for inspection purposes, the hold or compartment in which a magazine is constructed must be closed off to all traffic after the explosives are stowed.

(b) A magazine may not be constructed in contact with a collision bulkhead or a bulkhead forming a boiler room, engine room, coal bunker or galley boundary unless there is no practicable alternative. If it is necessary to construct a magazine contacting one of these bulkheads, a cofferdam space of at least one foot must be provided between the permanent bulkhead and the magazine bulkhead. The cofferdam space must remain open to the free circulation of air and may not be used for stowage or storage purposes.

(c) When a magazine is constructed over a 'tween deck hatch, the hatch girders or strongbacks and the hatch covers forming the 'tween deck hatch

must be of a design and size to carry the imposed load with safety. Covers of the 'tween deck and over-deck hatch must completely close the hatch opening and fit securely in place. 'Tween deck hatch covers of wood forming the base of a magazine must be completely covered with bulkhead panels approved by the Coast Guard under 46 CFR 164.008, or an equivalent thermal insulative material acceptable to the Captain of the Port. The joints of the panels must be staggered midway between the joints formed by the wooden hatch covers and the magazine must be constructed in accordance with the applicable provisions of § 176.138, except that the panels must be completely covered with wood dunnage. No metal structural parts may protrude within any magazine. If the stowage of explosives extends into the over-deck hatch coaming, this coaming must be sheathed with wood. A magazine located in a hatchway may be constructed to occupy only a part of the hatchway. A portable magazine may be stowed in the square of a hatchway; it must be lashed or tommed to prevent movement.

(d) Any construction and location of a magazine for the stowage of explosives other than as provided in this subpart may be authorized only by the Commandant, (G-MTH).

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40690, Sept. 20, 1976; Amdt. 176-21, 50 FR 11055, Mar. 19, 1985; Amdt. 176-24, 51 FR 5974, Feb. 18, 1986]

§ 176.138 Construction of magazines.

(a) All magazine construction, and other conditioning of holds, deck, or hatches on a vessel, must be completed before the actual loading of explosives on that vessel is initiated.

(b) The following requirements must be observed in the construction of a magazine for stowage of explosives requiring magazine stowage:

(1) Each magazine must be constructed of steel or wood;

(2) Each magazine constructed of steel must have the interior completely protected by wood sheathing not less than 3/4-inch thick to form a smooth surface free of any projec-

tions. All metal stanchions within the magazine must be boxed with wood not less than 3/4-inch thick. When the floor of a magazine would be on a steel deck or tank top, a floor of wood not less than 1 1/4-inch commercial lumber, constructed on bearers, must be installed. This floor may be portable, but must be tight to prevent movement;

(3) Each magazine constructed of wood must have the bulkheads forming the sides and ends constructed of 1-inch lumber, 3/4-inch tongue and groove sheathing, or 3/4-inch plywood, secured to uprights of at least 3- by 4-inch size, spaced not more than 18 inches apart and secured at the top, bottom, and center with horizontal bracing. When 3/4-inch plywood is used, the uprights may be spaced on 24-inch centers. Uprights may not be stepped directly to a metal deck. A 2- by 4-inch header must be fitted against the underside of the overhead deck to receive the top of the uprights. Top of uprights fitted against channel beams may be wedged directly to the beam with 2- by 4-inch spacers fitted between. Upright framing must be secured so that nails do not penetrate the interior of the magazine. When a magazine is constructed as a permanent compartment in a vessel, increased size and finish of lumber and other methods of fastening may be used, provided all fastenings are recessed below the surface of the boarding to avoid any projections within the interior of the magazine. All boarding must be fitted and finished to form a smooth surface within the interior of the magazine.

(i) The construction must separate all containers of explosives from contact with metal surfaces of the structures of the vessel. When a metal stanchion, post, or other obstruction is located in the interior area of the magazine, this obstruction must be completely covered with wood at least 3/4-inch thick secured with nails or screws. All screws or nails used in the interior of the magazine for fastening must be counter-sunk below the surface of the wood. Flooring of each magazine must be not less than 1 1/4-inch commercial lumber, constructed on bearers. This floor may be portable

but must be tight to prevent movement. Each door of a magazine must be of substantial construction, fitted reasonably tight in its jamb, and provided with a locking method of a tamper-proof type. The door must be easily accessible;

(4) Plywood $\frac{5}{8}$ -inch thick may be used if the bulkheads forming the sides of a magazine are to be constructed directly against the ship's side and battens are fitted, and if the plywood is securely fastened to vertical furring strips of not less than 1- by 3-inch material, spaced not more than 18 inches apart;

(5) A magazine constructed in accordance with the provisions of paragraphs (b) (2) and (3) of this section, in which it is proposed to stow containers of explosives within 12 inches of the overhead beams or hatch coaming must have such beams and coaming sheathed with wood as prescribed by the provisions of paragraph (b)(2) of this section for stanchions; and

(6) When a Class A explosive magazine exceeds 40 feet in any direction, a partition bulkhead must be fitted in the magazine as near half length as practicable, extending from the deck to at least the top of the stowage. This partition bulkhead must be constructed to the same scantlings as the sides of the magazine, except the boardings may be spaced not more than 6 inches apart alternately on both sides of the uprights. Nail points may not protrude beyond the surface of any boardings. The bulkhead must be constructed before loading commences. This bulkhead is not required when the explosives are palletized.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40690, Sept. 20, 1976]

§ 176.141 Entire hold or compartment forming magazine.

When a complete hold or compartment is used for the stowage of explosives requiring magazine stowage, the entire hold or compartment may be considered a magazine. Any frames or bulkhead stiffeners protruding into the hold or compartment must be effectively sheathed to provide a smooth surface. Overhead beams need not be

sheathed when the explosives are stowed more than 12 inches from these beams. If explosives are stowed up to the overhead beams and in the square of the hatch formed by the coaming, the overhead beams, including the hatch coaming, must be effectively sheathed. The installation of sheathing must be in accordance with the specifications for the construction of a magazine. However, when cargo battens are fitted to the vessel's shell or a bulkhead forming part of the hold or compartment, the sheathing may be secured vertically to the battens.

§ 176.144 Ventilation of magazines.

Each magazine must be effectively ventilated. Each cowl ventilator's weather deck opening must be covered with a 30×30 or finer mesh wire screen, if it leads into a magazine or to an area in the same hold adjacent to a magazine. A magazine which occupied only a portion of a hold, and is not fitted with a ventilator entering into the magazine must be constructed to leave an open space of not more than one inch below the overhead frame.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40690, Sept. 20, 1976]

§ 176.147 Metal lockers for stowage of fireworks.

Each metal locker for the stowage of special fireworks which are permitted to be transported on board passenger vessels must meet the following requirements:

(a) *Size.* The cubic capacity of the locker may not exceed 150 cubic feet.

(b) *Division.* If the locker is more than 5 feet in height, it must be fitted with a division shelf at about $\frac{1}{2}$ height constructed to carry the imposed load without deflection.

(c) *Gauge.* The thickness of steel used in the construction of the locker may not be less than 16 gauge steel.

(d) *Type of construction.* The locker must have a completely smooth interior surface. No stiffener element may project beyond any interior surface. The locker must be fitted with a top and bottom closure unless it is "built-in" to the structure of the vessel with

the overhead and deck forming the top and bottom of the locker. "Built-in" construction is not authorized if the overdeck or underdeck is wood.

(e) *Closures.* Closures may be the removable plate or hinged door type if the locker is flame tight when closed. A locker having a portable plate closure must have an accessible side opening to permit insertion of a fire hose nozzle for flooding. The opening must be at least 3 inches in diameter, not more than 12 inches below the top of the locker, and fitted with a metal flap cover to preserve the flame tight requirement.

(f) *Location.* The locker must be readily accessible from a companionway or cargo hatch. In vessels constructed of wood, the locker must be easily observable by a watchman on his rounds. The locker must be secured to prevent shifting in a seaway.

§ 176.150 Portable magazines for stowage of explosives.

(a) Each portable magazine used for the stowage of explosives on board a vessel must meet the following requirements:

(1) It must be watertight, constructed of wood or of metal lined with wood at least 3/4-inch thick and with a capacity of no more than 110 cubic feet.

(2) All inner surfaces must be smooth and free of any protruding nails, screws, or other projections.

(3) If constructed of wood, the scantlings and arrangement must be not less than those required by § 176.138. It must be provided with a strong close-fitting, hinged cover or door with hasps and padlock.

(4) When constructed of metal, the metal must not be less than 1/8-inch thick.

(5) Runners, bearers, or skids must be provided to elevate the magazine at least 4 inches from the deck. Pad eyes, ring bolts, or other suitable means must be provided for securing. The magazine must be lashed, chocked, or braced to prevent movement in any direction.

(6) The magazine must be stowed in the square of a 'tween deck hatch unless another stowage is authorized by § 176.155.

(7) The magazine must be marked on the top and four sides, in letters at least 3 inches high, as follows:

"EXPLOSIVES—HANDLE CAREFULLY—KEEP LIGHTS AND FIRE AWAY".

(b) A portable magazine may be used for the stowage of explosives exceeding 110 cubic feet under such conditions of construction, handling, and stowage that meet the approval of the Commandant (G-MTH).

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-21, 50 FR 11055, Mar. 19, 1985]

§ 176.155 Stowage of small quantities of explosives.

(a) A District Commander may approve the stowage of small quantities of explosives in a location other than "under deck", such as in an isolated compartment, mast or deck house, or in a magazine (which may be portable) secured "on deck" if:

(1) No other stowage is available;

(2) The compartment or stowage area is sheathed with wood;

(3) The boundary of the compartment or magazine is at least 8 feet from the vessel's side; and

(4) The boundary of the explosives stowage area is separated from other incompatible explosives and other hazardous materials by at least one permanent steel deck or bulkhead and a distance of 25 feet or by at least two steel decks or bulkheads and a distance of 10 feet. An intervening steel deck or bulkhead is not required on deck if the separation distance between these materials is not less than 40 feet in any direction.

§ 176.156 Stowage of explosives with combustible liquids.

Class A or B explosives may not be stowed in the same hold or compartment with combustible liquids.

§ 176.157 Stowage of explosives in holds containing coal.

An explosive may not be stowed in a hold containing coal or in a hold above or adjacent to a hold containing coal.

§ 176.158 Stowage of explosives with fireworks.

Fireworks may not be stowed in the same hold in which there is a magazine containing explosives.

§ 176.159 Stowage of explosives and non-dangerous cargo.

Each magazine in which explosives are stowed must be protected from damage which may be caused by any heavy cargo stowed in the same hold. When any shafting, steel bar, pipe, heavy machinery, or similar type of cargo is stowed in the same hold with explosives, it must be isolated, dunnaged, or secured to prevent damage to the magazine under any conditions likely to be encountered during the voyage.

§ 176.163 Requirements of equipment for handling explosives.

(a) A chute for loading and unloading explosives must be constructed of smooth planed boards not less than one inch thick with side guards of the same material at least 4 inches high. Only brass screws may be used to assemble the sides and bottom. D-shaped wooden strips or runners not more than six inches apart and running the length of the chute must be fastened to the upper surface of the slide by glue and wooden dowels extended through the bottom of the chute. Four lashing rings must be provided, one at each outside corner of the chute, for purposes of securing during use.

(b) A roller conveyor constructed of aluminum or other non-sparking material may be used for loading or unloading explosives. The conveyor must be grounded when in use.

(c) [Reserved]

(d) Before any explosives are loaded or unloaded from a vessel, the master of the vessel must examine the condition and working order of all slings, carts, baskets, boxes, chutes, mattresses, tackle and other equipment to be used in the transfer operation. This includes equipment belonging to the vessel, stevedores, and any contractors.

(e) Any equipment which in the judgment of the master of the vessel is not in a safe working condition must

be rejected. He shall prohibit its use and take the precautions necessary to ensure that the rejected equipment is not used to load or unload explosives. The master of the vessel shall ensure that all equipment used in the handling of explosives is in good working order. If any part of the equipment shows any defect or is damaged in use, work must be stopped immediately and the damaged or defective equipment repaired or replaced before permitting the loading or unloading to continue.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-21, 50 FR 11055, Mar. 19, 1985; Amdt. 176-24, 51 FR 5974, Feb. 18, 1986]

§ 176.165 Installation of loading chute and roller conveyor.

A chute or roller conveyor to be used in loading or unloading explosives may not be positioned or inclined in a manner which will permit any sliding package to violently strike any other package on or at the bottom of the chute or conveyor. Personnel may be stationed alongside the chute or conveyor to control the velocity of the packages to prevent any violent shock. Each chute must be wiped with machine oil before any package of explosives is transferred.

§ 176.167 Lights, tools, and equipment.

(a) No artificial light except electric lights or electric lamps or floodlights may be used on board a vessel during the loading or unloading of explosives.

(b) The carrier shall provide flashlights of a non-sparking type for persons required to enter holds in which explosives are stowed.

(c) No person on board a vessel loading, unloading or transporting explosives may carry firearms, matches, bale hooks, or metallic tools of other than the nonsparking type on board.

(d) No person engaged in loading or unloading Class A or Class B explosives may wear boots or shoes shod or strengthened with iron nails or other metal, unless the boots or shoes are covered with rubber, leather, felt or other non-sparking material.

§ 176.169 Fires.

(a) No fire is permitted on any dock, lighter, or vessel involved in the loading or unloading of explosives during the loading or unloading unless the fire is necessary.

(b) If a fire is necessary it must be properly safeguarded and under the direct observation of a competent person assigned for that purpose by the master of the vessel for the entire period of cargo transfer.

§ 176.171 Smoking.

(a) Smoking is prohibited on and near any vessel loading or unloading explosives at a waterfront facility. The Coast Guard officer having jurisdiction may designate smoking areas at a safe distance from the vessel. "NO SMOKING" signs must be posted during operations of handling, loading, or unloading the cargo. At least one "NO SMOKING" sign must be conspicuously posted on the pier at a reasonable distance from the vessel during the handling, loading or unloading of explosives.

(b) Smoking is prohibited on and near any vessel handling, loading or unloading explosives at an explosives anchorage. However, the Coast Guard officer having jurisdiction may, with the concurrence of the master or person in charge of the vessel, designate a compartment as a smoking area. "NO SMOKING" signs must be posted conspicuously outside the entrance to this compartment and in other parts of the vessel during the loading or unloading operations.

§ 176.173 Liquor or drugs.

A person who the master of a vessel finds, in his judgment, to be under the influence of liquor or drugs, may not be permitted on board during the loading, unloading, or transporting of explosives.

§ 176.177 Magazine vessels.

(a) *General.* The requirements of this section are applicable to magazine vessels and are in addition to any prescribed elsewhere in this subchapter.

(b) *Type vessel authorized.* A single deck vessel with or without a house on deck is the only type vessel that may be used as a magazine vessel. A maga-

zine vessel may not be moved while explosives are on board.

(c) *Location of explosives.* Class A and Class B explosives, in excess of 5,000 pounds, stored in any magazine vessel must be stowed below deck. No explosive may be stowed on deck unless the vessel is fitted with a deck house having a stowage area which meets the requirements in this subpart for the stowage of explosives. Detonators, Class A explosives, and detonating primers, Class A explosives, may not be stored on the same magazine vessel with other Class A explosives or Class B explosives.

(d) *Explosives storage spaces.* Any compartment on a magazine vessel used for the stowage of explosives must be completely ceiled with wood so as to provide a smooth interior surface. Each metal stanchion in the compartment must be boxed in the same manner. An overhead ceiling is not required when the overdeck is weather-tight. All nail and bolt heads must be countersunk and any exposed metal must be covered with wood.

(e) *Initiating explosives, detonators and detonating primers.* No initiating or priming explosive may be stowed in the same compartment with any other explosive when there is any high explosive on the same magazine vessel. Detonators and detonating primers must be stowed at least 25 feet from any bulkhead forming a boundary of a compartment containing any other explosives.

(f) *Dry storage spaces.* A magazine vessel having a dry storage space capable of being used for any purpose whatsoever must have a cofferdam at least 24 inches wide fitted between the dry storage space and each adjacent compartment containing explosives. The cofferdam must be constructed of wood or steel, formed by two tight athwartship bulkheads extending from the skin of the vessel to the overdeck. If the cofferdam extends to the weather deck, a watertight hatch must be fitted in the deck to provide access to the cofferdam.

(g) *Lighting.* Non-sparking, battery-powered, self-contained electric lanterns or non-sparking hand flashlights are the only means of artificial light authorized.

(h) *Living quarters.* Living quarters must be fitted on the inside with asbestos board or other equivalent fire resistant material. Bracketed ship's lamps are the only lighting fixtures authorized to be used in the living quarters. Any stove used for heating or cooking must be securely fastened and may not be mounted closer than 6 inches to the deck or sides of the house. Any smoke pipe for the stove which passes through the roof of the house must be kept at least 3 inches away from any woodwork. Each smoke pipe must be protected by a layer of asbestos, an air space of at least 1 inch, and a metal collar of at least 16 gauge sheet secured only on the weather side of the roof. There may be no opening from any living quarters into any stowage compartment.

(i) *Storage of other hazardous materials.* Magazine vessels having explosives on board may not be used for the storage of any other hazardous material.

(j) *Magazine vessel's stores.* Articles for use as stores on board any magazine vessel must be in compliance with the requirements of 46 CFR Part 147.

(k) *Matches.* Safety matches requiring a prepared surface for ignition are the only type of matches authorized for use on board a magazine vessel. They must be kept in a metal box or can with a metal cover and stored in the custodian's living quarters.

(l) *Firearms.* Firearms and ammunition (other than cargo) are not permitted on board a magazine vessel.

(m) *Fire extinguishing equipment.* No explosive may be received, stored, or dispensed from any magazine vessel, unless four 2½-gallon extinguishers of the soda-acid type and four 2-gallon pails filled with dry sand are placed about the vessel. The contents of each liquid extinguisher continuously exposed to a temperature lower than 40 degrees F. (45 degrees C.) must be modified or otherwise protected to prevent freezing.

(n) *Supervision.* A magazine vessel containing explosives must be continuously attended by a custodian employed for that purpose by the vessel's owner.

(o) *Unauthorized persons on magazine vessels.* The custodian of a maga-

zine vessel shall prevent unauthorized persons from coming on board unless it is necessary to abate a hazard to human life or a substantial hazard to property.

(p) *Repacking of explosives on board.* No explosive may be repacked on board a magazine vessel. Any broken or damaged package must be placed in an open box and carried to a safe location for repacking or other disposition.

(q) *Work boat.* Each magazine vessel must be equipped with a work boat.

(r) *Life preservers.* One approved personal flotation device must be available for each person employed on a magazine vessel.

(s) *Fenders.* Each magazine vessel must be fitted with fenders in sufficient number and size to prevent any vessel tying up alongside from coming in contact with the hull.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-10, 44 FR 70732, Dec. 10, 1979]

Subpart H—Detailed Requirements for Compressed Gases

§ 176.200 General stowage requirements.

(a) Each package of compressed gas being transported by vessel must be prevented from making direct contact with the vessel's deck, side or bulwark by dunnage, shoring, or other effective means.

(b) When cylinders of compressed gas being transported by vessel are stowed horizontal, each tier must be stowed in the cantlines of the lower tier and the valves on cylinders in adjacent tiers must be at alternate ends of the stow. Each tier may be stepped back and the ends alternated in order to clear the flange. Lashing must be provided to prevent any movement.

(c) When cylinders of compressed gas being transported by vessel are stowed in a vertical position they must be stowed upright in a block and cribbed or boxed in with suitable sound lumber. The box or crib must be dunnaged at least 4 inches off any metal deck. The cylinders in the box or crib must be braced to prevent any movement. The box or crib must be se-

curely chocked and lashed to prevent any movement.

(d) A compressed gas packaging, bearing a Poison label, must be stowed away from all foodstuffs.

(e) Compressed gas may not be stowed "on deck" over a hold or compartment containing coal.

§ 176.205 Under deck stowage requirements.

(a) When compressed gas is stowed below deck, it must be stowed in a hold or compartment capable of being ventilated with no source of artificial heat and clear of crew and passenger living spaces. No bulkhead or deck of the hold or compartment may be a common boundary with any boiler room, engine room, coal bunker, galley or boiler room uptake.

(b) When flammable compressed gas is stowed below deck, it must be stowed in a hold or compartment which complies with paragraph (a) of this section and the following requirements:

(1) Each hold or compartment must be ventilated.

(2) Each hold or compartment must be equipped with an overhead water sprinkler system or fixed fire smothering system.

(3) Each electrical power line in the hold or compartment must be protected by a strong metal covering to prevent crushing by cargo being stowed against it.

(4) Except when fitted with electrical fixtures of the explosion-proof type, each electrical circuit serving the hold or compartment must be disconnected from all sources of power. No circuit may be energized until the flammable compressed gas cargo and any vapors have been removed from the hold or compartment. Portable lighting of the explosion-proof type may be used if the source of power is from electrical outlets outside the hold or compartment and above the weather deck.

(5) Any opening in a common bulkhead of an adjacent hold or compartment must be securely closed off and made gas tight, unless the adjacent hold or compartment is also used for the stowage of flammable compressed gas.

(6) Full and efficient hatch covers must be used. Tarpaulins, if fitted, must be protected by dunnaging before overstowing with any cargo. Each tarpaulin must be in one piece and free of rents, tears, and holes.

(7) A fire screen must be fitted at the weather end of each vent duct leading from the hold or compartment. The fire screen must completely cover the open area. It must consist of two layers of fine brass wire screen at least 20×20 mesh or finer, spaced not less than ½ inch or more than 1½ inches apart. The screen may be removable if means for securing it in place when in service are provided.

(8) The hold or compartment may not be fitted with any gooseneck type vent trunk head.

(9) All electrical apparatus located in the hold or compartment must have a positive means for disconnecting from power outside the hold or compartment containing any flammable compressed gas.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40690, Sept. 20, 1976]

§ 176.210 On deck stowage requirements.

Cylinders of compressed gas being transported by vessel must be protected from the direct rays of the sun by structural erections or awnings. A tarpaulin covering the cylinders is not acceptable if it comes in contact with them.

§ 176.220 Smoking or open flame and posting of warning signs.

(a) Smoking or the use of open flame is prohibited in any hold or compartment containing a flammable compressed gas, near any flammable compressed gas stowed on deck, or near any ventilator leading to a hold containing this material.

(b) A sign carrying the legend:

**FLAMMABLE VAPORS
KEEP LIGHTS AND FIRE AWAY
NO SMOKING**

must be conspicuously posted at each approach to an "on deck" flammable compressed gas stowage area and near each cargo hold ventilator leading to a hold containing this material. The sign must be painted on a white background using red letters. The letters may not be less than 3 inches high.

§ 176.225 Stowage of chlorine.

Chlorine may not be stowed in the same hold or compartment with metallic sodium or potassium, phosphorus, copper or brass leaf sheets, powdered antimony, turpentine, ammonia, finely divided organic material, coal gas, hydrogen, or acetylene.

§ 176.230 Stowage of flammable compressed gases.

Flammable compressed gases transported in Specifications 106A and 110A multi-unit tank car tanks must be stowed on deck only, and must be shaded from radiant heat.

[Amdt. 176-4, 43 FR 8522, Mar. 2, 1978]

Subpart I—Detailed Requirements for Flammable Liquids and Combustible Liquids

§ 176.305 General stowage requirements.

(a) Except as otherwise provided in § 176.76(g), a package containing a flammable liquid and equipped with a vent or safety relief device must be stowed "on deck" only.

(b) The following requirements apply to each hold or compartment in which a flammable or combustible liquid is being transported:

(1) The hold or compartment must be ventilated except that the stowage of packaged flammable liquids with a capacity of 110 gallons or less and with flash points above 73° F. may be in non-ventilated holds.

(2) Stowage of these liquids within 20 feet of a bulkhead which forms a boundary or deck of a boiler room, engine room, coal bunker, galley, or boiler room uptake is not permitted. If the amount of the liquid to be stowed in a hold will not permit compliance with the requirement for a 20-foot separation, less separation distance is au-

thorized if at least one of the following conditions exists:

(i) The bulkhead or deck is covered with at least 3 inches of insulation on the entire area subject to heat;

(ii) A temporary wooden bulkhead at least 2 inches thick is constructed in the hold at least 3 inches off an engine room or 6 inches off a boiler room bulkhead, covering the entire area of the bulkhead that is subject to heat and the space between the permanent bulkhead and the temporary wooden bulkhead is filled with bulk asbestos or mineral wool; or

(iii) A temporary wooden bulkhead is constructed of at least one inch thick tongue and groove sheathing, located 3 feet from the boiler room or engine room bulkhead, and filled with sand to a height of 6 feet above the tank top, or, if the cargo compartment is located between decks, 3 feet of sand.

(3) Combustible liquids may be stowed in a hold within 20 feet of a common bulkhead with the engine room if the means of vessel propulsion is internal combustion engines; and

(4) Each cargo opening in a bulkhead of an adjacent hold must be securely closed off and made gas tight, unless the adjacent hold is also used for the stowage of a flammable or combustible liquid.

(c) In addition to the requirements specified in paragraph (b) of this section, the following requirements apply to each hold or compartment in which a flammable liquid is transported:

(1) Full and effective hatch covers must be used. Tarpaulins, if fitted, must be protected by dunnaging before overstowing with any cargo. Each tarpaulin must be in one piece and free of rents, tears, and holes;

(2) If flammable liquids in excess of one ton are stowed under deck in any one hold or compartment, a fire screen must be fitted at the weather end of each vent duct leading from that hold or compartment. The fire screen must completely cover the open area. It must consist of two layers of fine brass wire screen at least 20 × 20 mesh or finer spaced not less than ½ inch or more than 1½ inches apart. The screen may be removable if means for

securing it in place when in service are provided;

(3) Each electrical power line in the hold or compartment must be protected by a strong metal covering to prevent crushing by cargo being stowed against it;

(4) Except when fitted with electrical fixtures of the explosion-proof type, each electrical circuit serving the hold or compartment must be disconnected from all sources of power from a point outside the hold or compartment containing the flammable liquid. No circuit may be energized until the flammable liquids and any vapors have been removed from the hold or compartment. Portable lighting of the explosion-proof type may be used if the source of power is from electrical outlets outside the hold or compartment and above the weather deck;

(5) Flammable liquids in excess of one ton, except flammable liquids with a flashpoint above 73 °F., may not be transported in any hold or compartment that is fitted with a gooseneck type of vent head.

(d) On a passenger vessel, each hold or compartment used to transport flammable liquids must be equipped with an overhead water sprinkler system or fixed fire smothering system.

(e) On a passenger vessel, each hold or compartment used to transport a flammable liquid under a passenger space must have an overdeck of an A-60 type construction (see 46 CFR 72.05-10(c)(1)) or equivalent or have its underside covered with at least 3 inches of noncombustible insulation.

(f) No flammable liquid in a drum or wooden case, having inside packagings of more than one quart capacity each, may be stowed as a beam filler. A wooden barrel, a wooden box or a fiberboard box, with any flammable liquid in inside packagings of not more than one quart capacity each, may not be stowed as a beam filler unless it is possible to stow and observe any "THIS SIDE UP" marking.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40690, Sept. 20, 1976; Amdt. 176-21, 50 FR 11055, Mar. 19, 1985]

§ 176.315 Fire protection requirements.

(a) For each 21,000 U.S. gallons (or part thereof) of any flammable or combustible liquid being transported on board a vessel in a portable tank, tank car, or a tank truck, there must be provided at least one B-V semiportable foam (40 gallon capacity) (see 46 CFR 95.50), dry chemical (100 lbs. minimum capacity) or equivalent fire extinguisher, or a fire hose fitted with an approved portable mechanical foam nozzle with pick-up tube and two 5 gallon cans of foam liquid concentrate. Each foam system must be suitable for use with each flammable or combustible liquid it is intended to cover. Each fire extinguisher must be accessible to the tank it is intended to cover.

(b) The fire hose at each fire hydrant in the vicinity of flammable or combustible liquid stowage areas must be fitted with an approved combination spray nozzle.

(c) The pressure must be maintained in the vessel's fire mains during the loading and unloading of the flammable or combustible liquid.

(d) Two 15-pound capacity hand portable dry chemical or two portable 2½-gallon foam-type extinguishers must be accessible to any packaged flammable or combustible liquid and suitable for use with the lading.

(e) The requirements of this section do not apply to portable tanks and their contents authorized under 46 CFR 93.35 or 46 CFR Part 64.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40690, Sept. 20, 1976]

§ 176.320 Use of hand flashlights.

Each hand flashlight used in a hold or compartment containing any flammable liquid, or on deck near any flammable liquid, must be of the non-sparking type.

§ 176.325 Smoking or open flame and posting of warning signs.

(a) Smoking or the use of open flame is prohibited in any hold or compartment containing a flammable or combustible liquid, near any flammable or combustible liquid stowed on deck, or near any ventilator leading to a hold containing such material.

(b) A sign carrying the legend:

**FLAMMABLE VAPORS
KEEP LIGHTS AND FIRE AWAY
NO SMOKING**

must be conspicuously posted at each approach to a flammable or combustible liquid stowed "on deck" and near each cargo-hold ventilator leading to a hold or compartment containing this material. This sign must be painted on a white background using red letters. The letters may not be less than 3 inches high.

§ 176.331 Transportation of flammable liquids with foodstuffs.

Each package containing a flammable liquid which bears a Poison label must be stowed separate from foodstuffs.

§ 176.340 Combustible liquids in portable tanks.

(a) Combustible liquids may be transported by vessel in portable tanks only as specified below:

(1) Portable tanks authorized in § 173.119 of this subchapter.

(2) Portable tanks approved and maintained in accordance with 46 CFR 98.35, constructed prior to October 1, 1974. Such tanks may continue in service only until October 1, 1984.

(3) Portable tanks approved by the Commandant of the Coast Guard (G-MTH).

[Amdt. 176-14, 46 FR 58696, Dec. 3, 1981, as amended by Amdt. 176-21, 50 FR 11055, Mar. 19, 1985]

Subpart J—Detailed Requirements for Flammable Solids, Oxidizers, Organic Peroxides, and Blasting Agents

§ 176.400 Stowage of blasting agents, oxidizers and organic peroxides.

(a) No blasting agents, oxidizer or organic peroxide being transported by vessel may be stowed in the same hold or compartment with any readily combustible material such as a combusti-

ble liquid, a textile product, or with a finely divided substance such as an organic powder.

(b) No blasting agents, oxidizer or organic peroxide being transported by vessel may be stowed in a hold or compartment containing sulfur in bulk, or in any hold or compartment above, below, or adjacent to one containing sulfur in bulk.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-7, 44 FR 31185, May 31, 1979]

§ 176.405 Stowage of charcoal.

(a) Before stowing charcoal on a vessel for transportation, the hold or compartment in which it is to be stowed must be swept broom clean. All residue of former cargo, including a petroleum product, a vegetable or animal oil, nitrate, or sulfur, must be removed.

(b) Charcoal packed in bags and offered for transportation on board a vessel in a quantity over one ton must be loaded so that the bags are laid horizontally and stacked with space for efficient air circulation. If the bags are not compactly filled and closed to avoid free space within, vertical and horizontal dunnage strips must be laid between the bags. Space for ventilating must be maintained near bulkheads, the shell of the vessel, the deck and the overhead. No more than 40 tons of charcoal may be stowed in a hold or compartment when other stowage space is available. If the unavailability of hold or compartment space requires the stowage of a larger amount, the arrangement of the stow for ventilation must be adjusted to ensure a sufficient venting effect.

(c) Any loose material from bags broken during loading must be removed. Broken bags may be repacked or have the closures repaired and the repaired bags restowed.

(d) Charcoal "screenings" packed in bags must be stowed to provide spaces for air circulation between tiers regardless of the quantity stowed.

§ 176.410 **Blasting agents, ammonium nitrate, and ammonium nitrate-mixtures.**

(a) This section prescribes requirements to be observed with respect to transportation of each of the following hazardous materials by vessel:

(1) **Blasting agents and ammonium nitrate-fuel oil mixtures.**

(2) **Ammonium nitrate (no organic coating).**

(3) **Ammonium nitrate (organic coating).**

(4) **Ammonium nitrate-carbonate mixture.**

(5) **Ammonium nitrate fertilizer (containing no more than 0.2 percent carbon).**

(6) **Ammonium nitrate mixed fertilizer.**

(7) **Ammonium nitrate phosphate.**

(b) This section does not apply to any non-acidic ammonium nitrate mixed fertilizer containing 13 percent or less ammonium nitrate, less than 5 percent organic material, no other oxidizing material, and which does not meet the criteria for any other hazard class set forth in Part 173 of this subchapter.

(c) When blasting agents or any of the ammonium nitrates listed in paragraph (a) of this section is transported by vessel:

(1) It must be stowed well away from any steam pipe, electric circuit, or other source of heat;

(2) Smoking may not be permitted except in designated areas away from the material and "No-Smoking" signs must be posted in accordance with § 176.60;

(3) Fire hoses must be connected, laid out, and tested before loading or unloading commences; and

(4) A fire watch must be posted in the hold or compartment where the material is being loaded or unloaded.

(d) When blasting agents or any of the ammonium nitrates listed in paragraph (a) of this section are transported in bags by vessel:

(1) The requirements specified in paragraph (c) of this section must be complied with;

(2) The temperature of the bagged material may not exceed 130 degrees F.;

(3) Minimum dunnage and sweatboards must be used to prevent any

friction or abrasion of bags, and to allow for the circulation of air and access of water in the event of fire;

(4) The bags must be stowed from side to side, out to the sweatboards;

(5) A space of 18 inches must be provided between any transverse bulkhead and the bags;

(6) The bags must be stowed so as to provide an 18-inch athwartship trench along the centerline of the compartment, continuous from bottom to top;

(7) The bags must be stowed so as to provide an 18-inch amidship trench running fore and aft from bulkhead to bulkhead;

(8) The bags may not be stowed closer than 18 inches from any overhead deck beam;

(9) The bags must be stowed so as to provide vent flues 14 inches square at each corner of the hatch continuous from top to bottom;

(10) Trenching must be accomplished by alternating the direction of the bags in each tier (bulkheading); and

(11) The bags must be blocked and braced as necessary to prevent shifting of the bagged cargo adjacent to any trench area.

(e) Blasting agents or any of the ammonium nitrates listed in paragraph (a) of this section may be transported by vessel with dynamite, commercial boosters, or other non-priming, non-initiating types of explosives which are compatible with dynamite:

(1) In the same hold or compartment with the explosives or in a hold or compartment adjacent to the explosives if the blasting agents or ammonium nitrate is packaged in strong metal cans, metal or fiber drums, barrels, kegs, or wooden or fiberboard boxes with noncombustible inside packagings; or

(2) In proximity to the explosives, if the two are separated by a steel deck or bulkhead, or a fire retardant wooden bulkhead built to the specifications of § 176.138(b)(3). The deck or bulkhead must be sheathed on the oxidizing materials stowage side with an appropriate fire-resistant insulation.

(f) An ammonium nitrate mixture containing any ingredient which would accelerate the decomposition of

ammonium nitrate under conditions incident to transportation may not be transported by vessel.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40691, Sept. 20, 1976; Amdt. 176-7, 44 FR 31185, May 31, 1979; Amdt. 176-24, 51 FR 5974, Feb. 18, 1986]

§ 176.415 Permit requirements for blasting agents, ammonium nitrates, and certain ammonium nitrate mixtures.

(a) Except as provided in paragraph (b) of this section, before any of the following material is loaded on or unloaded from a vessel at any waterfront facility in the United States, its territories, or its possessions (except Panama Canal Zone), the carrier concerned must obtain written permission from the nearest District Commander, U.S. Coast Guard or Captain of the Port:

(1) Ammonium nitrate (organic coating).

(2) Ammonium nitrate mixtures containing more than 60 percent ammonium nitrate, ammonium nitrate-phosphate, or blasting agents or ammonium nitrate-fuel oil mixtures, packaged in a paper bag, burlap bag, or other nonrigid combustible packaging, or any rigid container with combustible inside packagings.

(3) Any other ammonium nitrate or ammonium nitrate mixture not listed in § 176.410(a) or (b).

(b) Any of the following may be loaded on or unloaded from a vessel at any waterfront facility without a permit:

(1) Ammonium nitrate (no organic coating) in a rigid container with non-combustible inside packaging.

(2) Ammonium nitrate fertilizer (containing no more than 0.2 percent carbon) if the nearest District Commander, U.S. Coast Guard or Captain of the Port is notified at least 24 hours in advance of any loading or unloading in excess of 1,000 pounds in any one vessel (See footnote 1 to § 173.182).

(3) Ammonium nitrate-phosphate in a rigid container with non-combustible inside packaging.

(4) Ammonium nitrate-carbonate mixture containing 40 percent or more fine calcium carbonate or dolomite.

(5) Non-acidic ammonium nitrate mixed fertilizer containing less than 5 per cent organic material and 60 per cent or less ammonium nitrate.

(6) Blasting agent, n.o.s. and ammonium nitrate-fuel oil mixtures in a rigid container with non-combustible inside packaging.

(c) Before a permit may be issued the following requirements must be met in addition to any others the District Commander or Captain of the Port may require:

(1) If the material is ammonium nitrate (organic coating), ammonium nitrate-phosphate, or blasting agents or ammonium nitrate-fuel oil mixtures in non-rigid combustible packaging or in a rigid container with combustible inside packaging, it must be loaded or unloaded at a facility remote from populous areas or high value or high hazard industrial facilities so that in the event of fire or explosion loss of lives and property may be minimized;

(2) If the material is ammonium nitrate (organic coated) in rigid metal drums with non-combustible inside packagings, an ammonium nitrate mixture containing more than 60 percent ammonium nitrate, or ammonium nitrate-phosphate, in rigid containers with combustible inside packagings, it must be loaded or unloaded at a facility removed from congested areas or high value or high hazard industrial facilities;

(3) Each facility at which the material is to be loaded or unloaded must conform with the requirements of the port security and local regulations and must have an abundance of water readily available for fire fighting; and

(4) Each facility at which the material is to be loaded or unloaded must be located so that each vessel to be loaded or unloaded has an unrestricted passage to open water. Each vessel must be moored bow to seaward, and must be maintained in a mobile status during loading, unloading, or handling operations by the presence of tugs or the readiness of engines. Each vessel must have two wire towing hawsers, each having an eye splice, lowered to

the water's edge, one at the bow and the other at the stern.

(5) If the material is ammonium nitrate (organic coated), ammonium nitrate-phosphate, an ammonium nitrate mixture containing more than 60 percent ammonium nitrate, or blasting agents or ammonium nitrate-fuel oil mixtures in non-rigid combustible packaging and loaded in freight containers or roll-on, roll-off highway vehicles, it may be loaded or unloaded at a non-isolated facility provided that facility meets the approval of the Coast Guard Captain of the Port.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976]

EDITORIAL NOTE: For Federal Register citations affecting § 176.415 see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 176.419 Flammable solids or oxidizers transported with foodstuffs.

Each package containing a flammable solid or an oxidizer, bearing a Poison label and being transported on a vessel must be stowed separate from foodstuffs.

Subpart K—[Reserved]

Subpart L—Detailed Requirements for Poison A, Poison B, and Irritating Materials

§ 176.600 General stowage requirements.

(a) Each package bearing a Poison label and being transported on a vessel must be stowed well away from living quarters and any ventilation ducts serving living quarters and separate from foodstuffs.

(b) Each package bearing both a Poison Gas label and a Flammable Gas label must be segregated as a flammable compressed gas.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40691, Sept. 20, 1976]

§ 176.605 Care following leakage or sifting of poisons A or B.

A hold or compartment containing a package of Poison A or B which has leaked or sifted must be thoroughly cleaned and decontaminated after the

cargo is unloaded and before the hold or compartment is used for the stowage of any other cargo.

Subpart M—Detailed Requirements for Radioactive Materials

SOURCE: Amdt. 176-15, 48 FR 10245, Mar. 10, 1983, unless otherwise noted.

§ 176.700 General stowage requirements.

(a) Radioactive materials must not be stowed in the same hold with mail bags.

(b) A package of radioactive materials which in still air has a surface temperature more than 5° C (9° F) above the ambient air may not be over-stowed with any other cargo. If the package is stowed under deck, the hold or compartment in which it is stowed must be ventilated.

(c) Each Fissile Class III shipment must be stowed in a separate hold, compartment, or defined deck area and be separated by a distance of at least six meters (20 feet) from all other Radioactive Category II- or III-Yellow labeled packages.

(d) For a shipment of radioactive materials requiring supplemental operational procedures, the shipper must furnish the master or person in charge of the vessel a copy of the necessary operational instructions.

(e) A person may not remain unnecessarily in a hold, or compartment, or in the immediate vicinity of any package on deck, containing radioactive materials.

(The information collection requirements in paragraph (d) were approved by the Office of Management and Budget under control numbers 2137-0534, 2137-0535 and 2137-0536)

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 176-15, 48 FR 10245, Mar. 10, 1983, as amended by Amdt. 176-15, 48 FR 31220, July 7, 1983; Amdt. 176-23, 50 FR 41523, Oct. 11, 1985]

§ 176.704 Requirements relating to transport indexes.

(a) The sum of the transport indexes for all packages of radioactive materials not in freight container on board a vessel, may not exceed 200.

(b) Except as provided in paragraph (e) of this section, the sum of transport indexes for packages not in a freight container may not exceed 50 in any hold, compartment, or defined deck area. Each group of radioactive material packages must be separated by a distance of at least six meters (20 feet) at all times.

(c) Except as provided in paragraph (e) of this section, the number of freight containers with packages of radioactive materials contained therein must be limited so that the total sum of the transport indexes in the containers in any hold or defined deck area does not exceed 200, and:

(1) The sum of transport indexes for any individual freight container, or group of freight containers, does not exceed 50; and

(2) Each freight container or group of freight containers is handled and stowed in such a manner that groups are separated from each other by a distance of at least six meters (20 feet).

(d) The limitations specified in paragraphs (a), (b), and (c) of this section do not apply to consignments of low specific activity materials if the packages are marked "RADIOACTIVE LSA" and no Fissile Class II or Fissile Class III radioactive materials are included in the shipment.

(e) For exclusive use shipments, the limitations specified in paragraphs (b) and (c) of this section do not apply if:

(1) For packages not in freight containers, the sum of the transport indexes of Fissile Class II packages does not exceed 50 in each hold;

(2) For packages in freight containers, the radiation level does not exceed 200 millirem per hour at any point on the surface and 10 millirem at two meters (6 feet) from the outside surface of the freight container and the sum of transport indexes of Fissile Class II packages does not exceed 50 in each freight container and 200 in each hold or defined deck area; and

(3) Each group of Fissile Class II packages is separated from other radioactive material by a distance of at least six meters (20 feet) at all times.

(f) The limitations specified in paragraphs (a) through (e) of this section

do not apply when the entire vessel is reserved or chartered for use by a single shipper under exclusive use conditions if the number of Fissile Class II and Fissile Class III packages of radioactive materials aboard the vessel does not exceed the amount authorized in §§ 173.451 through 173.459 of this subchapter. The entire shipment operation must be approved by the Office of Hazardous Materials Transportation (OHMT) in advance.

§ 176.708 Segregation distance table.

(a) Table III applies to the stowage of packages of radioactive materials on board a vessel with regard to transport index numbers which are shown on the labels of individual packages. Radioactive Category II or III-Yellow labeled packages may not be stowed any closer to living accommodations, regularly occupied working spaces, spaces that may be continually occupied by any person (except those spaces exclusively reserved for couriers specifically authorized to accompany such packages), and undeveloped film than the distance specified to Table III. Where only one consignment of a radioactive substance is to be loaded on board a vessel under exclusive use conditions, the appropriate segregation distance may be established by demonstrating that the direct measurement of the radiation level at regularly occupied working spaces and living quarters is less than 0.75 millirem per hour. More than one consignment may be loaded onboard a vessel with the appropriate segregation distance established by demonstrating that direct measurement of the radiation level at regularly occupied working spaces and living quarters is less than 0.75 millirem per hour, provided that the vessel has been chartered for the exclusive use of a competent person specialized in the carriage of radioactive material. Stowage arrangements shall be predetermined for the entire voyage, including any radioactive substances to be loaded at ports of call enroute. The radiation level shall be measured by a responsible person skilled in the use of monitoring instruments.

TABLE III—Continued

Sum of transport indexes of the packages	Minimum distance in meters from living accommodation or regularly occupied working space	Minimum distance in meters from undeveloped film and plates																															
		1 day voyage				2 day voyage				4 day voyage				10 day voyage				20 day voyage				30 day voyage				40 day voyage				50 day voyage			
Cargo thickness in meters (unit density)																																	
		Nil	1	Nil	1	2	Nil	1	2	Nil	1	2	Nil	1	2	Nil	1	2	Nil	1	2	Nil	1	2	Nil	1	2	Nil	1	2			
0.1 to 0.5.....	2	X	X	2	X	X	3	X	X	4	X	X	6	2	X	8	2	X	10	3	X	11	3	X	12	3	X	12	3	X			
0.6 to 1.0.....	2	X	3	X	X	4	X	X	5	2	X	8	2	X	11	3	X	13	4	X	15	4	X	17	4	X	17	4	X				
1.1 to 2.0.....	3	X	4	X	X	5	2	X	7	2	X	11	3	X	15	4	X	19	5	X	22	5	X	24	6	X	24	6	X				
2.1 to 3.0.....	4	X	5	X	X	6	2	X	9	2	X	13	4	X	19	5	X	23	6	X	27	7	X	30	7	X	30	7	X				
3.1 to 5.0.....	4	X	6	2	X	8	2	X	11	3	X	17	4	X	24	6	X	30	7	X	34	8	X	38	9	X	38	9	X				
5.1 to 10.0.....	6	2	8	2	X	11	3	X	15	4	X	24	6	X	34	8	X	42	10	3	48	12	3	54	13	3	54	13	3				
10.1 to 20.0.....	6	2	11	3	X	15	4	X	22	6	X	34	8	X	48	12	3	59	14	4	68	16	4	76	18	5	76	18	5				
20.1 to 30.0.....	10	3	13	4	X	19	5	X	26	7	X	42	10	3	59	14	4	72	17	4	83	20	5	93	22	6	93	22	6				
30.1 to 50.0.....	13	3	17	4	X	24	6	X	34	8	X	54	13	3	76	18	5	92	23	6	110	26	7	120	29	7	120	29	7				
50.1 to 100.0.....	16	5	24	6	X	34	8	X	48	12	3	76	18	5	110	25	6	130	32	8	150	36	9	170	40	10	170	40	10				
100.1 to 150.0.....	22	6	30	7	X	42	10	3	59	14	4	93	22	6	130	31	8	160	39	10	185	45	11	(?)	50	12	(?)	50	12				
150.1 to 200.0.....	26	6	34	8	X	48	12	3	68	16	4	110	28	7	150	36	9	185	43	11	(?)	51	13	(?)	58	14	(?)	58	14				
200.1 to 300.0.....	32	8	42	10	3	59	14	4	83	20	5	130	32	8	185	44	11	(?)	55	13	(?)	63	15	(?)	70	17	(?)	70	17				
300.1 to 400.0.....	36	9	48	12	3	68	16	4	95	23	6	150	36	9	(?)	50	13	(?)	63	15	(?)	73	18	(?)	81	20	(?)	81	20				

Note:

- (1) X—indicates that thickness of screening cargo is sufficient without any additional segregation distance.
- (2) By using 2 meters of intervening unit density cargo for persons and 3 meters for film and plates, no distance shielding is necessary for any length of voyage specified.
- (3) Using 1 steel bulkhead or steel deck—multiply segregation distance by 0.8, using 2 steel bulkheads or steel decks—multiply segregation distance by 0.64.
- (4) "Cargo of Unit Density" means cargo stowed at a density of 1 ton (metric) per cubic meter, where the density is less than this the depth cargo specified must be increased in proportion.
- (5) "Minimum distance" means the least in any direction whether vertical or horizontal from the outer surface of the nearest package.
- (6) The total consignment on board at any time must not exceed transport indexes totalling 200, unless carried under the provisions of § 176.704(f). The figures below the double line of the table should be used in such a contingency.
- (7) Not to be carried unless screening by other cargo and bulkheads can be arranged in accordance with the other columns.

§ 176.710

§ 176.710 Care following leakage or sifting of radioactive materials.

(a) In case of fire, collision, or breakage involving any shipment of radioactive materials, other than materials of low specific activity, the radioactive materials must be segregated from unnecessary contact with personnel. In case of obvious leakage, or if the inside container appears to be damaged, the stowage area (hold, compartment, or deck area) containing this cargo must be isolated as much as possible to prevent radioactive material from entering any person's body through contact, inhalation, or ingestion. No person may handle the material or remain in the vicinity unless supervised by a qualified person.

(b) A hold or compartment in which leakage of radioactive materials has occurred may not be used for other cargo until it is decontaminated in accordance with the requirements of § 176.715.

(c) For reporting requirements, see § 171.15 of this subchapter.

§ 176.715 Contamination control.

(a) Each hold, compartment, or deck area used for the transportation of low specific activity radioactive materials under exclusive use conditions shall be surveyed with appropriate radiation detection instruments after each use. Such holds, compartments, and deck areas may not be used again until the radiation dose rate at any accessible surface is less than 0.5 millirem per hour, and the removable (non-fixed) radioactive surface contamination is not greater than the limits prescribed in § 173.443 of this subchapter.

Subpart N—Detailed Requirements for Corrosive Materials

§ 176.800 General stowage requirements.

(a) Each package of a corrosive material being transported on a vessel must be stowed well away from living quarters, foodstuffs, and cargo of an organic nature.

(b) Each package of a corrosive material must be stowed so as to be readily observable except when stowed in a freight container, or a barge, carried

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aboard a vessel, that is readily observable.

(c) A package of corrosive material may not be stowed over any combustible substance.

(d) Glass carboys containing corrosive material may not be stowed on board any vessel, other than a barge, more than two tiers high unless each carboy is boxed or crated with neck protection extending to the sides of the carboy box. This protective construction must be strong enough to permit stacking one on top of the other.

(e) A corrosive material may not be stowed over a hold or compartment containing cotton unless the deck is of steel and the hatch is fitted with a tight coaming. In addition, the deck must be tight against leakage and the corrosive material may not be stowed over the square of the hatch.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40691, Sept. 20, 1976]

§ 176.805 On deck stowage.

(a) When break bulk corrosive materials being transported on a vessel are stowed on deck:

(1) Provisions must be made for leakage from any package to drain away from other cargo into an overboard scupper or freeing port. The drainage may not enter an enclosed drainage system other than a direct overboard scupper. If the stowage is not practical, sufficient clean dry sand must be placed under and around the lower tier of packages to absorb any leakage.

(2) Dunnage must be provided on the deck and arranged so that any leakage will be apparent.

(3) Any leakage that occurs must be washed down, using liberal quantities of water.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40691, Sept. 20, 1976]

Subpart O—Detailed Requirements for Other Regulated Materials (ORM)**§ 176.900 Stowage of cotton and fibers generally.**

(a) Cotton or fibers being transported on a vessel must be securely baled and bound. Each cotton or fiber bale must be covered with bagging on at least three-fourths of its surface, including both ends. Cut cotton linters may be accepted for transportation by vessel when baled and covered with bagging on the soft sides only if the bale is compressed to a density of at least 32 pounds per cubic foot and it is bound with at least six bands per bale. Any poorly compressed bale or any bale having damaged bindings may not be transported by vessel.

(b) Each wet bale must be stowed separately from any dry bales, preferably in a 'tween deck space and not overstowed. Any bale which is saturated with water may not be transported by vessel.

(c) Bales showing contact with oil or grease may not be accepted for transportation by vessel.

(d) Cotton or fibers must be stowed in a hold or compartment in accordance with the following requirements:

(1) All traces of oil or residue in the hold or compartment must be removed;

(2) A recently painted hold or compartment may not be used unless it is thoroughly dry;

(3) Each ventilation cowl serving the hold or compartment must be fitted with a spark screen;

(4) When a bulkhead of the hold or compartment is common with a boiler room, engine room, coal bunker, or galley and subjected to heat, a wooden bulkhead must be erected between the bulkhead and any cotton or fibers. This wooden bulkhead must be at least 6 inches from a boiler room bulkhead, and at least 2 inches from an engine room, coal bunker, or galley bulkhead;

(5) Each 'tween deck hatch must be closed with hatch covers, tarpaulins, and dunnage; however, metal hatch covers which are sealed by other means to provide equivalent protection may be used;

(6) Each hold or compartment must be equipped with a carbon dioxide, steam smothering, or overhead water sprinkler system or other approved fixed smothering system. Before loading, the extinguishing system must be examined to ensure that it is in good working condition; and

(7) Each hold or compartment must be clear of all debris and swept broom clean before loading.

(e) Naked lights or any fire likely to produce sparks are not permitted on the vessel, dock area, or any lighters alongside during loading or unloading of cotton or fibers.

(f) Upon completion of stowage, each hatch opening must be completely closed. Where required, tarpaulins must be fitted and secured in place to provide a tight hold. During a period of temporary stoppage of loading or unloading, a hatch may be left open. However, a fire watch, designated by the master or officer-in-charge, must be stationed in the hold or compartment in which the cotton or fibers are stowed.

(g) At least one fire hose must be connected while cotton or fibers are being loaded or unloaded. Each fire pump must be operated before any loading or unloading. Pressure must be maintained on each fire main during the loading and the fire hose laid out ready for immediate use. Portable fire extinguishers must be placed to be readily available. The fire hose, fire pumps and fire extinguishers may be the vessel's equipment or shore equipment.

(h) Smoking is not permitted on a vessel during the loading or unloading of cotton or fibers except at those times and in those places designated by the master or officer-in-charge. "NO SMOKING" signs must be conspicuously posted in appropriate places and the officer in charge of the loading or unloading must see that they are observed.

(i) All cotton or fibers must be segregated in accordance with the requirements applicable to flammable solids (see § 176.83(b)) but may not be stowed in the same hold with other Flammable solids.

(j) Cotton or fibers may be stowed in the same hold over bulk sulfur if the

sulfur has been trimmed and leveled and the hold is thoroughly cleaned of sulfur dust. A tight floor of two 1-inch crossed clean dunnage boards must be laid on the sulfur before cotton or fibers are stowed. These substances may be stowed alongside each other in the same hold if they are separated by a tight dustproof wood bulkhead.

(k) Cotton or fibers may not be stowed in a 'tween deck hold over bulk sulfur in a lower hold unless the 'tween deck hold has been thoroughly cleaned of all sulfur dust and the 'tween deck hatch covers are in place and covered with tarpaulins and dunnage.

(l) Cotton or fibers may not be stowed in the same hold with any combustible liquid. Cotton or fibers may be stowed in a hold adjacent to any hold above, or any hold below one containing these materials if the holds are separated by a tight steel bulkhead or deck.

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976, as amended by Amdt. 176-1A, 41 FR 40691, Sept. 20, 1976]

§ 176.901 Stowage of cotton or fibers with rosin or pitch.

Cotton or fibers being transported on a vessel may not be stowed in the same hold or compartment with rosin or pitch being transported on the same vessel. When separate stowage is not practicable, the cotton or fibers may be stowed in the same hold or compartment with rosin or pitch if they are separated by clean dunnage or a cargo of a non-combustible nature. When stowage within the same hold or compartment involves large amounts of cotton or fibers and rosin or pitch, the rosin or pitch must be floored off with at least two layers of 1-inch dunnaging and the cotton or fibers stowed above.

§ 176.902 Stowage of cotton or fibers with vegetable, animal, or rosin oil.

(a) When practicable, fish oil, whale oil, vegetable oil, animal oil, or rosin oil being transported on a vessel may not be stowed in the same hold or compartment with any cotton or fibers being transported on the same vessel. When separate stowage is not practicable, the cotton and fibers must be

stowed so that there is no contact with any of those oils. If cotton or other fibers are transported over any of those oils, a tight 2-inch floor of dunnage boards must be laid over the oils before the cotton or fibers are placed on top.

(b) Cotton or fibers may not be stowed in a hold below one in which any of those oils are stowed unless the 'tween deck hatch is fitted with a tight coaming and the deck is of steel and made tight against leakage.

§ 176.903 Stowage of cotton fibers with coal.

Cotton or fibers being transported on a vessel may not be stowed in the same hold with coal. They may be stowed in adjacent holds if the holds are separated by a tight steel bulkhead and the cotton or fibers are dunnaged at least 2 inches off the bulkhead. Cotton or fibers may be stowed in a hold above or below one in which coal is stowed if there is a tight steel intervening deck and all hatch covers are in place and covered with tarpaulins.

§ 176.904 Cotton or fibers with synthetic nitrate of soda.

Cotton or fibers being transported on a vessel may not be stowed in the same hold with synthetic nitrate of soda. They may be stowed in adjacent holds if the holds are separated by a tight steel bulkhead. Cotton or fibers may be stowed in a hold above or below one in which synthetic nitrate of soda is stowed if there is a tight steel intervening deck and all hatch covers are in place and covered with tarpaulins.

§ 176.905 Motor vehicles or mechanical equipment powered by internal combustion engines.

(a) A motor vehicle or any mechanized equipment powered by an internal combustion engine is subject to the requirements of this subchapter when carried as cargo on a vessel if the engine or fuel tank contains fuel or if either battery cable is connected. Such vehicles or equipment are excepted from the requirements of this

subchapter if the following requirements are met:

(1) For a motor vehicle or mechanical equipment having an internal combustion engine employing fuel classed as flammable by this subchapter, the fuel tank is empty, the engine is run until it stalls for lack of fuel, both battery cables are disconnected, and no hazardous material is stowed in the vehicle or equipment, or

(2) For motor vehicle or mechanical equipment having an internal combustion engine employing liquid fuel classed as combustible by this subchapter, the fuel tank contains 110 gallons of fuel or less, both battery cables are disconnected and no hazardous material is stowed in the vehicle or equipment.

(b) Before being loaded on a vessel, each vehicle must be inspected for leaks. A vehicle showing any signs of leakage may not be transported.

(c) Each vehicle stowed in a hold or compartment must have the battery cables disconnected and secured away from the battery terminals, unless it is stowed in a hold or compartment designated by the administration of the country in which the vessel is registered to be specially suited for vehicles. See 46 CFR 70.10-44 and 90.10-38 for U.S. vessels.

(d) The fuel tank of a vehicle being transported as cargo on a vessel may not be more than one-fourth full.

(e) All equipment used for handling vehicles must be designed so that the fuel tank and fuel system are protected from stress that might cause rupture or other damage incident to handling.

(f) Whenever possible each vehicle must be stowed to allow for its inspection during transit.

(g) Two hand-held, portable, dry chemical fire extinguishers of at least 10 pounds capacity each must be separately located in an accessible location in each hold or compartment in which any motor vehicle is stowed.

(h) "NO SMOKING" signs must be conspicuously posted at each access opening to the hold or compartment.

(i) Except when being transported in a space specially suited for vehicles, the following additional requirements

apply to the stowage of any vehicles containing a flammable liquid:

(1) Each portable electrical light and hand flashlight used in the stowage area must be an approved, explosion-proof type. All electrical connections for any portable light must be made to outlets outside the space in which any vehicle is stowed;

(2) Each hold or compartment must be ventilated and fitted with an overhead water sprinkler system or fixed fire extinguishing system;

(3) Each hold or compartment must be equipped with a smoke or fire detection system; and

(4) All electrical equipment in the hold or compartment other than fixed explosion-proof lighting must be disconnected from its power source at a location outside the hold or compartment during the handling and transportation of any vehicle. Where the disconnecting means is a switch or circuit breaker, it must be locked in the open position until all vehicles have been discharged.

(j) Motor vehicles may be refueled when necessary in the hold of a vessel in accordance with § 176.78.

(k) Motor vehicles with fuel in their tanks may be stowed in a closed freight container if the following warning is affixed to the access doors: "WARNING—MAY CONTAIN EXPLOSIVE MIXTURES WITH AIR—KEEP IGNITION SOURCES AWAY WHEN OPENING." The warning must be on a contrasting background and must be readily legible from a distance of 25 feet.

(l) No hazardous materials other than motor vehicles or mechanized equipment and their equipment may be stowed in the same hold or compartment with any vehicle having a flammable liquid or flammable compressed gas in its tank.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 176-1, 41 FR 16110, Apr. 15, 1976. Redesignated and amended by Amdt. 176-1A, 41 FR 40690, Sept. 20, 1976]

EDITORIAL NOTE: For Federal Register citations affecting § 176.905, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 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.)

[Amdt. 176-6, 43 FR 56668, Dec. 4, 1978]

PART 177—CARRIAGE BY PUBLIC HIGHWAY

Subpart A—General Information and Regulations

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Subpart C—Segregation and Separation Chart of Hazardous Materials

- 177.848 Segregation and separation chart of hazardous materials.

Subpart D—Vehicles and Shipments in Transit; Accidents

- 177.853 Transportation and delivery of shipments.
 177.854 Disabled vehicles and broken or leaking packages; repairs.
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Subpart E—Regulations Applying to Hazardous Material on Motor Vehicles Carrying Passengers for Hire

- 177.870 Regulations for passenger carrying vehicles.

APPENDIX A—RELATIONSHIP BETWEEN ROUTING REQUIREMENTS IN PART 177 WITH STATE AND LOCAL REQUIREMENTS

AUTHORITY: 49 App. U.S.C. 1803, 1804, 1805, 49 CFR Part 1.

EDITORIAL NOTE: Nomenclature changes affecting Part 177 appear at 50 FR 45732, Nov. 1, 1985.

Subpart A—General Information and Regulations

- § 177.800 Purpose of regulations in Parts 170-189 of this chapter.

(a) To promote the uniform enforcement of law and to minimize the dangers to life and property incident to the transportation of hazardous materials, by private, common and contract carriers, by motor vehicle engaged in interstate or foreign commerce, the regulations in Parts 170-189 of this

subchapter are prescribed to define these articles for motor vehicle transportation purposes, and to state the precautions that must be observed by the carrier in handling them while in transit. It is the duty of each such carrier to make the prescribed regulations effective and to thoroughly instruct employees in relation thereto.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For Federal Register citations affecting § 177.800, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 177.801 Scope of regulations in Parts 170-189 of this chapter.

(a) Hazardous materials except such as may not be accepted and transported under Parts 170-189 of this subchapter, may be accepted and transported by private, common and contract carriers by motor vehicle engaged in interstate or foreign commerce, provided they are in proper condition for transportation and are certified as being in compliance with Parts 170-189 of this subchapter, and provided the method of manufacture, packing, and storage, so far as they affect safety in transportation, are open to inspection by a duly authorized representative of the initial carrier or of the Bureau of Explosives. Shipments of explosives or other dangerous articles not in proper condition for transportation, or loaded or stayed as required, or certified as to proper packing, marking and description as required in Parts 170-189 of this subchapter, must not be accepted for transportation or transported.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For Federal Register citations affecting § 177.801, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 177.802 Application of regulations in Parts 170-189 of this chapter.

(a) Parts 170-189 of this subchapter apply to all private, common and contract carriers by motor vehicle transporting hazardous materials as defined by Department of Transportation "Regulations for Transportation of Hazardous Materials by Land and

Water in Rail Freight, Express and Baggage Services and by Motor Vehicle (Highway) and Water". When shipments are accepted by motor vehicle for further transportation by rail express (see also paragraph (c) of this section), rail baggage (see also paragraph (d) of this section), rail freight or by water on board vessel, they must, in addition to Parts 170-189 of this subchapter, comply with the applicable regulations for the service by which they are to be transported.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 177-24, 38 FR 5314, Feb. 27, 1973; Amdt. 177-35, 41 FR 16130, Apr. 15, 1976]

§ 177.803 Export and import shipments by domestic carriers by motor vehicles.

See § 171.12 of this subchapter.

[Amdt. 177-35, 41 FR 16130, Apr. 15, 1976]

§ 177.804 Compliance with Federal Motor Carrier Safety Regulations.

Motor carriers and other persons subject to this part shall comply with 49 CFR Parts 390 through 397 (excluding §§ 397.3 and 397.9) to the extent those rules apply.

[Amdt. 177-39, 43 FR 4859, Feb. 6, 1978]

§ 177.805 Canadian shipments and packagings.

(a) Canadian shipments and packagings may be carried under conditions specified in § 171.12a of this subchapter.

[Amdt. 177-7, 34 FR 17524, Oct. 30, 1969, as amended by Amdt. 177-35, 41 FR 16130, Apr. 15, 1976; Amdt. 177-67, 50 FR 41521, Oct. 11, 1985]

§ 177.806 U.S. Government material.

(a) Shipments of hazardous materials offered by or consigned to the Department of Defense (DOD) of the U.S. Government must be packaged, including limitations of weight, in accordance with the regulations in this subchapter or in containers of equal or greater strength and efficiency as required by DOD regulations.

(1) Hazardous materials sold by the DOD in packagings that are not marked in accordance with the requirements of this subchapter may be

shipped from DOD installations if the DOD certifies in writing that the packagings are equal to or greater in strength and efficiency than the packaging prescribed in this subchapter. The shipper shall obtain such a certification in duplicate for each shipment. He shall give one copy to the originating carrier and retain the other for no less than 1 year.

(b) Shipments of radioactive materials, made by or under the direction or supervision of the U.S. Department of Energy or the Department of Defense, and which are escorted by personnel specially designated by or under the authority of those agencies, for the purpose of national security, are exempt from the regulations in Parts 170-189 of this subchapter.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For Federal Register citations affecting § 177.806, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 177.807 Reporting hazardous materials incidents.

When an incident occurs during transportation in which a hazardous material is involved, a report may be required (see §§ 171.15 and 171.16 of this subchapter).

[Amdt. 177-69, 52 FR 8592, Mar. 19, 1987]

§ 177.808 Connecting carrier shipments.

Shipments of hazardous materials offered by connecting transportation lines must comply with Parts 170-189 of this subchapter.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 177-35, 41 FR 16130, Apr. 15, 1976]

§ 177.809 Carrier's material and supplies.

The regulations in Parts 170-189 of this subchapter apply to all shipments of hazardous materials, including carrier's material and supplies.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 177-35, 41 FR 16130, Apr. 15, 1976]

§ 177.810 Vehicular tunnels.

Except as regards radioactive materials, nothing contained in Parts 170-189 of this subchapter shall be so con-

strued as to nullify or supersede regulations established and published under authority of State statute or municipal ordinance regarding the kind, character, or quantity of any hazardous material permitted by such regulations to be transported through any urban vehicular tunnel used for mass transportation. For radioactive materials, see § 177.825 of this part.

[Amdt. 177-52, 46 FR 5316, Jan. 19, 1981]

§ 177.811 Astray shipments.

(a) Any carrier in possession of an astray shipment of hazardous materials (other than explosives) shall forward it promptly to its destination, if known, after inspection has shown the package to be in proper condition for transportation.

(b) If the package of hazardous materials is not labeled and the exact classification of the contents is not determinable, the carrier shall apply a **FLAMMABLE LIQUID** label.

[Amdt. 177-35, 41 FR 16130, Apr. 15, 1976, as amended by Amdt. 177-35A, 41 FR 40691 Sept. 20, 1976]

§ 177.812 Containers required.

Containers required for hazardous materials are prescribed in Part 173 of this subchapter.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 177-35, 41 FR 16130, Apr. 15, 1976]

§ 177.813 Inefficient containers.

The results of experience gained by examination of broken or leaking containers must be recorded by the Bureau of Explosives to the end that further use of any particular kind of container shown by experience to be inefficient, may be prohibited by the Department.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

§ 177.814 Retention of manufacturer's certificate and retest reports.

(a) Each motor carrier who uses a cargo tank vehicle shall have in his files a certificate or manufacturer's data report signed by a responsible official of the manufacturer or fabricator of the cargo tank, or a competent

testing agency, certifying that the cargo tank identified in the certificate was manufactured and tested in accordance with the requirements contained in the specification under which the cargo tank was constructed. The certificate and any other data furnished as required by the specification must be retained at the principal office of the carrier during the time that the cargo tank is used by the carrier and for one year thereafter.

(1) Except for specifications MC 330 and MC 331 cargo tanks, a motor carrier may himself perform the tests and inspections to determine whether the tank meets the requirements of the specification. If the motor carrier performs the tests and inspections and determines that the tank conforms to the specification, he may use the tank if he retains the test data, in place of a certificate, in his files at his principal office for as long as he uses the tank and one year thereafter.

(2) A motor carrier using a specification MC 330 cargo tank for which such carrier is unable to obtain the manufacturer's data report required by the specification may copy the information contained on the cargo tank's identification plate and ASME Code plate and retain such information as required by this section.

(3) Each motor carrier who uses a specification cargo tank which he does not own and has not tested or inspected shall obtain a copy of the manufacturer's certificate or manufacturer's data report and retain it in his files at his principal office during the time he uses the tank and for one year thereafter. A motor carrier using a specification MC 330 cargo tank which he does not own may copy the information contained on the cargo tank's identification plate and ASME Code plate if the manufacturer's data report is not available from the owner of the tank.

(b) Upon a written request to, and with the approval of, the Regional Director of Motor Carrier Safety, for the region in which a motor carrier has his principal place of business, a motor carrier may retain the certificate and other data specified in paragraph (a) of this section at a regional or terminal office. The address and jurisdic-

tions of the Regional Directors of Motor Carrier Safety are shown in § 390.40 of Chapter III of this title.

(c) *Withdrawal of certification.* See § 177.824(l) of this subchapter.

(d) A copy of retest and inspection reports required by §§ 173.33 and 177.824 of this subchapter and all records of repairs to each cargo tank vessel must be retained in the same file with the manufacturer's certificate or manufacturer's data report for that tank as specified in paragraph (a) of this section. This provision does not apply to a motor carrier leasing a cargo tank for less than 30 days if the lessor has the records required by this section in his files.

[Amdt. 177-31, 39 FR 41742, Dec. 2, 1974, as amended by Amdt. 177-35, 41 FR 17736, Apr. 28, 1976; Amdt. 177-37, 41 FR 40691, Sept. 20, 1976; Amdt. 177-70, 52 FR 13043, Apr. 20, 1987]

§ 177.815 Lost or destroyed labels.

Each carrier shall maintain an adequate supply of the labels specified in Subpart E of Part 172 of this subchapter to replace those that become lost or destroyed. The carrier shall replace each lost or destroyed label based on the information on the shipping papers.

[Amdt. 177-35, 41 FR 16130, Apr. 15, 1976]

§ 177.816 Training.

(a) *Applicability.* No carrier may transport a flammable cryogenic liquid in a cargo tank on a public highway unless the driver of the vehicle has received the training specified in paragraph (b) of this section. This section applies only to an originating carrier when an interchange operation is involved.

(b) *Training required.* Each carrier subject to paragraph (a) of this section must:

(1) Provide the required training in written form;

(2) Provide the required training before a driver may drive a motor vehicle transporting a flammable cryogenic liquid in a cargo tank and at least one every 24 months thereafter;

(3) Include in the training program instructions pertaining to:

(i) Requirements in this subchapter applicable to cryogenic liquids, generally;

(ii) Requirements in the Federal Motor Carrier Safety Regulations, Parts 390-397 of this title, applicable to drivers;

(iii) The properties and potential hazards of the particular material to be transported;

(iv) The safe operation of the type of cargo tank the driver will be operating, including its handling characteristics, emergency features and loading limitations; and

(v) Procedures to be followed in case of accident or other emergency, including unanticipated pressure increase or decrease.

(c) *Record of training.* A record certifying that current training has been provided in accordance with paragraph (b) of this section shall be retained in the driver's qualification file (see § 391.51 of this title) for as long as the driver is employed by that carrier and for 90 days thereafter. The record shall include:

(1) The driver's name and operators license number;

(2) The date the driver was provided the training and the due date for subsequent training;

(3) A copy of the written training material required by paragraph (b) of this section or a reference indicating the location of a readily available copy; and

(4) The name and address of the person providing the training.

(Approved by the Office of Management and Budget under control number 2137-0540)

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 177-60, 48 FR 27699, 27713, June 16, 1983]

§ 177.817 Shipping papers.

(a) *General requirements.* A carrier may not transport a hazardous material unless it is accompanied by a shipping paper that is prepared in accordance with §§ 172.200, 172.201, 172.202, and 172.203 of this subchapter.

(b) *Shipper certification.* An initial carrier may not accept a hazardous material offered for transportation unless the shipping paper describing

the material includes a shipper's certification which meets the requirements in § 172.204 of this subchapter. Except for a hazardous waste, the certification is not required for shipments to be transported entirely by private carriage and for bulk shipments to be transported in a cargo tank supplied by the carrier.

(c) *Requirements when interlining with carriers by rail.* A motor carrier shall mark on the shipping paper required by this section, if it offers or delivers a freight container or transport vehicle to a rail carrier for further transportation;

(1) A description of the freight container or transport vehicle; and

(2) The kind of placard affixed to the freight container or transport vehicle.

(d) This section does not apply to any material, other than a hazardous substance or a hazardous waste, that is classed as an ORM-A, B, C or D. (See § 172.200 of this subchapter.)

(e) *Shipping paper accessibility—accident or inspection.* A driver of a motor vehicle containing hazardous material, and each carrier using such a vehicle, shall ensure that the shipping paper required by this section is readily available to, and recognizable by, authorities in the event of accident or inspection. Specifically, the driver and the carrier shall:

(1) Clearly distinguish the shipping paper, if it is carried with other shipping papers or other papers of any kind, by either distinctively tabbing it or by having it appear first; and

(2) Store the shipping paper as follows:

(i) When the driver is at the vehicle's controls, the shipping paper shall be: (A) Within his immediate reach while he is restrained by the lap belt; and (B) either readily visible to a person entering the driver's compartment or in a holder which is mounted to the inside of the door on the driver's side of the vehicle.

(ii) When the driver is not at the vehicle's controls, the shipping paper shall be: (A) In a holder which is mounted to the inside of the door on the driver's side of the vehicle; or (B) on the driver's seat in the vehicle.

[Amdt. 177-35, 41 FR 16130, Apr. 15, 1976, as amended by Amdt. 177-35A, 41 FR 40691, Sept. 20, 1976; Amdt. 177-48, 45 FR 47670, Nov. 10, 1980; Amdt. 177-65, 50 FR 11055, Mar. 19, 1985]

§ 177.818 Special instructions; flammable cryogenic liquids.

(a) No carrier may operate, and no driver may drive, a motor vehicle transporting a flammable cryogenic liquid in a package exceeding 125 gallons water capacity unless written instructions containing the following information are carried with the required shipping papers:

- (1) General precautions,
- (2) Manual venting instructions,
- (3) Emergency procedures, and
- (4) The names and telephone numbers of persons to be contacted in case of emergency or accident.

(Approved by the Office of Management and Budget under control number 2137-0539)

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 177-60, 48 FR 27700, 27713, June 16, 1983; 48 FR 50442, Nov. 1, 1983]

§ 177.821 Hazardous materials forbidden or limited for transportation.

(a) *Nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate forbidden to common carriers.* Liquid nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate, except as defined in § 173.53(e) of this chapter, may not be accepted for transportation or be transported by any common carrier by motor vehicle.

(b) *Rejection of leaking containers of liquid nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate.* Any individual container used for the transportation of liquid nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate, or any boot used therewith, found in such a condition as to permit leakage, shall be discarded and shall not thereafter be repaired for further use.

(c) *Hazardous materials forbidden or limited for transportation.* No motor carrier may accept for transportation or transport any hazardous material listed in Hazardous Materials

Table (§ 172.101 of this chapter), as "forbidden" for transportation by all motor carriers; nor, if there be any prohibition or limitation regarding the transportation of any particular hazardous material by a particular kind of motor carrier, may any such article be accepted for transportation or be transported by that kind of carrier, except as indicated in this part. (See § 177.870.)

(d) *Leaking or damaged packages of high explosive must not be accepted for transportation or transported.* Should any package of high explosive when offered for shipment show excessive dampness or be moldy or show outward signs of any oily stain or other indication that absorption of the liquid part of the explosive is not perfect, or that the amount of the liquid part is greater than the absorbent can carry, the package must be refused in every instance. The shipper must substantiate any claim that a stain is due to contact with material other than the liquid explosive ingredient of the explosive. In case of doubt the package must be rejected.

(e) [Reserved]

(f) *Smokeless powder for small arms in quantities not exceeding 100 pounds net weight transported in one car or motor vehicle may be classed as a flammable solid when examined for this classification by the Bureau of Explosives and approved by the Director, OHMT.* Maximum quantity in any inside packaging must not exceed 8 pounds and inside packagings must be arranged and protected to prevent simultaneous ignition of the contents. The complete package must be a type examined by the Bureau of Explosives and approved by the Director, OHMT. Each outside package must bear a flammable solid label.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For Federal Register citations affecting § 177.821, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 177.822 Acceptable articles.

(a) Any motor carrier may accept for transportation or transport any acceptable hazardous materials listed in

the Hazardous Materials Table, § 172.101 of this subchapter: *Provided, however*, That no provision of this section shall be so construed as to permit the acceptance or transportation of liquid nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate, other than as defined in § 173.53(e) of this subchapter, by any common carrier.

(b) *Liquid nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate.* Liquid nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate, other than as defined in § 173.53(e) of this subchapter, may be transported only by motor carriers other than common carriers in containers complying with specification MC200 (§ 178.315 of this subchapter). No form of trailer may be attached.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 177-35, 41 FR 16130, Apr. 15, 1976; Amdt. 177-43 43 FR 48645, Oct. 19, 1978]

§ 177.823 Marking and placarding motor vehicles.

(a) A carrier may not move a transport vehicle containing a hazardous material unless the vehicle is marked and placarded in accordance with Part 172 or as authorized in § 171.12a of this subchapter, or unless, in an emergency:

(1) The vehicle is escorted by a representative of a state or local government;

(2) The carrier has permission from the Department; or

(3) Movement of the transport vehicle is necessary to protect life or property.

[Amdt. 177-35, 41 FR 16130, Apr. 15, 1976, as amended by Amdt. 177-67, 50 FR 41521, Oct. 11, 1985]

§ 177.824 Retesting and inspection of cargo tanks.

(a) *General.* In accordance with § 173.33 of this subchapter (cargo tank use authorization) every cargo tank and every compartment of a cargo tank authorized as a qualified container, except those cargo tanks having a capacity of 3,000 gallons or less used exclusively for the transportation of flammable liquids, must fulfill the ap-

plicable requirements as set forth in this section.

(1) Each cargo tank, except a Specifications MC-330, MC-331, or MC-338 cargo tank, must be in compliance with the testing requirements prescribed in paragraphs (a), (b), (c), and (d) of this section. Each cargo tank must be in accordance with the marking requirement of paragraph (h) of this section.

(2) Every cargo tank whether constructed in accordance with DOT specifications or being operated as a novel tank under exemption authorization shall not continue in service unless it has successfully fulfilled the testing requirements as set forth in this section.

(b) *Visual inspection requirements.* Every cargo tank shall receive an external visual inspection at least once in every 2-year period. The first such inspection shall be required at the time the next hydrostatic retest is due or prior to January 31, 1969, whichever comes first. This inspection shall be made by a responsible and experienced inspector who shall record the condition of the items set forth below. The inspection record shall be approved and signed by an authorized representative of the owner or operator. A written report of each inspection shall be retained in carrier's or owner's files for a period of 2 years after the date of inspection. Where insulation precludes external visual inspection, the cargo tank shall receive a visual internal inspection for corroded areas, defects in welds or tank sheets. Where visual inspection is precluded by both internal coating and external insulation or when the cargo tank is not equipped with a manhole, the tank shall be hydrostatically tested at 5-year intervals except as otherwise provided in paragraph (c) of this section. The tank shall not be placed in or returned to service if evidence of any unsafe condition is discovered and until such condition has been corrected. Inspection shall consist of the following items:

(1) The tank shall be inspected for: Corroded areas, bad dents, and defects in welds; defects in piping, valves, and gaskets; and other conditions, including leakage, which indicate weakness

in the tank that might render it unsafe for transportation service.

(2) Devices for tightening manhole covers must be operative and leakage at manhole covers and gaskets must be corrected.

(3) Spring-loaded safety-relief valves rated in excess of 7 p.s.i.g. shall be removed from the cargo tank and tested.

(4) All emergency devices and valves must be free from corrosion, distortion, and any damage which will prevent their normal operation.

(5) Missing or loose bolts or nuts on any flanged connection or blank flange must be replaced or tightened.

(6) Required markings on the tank shall be legible.

(7) The entire vehicle shall be inspected for and comply with the Motor Carrier Safety Regulations, Part 393, Chapter III, of this title.

(c) *Hydrostatic or pneumatic testing requirements.* In addition to the visual inspection requirements as contained in paragraph (b) of this section, hydrostatic or pneumatic testing of cargo tanks (or compartments) is required to be conducted in accordance with the provisions contained in paragraph (d) of this section to qualify as an authorized container if:

(1) The cargo tank has been out of service (transporting dangerous articles) 1 year or more, or

(2) The cargo tank has been involved in an accident in which it may have been dented, torn, or otherwise damaged so as to affect its product retention integrity, or

(3) The shell of the cargo tank as originally manufactured has been modified, or

(4) The cargo tank is operating under exemption authorization. Such tanks shall be hydrostatically tested once every calendar year unless otherwise provided for in the exemption, and shall successfully fulfill the requirements set forth in paragraph (d) of this section. No two such required tests shall be closer than 6 months.

(d) *Hydrostatic or pneumatic testing procedure.* The requalification as an authorized container of cargo tanks (or compartments) required to be hydrostatically or pneumatically tested in accordance with paragraph (a) of this section shall be based on success-

fully meeting the requirements of this paragraph.

(1) *General.* (i) If a cargo tank is compartmented each compartment shall be similarly tested with the adjacent compartment empty and at atmospheric pressure.

(ii) All closures shall be in place while the test is being made. During the test all relief devices shall be clamped, plugged or otherwise rendered inoperative. Relief devices shall be returned to their operative condition immediately after the tests are completed.

(iii) The tank or compartment must hold the prescribed pressure for at least 10 minutes. All tank valves, piping, and other accessories in communication with the lading must be pressure tested and proven tight at the tank design pressure.

(iv) All pressure bearing portions of the heating system of a cargo tank (or compartment) employing such media as steam or hot water for heating the lading shall be tested under hydrostatic pressure and proven to be tight at 14.06 kg./sq. cm (200 psig). Systems employing flues for heating the lading shall be suitably tested to insure against product leakage into the flues or into the atmosphere.

(2) *Hydrostatic test.* For Hydrostatic testing, the tank (including its domes, if any) must be completely filled with water or a liquid having a viscosity similar to water. Pressure must be gauged at the top of the tank applied in accordance with Table I following paragraph (d)(3) of this section.

(3) *Pneumatic test.* Pneumatic pressure must be applied in accordance with Table I of this paragraph. During the pneumatic test the entire surface of all joints under pressure must be coated with a solution of soap and water, heavy oil, or other materials suitable for the purpose of foaming or bubbling to indicate the presence of leaks. Other methods equally sensitive for determining leaks may be used.

TABLE I

Container type	Test pressure KG/ SQ. CM.
MC 300, 301, 302, 303, 305, 306.....	0.2109 (3 psig).
MC 304, 307	1.76 ¹ (25 ¹ psig).

TABLE I—Continued

Container type	Test pressure KG/ SQ. CM.
MC 310, 311, 312.....	0.2109 ¹ (3 ¹ psig).

¹Or 1½ times design pressure whichever is greater.

(4) *Required results.* A cargo tank (or compartment) required to be hydrostatically or pneumatically tested in accordance with paragraph (a) of this section may not be returned to service as a specification cargo tank unless it has successfully retained the applicable test pressure (see Table I in paragraph (d)(3) of this section) without leakage, undue distortion, excessive permanent expansion, or evidence of impending failure. The suitability of any repairs shall be determined by the same method of test.

(i) Cargo tanks (or compartments) with heating systems shall successfully withstand the hydrostatic pressure and examination specified in paragraph (d)(1)(iv) of this section.

(e) *Compressed gas and cryogenic liquid cargo tanks, specifications MC-330, MC-331, and MC-338.* (1) *Specification MC-330 and MC-331.* Each cargo tank constructed in compliance with specification MC-330 or MC-331 (§ 178.337 of this subchapter) must be inspected and tested in accordance with § 178.33 of this subchapter.

(2) *Specification MC-338 insulated cargo tanks.* Each insulated cargo tank constructed in compliance with specification MC-338 (§ 178.338 of this subchapter) must be tested, except for the retest pressure, in accordance with § 178.338-16(a) of this subchapter, and must be in compliance with § 178.33 of this subchapter. If the tank is opened for any reason, the cleanliness must be verified after closure in accordance with § 178.338-15.

(f) *Reporting requirements.* Each motor carrier shall file with the Chief, Federal Programs Division, Office of Motor Carrier Safety Field Operations, Federal Highway Administration, Department of Transportation, Washington, DC 20590, a written listing of all MC 330 or MC 331 cargo tanks he has in service. Each motor carrier, upon placing in service or withdrawing from service any MC 330 or MC 331 cargo tank (other than a

cargo tank used in interchange service which is reported upon by another motor carrier), shall file a supplemental report with the Office of Motor Carrier Safety Field Operations.

(1) The initial listing and each subsequent report must include the following information:

(i) The carrier's name, address, and telephone number.

(ii) One of the following statements: "Cargo tank placed in service" or "Cargo tank withdrawn from service," as appropriate, followed by the date of placement or removal;

(iii) The carrier's equipment number, manufacturer's name, manufacturer's serial number, specification MC 330 or MC 331, and "QT" (quenched and tempered) or "NQT" (not quenched and tempered).

(2) A copy of each report required by this paragraph must be retained by the carrier at its principal place of business during the period the tank is in the carrier's service and for 1 year thereafter. However, upon a written request to, and with the approval of the Regional Director of Motor Carrier Safety, for the region in which a motor carrier has his principal place of business, the carrier may maintain the reports at a regional or terminal office.

(g) *Special testing required by the Department.* Upon the showing of probable cause of the necessity for retest, the Department may require any cargo tank to be retested at any time in accordance with the requirements prescribed for its periodic retest.

(h) *Test and inspection date markings.* The month and year of the last test or visual inspection, as appropriate, must be durably and legibly marked on the tank in letters not less than 1¼ inches high. These markings must be near the metal certification plate.

(i) *Withdrawal of certification.* If, as the result of an accident or for any other reason a cargo tank no longer meets the applicable specification, the carrier shall remove the metal certification plate or make it illegible (see § 178.24(c)(1)(v) of this subchapter). The details of the conditions necessitating withdrawal of the certification

must be recorded and signed on the written certificate for that cargo tank. The vehicle owner shall retain the certificate for at least 1 year after withdrawal of the certification.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For Federal Register citations affecting § 177.824, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 177.825 Routing and training requirements for radioactive materials.

(a) The carrier shall ensure that any motor vehicle which contains a radioactive material for which placarding is required is operated on routes that minimize radiological risk. The carrier shall consider available information on accident rates, transit time, population density and activities, time of day and day of week during which transportation will occur. In performance of this requirement the carrier shall tell the driver that the motor vehicle contains radioactive materials and shall indicate the general route to be taken. This requirement does not apply when:

(1) There is only one practicable highway route available, considering operating necessity and safety, or

(2) The motor vehicle is operated on a preferred highway under conditions described in paragraph (b) of this section.

(b) Unless otherwise permitted by this section, a carrier and any person who operates a motor vehicle containing a package of highway route controlled quantity radioactive materials as defined in § 173.403(1) of this subchapter shall ensure that the vehicle operates over preferred routes selected to reduce time in transit, except that an Interstate System bypass or beltway around a city shall be used when available.

(1) A preferred route consists of either or both:

(i) An Interstate System highway for which an alternative route is not designated by a State routing agency as provided in this section, and

(ii) A State-designated route selected by a State routing agency (see § 171.8

of this subchapter) in accordance with the DOT "Guidelines for Selecting Preferred Highway Routes for Highway Route Controlled Quantity Shipments of Radioactive Materials".

(2) When a deviation from a preferred route is necessary (including emergency deviation, to the extent time permits), routes shall be selected in accordance with paragraph (a) of this section. A motor vehicle may deviate from a preferred route under any of the following circumstances:

(i) Emergency conditions that would make continued use of the preferred route unsafe.

(ii) To make necessary rest, fuel and vehicle repair stops.

(iii) To the extent necessary to pick up, deliver or transfer a highway route controlled quantity package of radioactive materials.

(c) A carrier (or his agent) who operates a motor vehicle which contains a package of highway route controlled quantity radioactive materials as defined in § 173.403(1) of this subchapter shall prepare a written route plan and supply a copy before departure to the motor vehicle driver and a copy to the shipper (before departure for exclusive use shipments, or otherwise within fifteen working days following departure). Any variation between the route plan and routes actually used, and the reason for it, shall be reported in an amendment to the route plan delivered to the shipper as soon as practicable but within 30 days following the deviation. The route plan shall contain:

(1) A statement of the origin and destination points, a route selected in compliance with this section, all planned stops, and estimated departure and arrival times; and

(2) Telephone numbers which will access emergency assistance in each State to be entered.

(d) No person may transport a package of highway route controlled quantity radioactive materials as defined in § 173.403(1) of this subchapter, on a public highway unless:

(1) The driver has received within the two preceding years, written training on:

(i) Requirements in Parts 172, 173, and 177 of this subchapter pertaining

to the radioactive materials transported;

(ii) The properties and hazards of the radioactive materials being transported; and

(iii) Procedures to be followed in case of an accident or other emergency.

(2) The driver has in his immediate possession a certificate of training as evidence of training required by this section, and a copy is placed in his qualification file (see § 391.51 of this title), showing:

(i) The driver's name and operator's license number;

(ii) The dates training was provided;

(iii) The name and address of the person providing the training;

(iv) That the driver has been trained in the hazards and characteristics of highway route controlled quantity radioactive materials; and

(v) A statement by the person providing the training that information on the certificate is accurate.

(3) The driver has in his immediate possession the route plan required by paragraph (c) of this section and operates the motor vehicle in accordance with the route plan.

(e) A person may transport irradiated reactor fuel only in compliance with a plan if required under § 173.22(c) of this subchapter that will ensure the physical security of the material. Variation for security purposes from the requirements of this section is permitted so far as necessary to meet the requirements imposed under such a plan, or otherwise imposed by the U.S. Nuclear Regulatory Commission in 10 CFR Part 73.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 177-52, 46 FR 5316, Jan. 19, 1981, as amended by Amdt. 177-57, 48 FR 10247, Mar. 10, 1983; Amdt. 177-58, 48 FR 17094, Apr. 21, 1983; Amdt. 177-68, 51 FR 5975, Feb. 18, 1986; Amdt. 177-71, 52 FR 36672, Sept. 30, 1987]

§ 177.826 Carrier's registration statement; flammable cryogenic liquids.

(a) No person may transport a flammable cryogenic liquid in a portable tank or a cargo tank unless he has filed a registration statement by certified mail, return receipt requested,

with the Director, OHMT, RSPA in accordance with paragraphs (b), (c) and (d) of this section.

(b) The registration statement must contain the following information:

(1) The carrier's name and principal place of business.

(2) Locations where cargo tanks used to transport flammable cryogenic liquids are domiciled.

(3) The serial number or vehicle identification number of each cargo tank used by the carrier to transport flammable cryogenic liquids, and the name of each flammable cryogenic liquid transported in each cargo tank.

(c) The registration statement must be filed:

(1) Initially between January 1 and February 28, 1985 (this initial statement is only required to contain information regarding operations that took place during the 90 days prior to the date of the statement); and

(2) Subsequently, between January 1 and February 28 of each odd numbered year after 1985.

(d) For equipment obtained or operations begun between the two-year filing intervals specified in paragraph (c) of this section, the information must be provided on the registration statement filed during the next required filing period.

(Approved by the Office of Management and Budget under control number 2137-0541)

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 177-60, 48 FR 27700, 27713, June 16, 1983; 48 FR 50442, Nov. 1, 1983]

Subpart B—Loading and Unloading

NOTE: For prohibited loading and storage of hazardous materials, see § 177.848.

§ 177.834 General requirements.

(a) *Packages secured in a vehicle.* Any tank, barrel, drum, cylinder, or other packaging, not permanently attached to a motor vehicle, which contains any flammable liquid, compressed gas, corrosive material, poisonous material, or radioactive material must be secured against movement within the vehicle on which it is being

transported, under conditions normal-ly incident to transportation.

(b) *No hazardous materials on pole trailers.* No hazardous materials may be loaded into or on or transported in or on any pole trailer.

(c) *No smoking while loading or unloading.* Smoking on or about any motor vehicle while loading or unloading any explosive, flammable liquid, flammable solid, oxidizing material, or flammable compressed gas is forbidden.

(d) *Keep fire away, loading and unloading.* Extreme care shall be taken in the loading or unloading of any explosive, flammable liquid, flammable solid oxidizing material, or flammable compressed gas into or from any motor vehicle to keep fire away and to prevent persons in the vicinity from smoking lighting matches, or carrying any flame or lighted cigar, pipe, or cigarette.

(e) *Handbrake set while loading and unloading.* No hazardous material shall be loaded into or on, or unloaded from, any motor vehicle unless the handbrake be securely set and all other reasonable precautions be taken to prevent motion of the motor vehicle during such loading or unloading process.

(f) *Use of tools, loading and unloading.* No tools which are likely to damage the effectiveness of the closure of any package or other container, or likely adversely to affect such package or container, shall be used for the loading or unloading of any explosive or other dangerous article.

(g) *Prevent relative motion between containers.* Containers of explosives, flammable liquids, flammable solids, oxidizing materials, corrosive materials, compressed gases, and poisonous liquids or gases, must be so braced as to prevent motion thereof relative to the vehicle while in transit. Containers having valves or other fittings must be so loaded that there will be the minimum likelihood of damage thereto during transportation.

(h) *Precautions concerning containers in transit; fueling road units.* Reasonable care should be taken to prevent undue rise in temperature of containers and their contents during transit. There must be no tampering with

such container or the contents thereof nor any discharge of the contents of any container between point of origin and point of billed destination. Discharge of contents of any container, other than a cargo tank, must not be made prior to removal from the motor vehicle. Nothing contained in this paragraph shall be so construed as to prohibit the fueling of machinery or vehicles used in road construction or maintenance.

(1) *Attendance requirements.* (1) *Loading.* A cargo tank must be attended by a qualified person at all times when it is being loaded. The person who is responsible for loading the cargo tank is also responsible for ensuring that it is so attended.

(2) *Unloading.* A motor carrier who transports hazardous materials by a cargo tank must ensure that the cargo tank is attended by a qualified person at all times during unloading. However, the carrier's obligation to ensure attendance during unloading ceases when:

(i) The carrier's obligation for transporting the materials is fulfilled;

(ii) The cargo tank has been placed upon the consignee's premises; and

(iii) The motive power has been removed from the cargo tank and removed from the premises.

(3) A person "attends" the loading or unloading of a cargo tank if, throughout the process, he is awake, has an unobstructed view of the cargo tank, and is within 7.62 meters (25 feet) of the cargo tank.

(4) A person is "qualified" if he has been made aware of the nature of the hazardous material which is to be loaded or unloaded, he has been instructed on the procedures to be followed in emergencies, he is authorized to move the cargo tank, and he has the means to do so.

(5) A delivery hose, when attached to the cargo tank, is considered a part of the vehicle.

(j) *Prohibited loading combinations* In any single driven motor vehicle or in any single unit of a combination of motor vehicles, hazardous materials shall not be loaded together if prohibited by loading and storage chart, § 177.848. This section shall not be so construed as to forbid the carrying of

materials essential to safe operation of motor vehicles. (See Motor Carrier Safety Regulations Part 393 of this title.)

(k) [Reserved]

(l) *Use of cargo heaters when transporting certain hazardous material.* Transportation includes loading, carrying, and unloading.

(1) *When transporting explosives.* A motor vehicle equipped with a cargo heater of any type may transport explosives only if the cargo heater is rendered inoperable by: (i) Draining or removing the cargo heater fuel tank; and (ii) disconnecting the heater's power source.

(2) *When transporting certain flammable material—(i) Use of combustion cargo heaters.* A motor vehicle equipped with a combustion cargo heater may be used to transport flammable liquid or flammable gas only if each of the following requirements are met:

(A) It is a catalytic heater.

(B) The heater's surface temperature cannot exceed 130° F. (54° C.)—either on a thermostatically controlled heater or on a heater without thermostatic control when the outside or ambient temperature is 60° F. (15.6° C.) or less.

(C) The heater is not ignited in a loaded vehicle.

(D) There is no flame, either on the catalyst or anywhere in the heater.

(E) The manufacturer has certified that the heater meets the requirements under paragraph (1)(2)(i) of this section by permanently marking the heater **"MEETS DOT REQUIREMENTS FOR CATALYTIC HEATERS USED WITH FLAMMABLE LIQUID AND GAS."**

(F) The heater is also marked **"DO NOT LOAD INTO OR USE IN CARGO COMPARTMENTS CONTAINING FLAMMABLE LIQUID OR GAS IF FLAME IS VISIBLE ON CATALYST OR IN HEATER."**

(G) Heater requirements under § 393.77 of this title are complied with.

(ii) *Effective date for combustion heater requirements.* The requirements under paragraph (1)(2)(i) of this section govern as follows:

(A) Use of a heater manufactured after November 14, 1975, is governed

by every requirement under (1)(2)(i) of this section;

(B) Use of a heater manufactured before November 15, 1975, is governed only by the requirements under (1)(2)(i) (A), (C), (D), (F) and (G) of this section until October 1, 1976; and

(C) Use of any heater after September 30, 1976, is governed by every requirement under paragraph (1)(2)(i) of this section.

(iii) *Restrictions on automatic cargo-space-heating temperature control devices.* Restrictions on these devices have two dimensions: Restrictions upon use and restrictions which apply when the device must not be used.

(A) *Use restrictions.* An automatic cargo-space-heating temperature control device may be used when transporting flammable liquid or flammable gas only if each of the following requirements is met:

(1) Electrical apparatus in the cargo compartment is nonsparking or explosion proof.

(2) There is no combustion apparatus in the cargo compartment.

(3) There is no connection for return of air from the cargo compartment to the combustion apparatus.

(4) The heating system will not heat any part of the cargo to more than 130° F. (54° C.).

(5) Heater requirements under § 393.77 of this title are complied with.

(B) *Protection against use.* Flammable liquid or flammable gas may be transported by a vehicle, which is equipped with an automatic cargo-space-heating temperature control device that does not meet each requirement of paragraph (1)(2)(iii)(A) of this section, only if the device is first rendered inoperable, as follows:

(1) Each cargo heater fuel tank, if other than LPG, must be emptied or removed.

(2) Each LPG fuel tank for automatic temperature control equipment must have its discharge valve closed and its fuel feed line disconnected.

(m) Tanks constructed and maintained in compliance with Spec. 106A or 110A (§§ 179.300, 179.301 of this subchapter) that are authorized for the shipment of hazardous materials by highway in Part 173 of this sub-

chapter must be carried in accordance with the following requirements:

(1) Tanks must be securely chocked or clamped on vehicles to prevent any shifting.

(2) Equipment suitable for handling a tank must be provided at any point where a tank is to be loaded upon or removed from a vehicle.

(3) No more than two cargo carrying vehicles may be in the same combination of vehicles.

(4) Compliance with §§ 174.200 and 174.204 of this subchapter for combination rail freight, highway shipments and for trailer-on-flat-car service is required.

(n) Specification 56, 57, IM 101, and IM 102 portable tanks, when loaded, may not be stacked on each other nor placed under other freight during transportation by motor vehicle.

[29 FR 18796, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For Federal Register citations affecting § 177.834, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 177.835 Explosives.

(See also § 177.834 (a) to (j).)

(a) *Engine stopped.* No explosives shall be loaded into or on or be unloaded from any motor vehicle with the engine running.

(b) *Care in loading, unloading, or other handling of explosives.* No bale hooks or other metal tools shall be used for the loading, unloading, or other handling of explosives, nor shall any package or other container of explosives, except barrels or kegs, be rolled. No packages of explosives shall be thrown or dropped during process of loading or unloading or handling of explosives. Special care shall be exercised to the end that packages or other containers containing explosives shall not catch fire from sparks or hot gases from the exhaust tailpipe.

(1) Whenever tarpaulins are used for covering explosives, they shall be secured by means of rope, wire, or other equally efficient tie downs. Explosives placards or markings required by § 177.823 shall be secured, in the appropriate locations, directly to the equipment transporting the explosives. If the vehicle is provided with

placard boards, the placards must be applied to these boards.

(c) *Explosives on vehicles in combination.* Class A explosives may not be loaded into or carried on any vehicle or a combination of vehicles if:

(1) More than two cargo carrying vehicles are in the combination;

(2) Any full trailer in the combination has a wheel base of less than 184 inches;

(3) Any vehicle in the combination is a cargo tanks which is required to be marked or placarded under § 177.823; or

(4) The other vehicle in the combination contains any:

(i) Initiating explosive,

(ii) Packages of radioactive materials bearing "Yellow III" labels,

(iii) Class A or B poisons, or

(iv) Hazardous materials in a portable tank or a DOT specification 106A or 110A tank.

(d) [Reserved]

(e) *No sharp projections inside body of vehicles.* No motor vehicle transporting any kind of explosive shall have on the interior of the body in which the explosives are contained, any inwardly projecting bolts, screws, nails, or other inwardly projecting parts likely to produce damage to any package or container of explosives during the loading or unloading process or in transit.

(f) *Explosives vehicles, floors tight and lined.* Motor vehicles transporting class A or class B explosives shall have tight floors; shall have that portion of the interior in contact with the load lined with either non-metallic material or non-ferrous metals, except that the lining is not required for truck load shipments loaded by the Departments of the Army, Navy or Air Force of the United States Government provided the explosives are of such nature that they are not liable to leakage of dust, powder, or vapor which might become the cause of an explosion. The interior of the cargo space must be in good condition so that there will not be any likelihood of containers being damaged by exposed bolts, nuts, broken side panels or floor boards, or any similar projections.

(g) No detonating primer may be transported on the same motor vehicle

with any class A or class B explosive (except other detonating primers or detonators), blasting agent or detonating cord, class C explosive. No detonator may be transported on the same motor vehicle with any class A or class B explosive (except other detonators or detonating primers), blasting agent or detonating cord, class C explosive unless—

(1) It is packed in a specification MC 201 (§ 178.318 of this subchapter) container, or

(2) The package conforms with requirements prescribed in § 173.103(d) of this subchapter, and its use is restricted to instances when—

(i) There is no class A or class B explosive or blasting agent loaded on the motor vehicle; and

(ii) A separation of 24 inches is maintained between each package of detonators and each package of detonating cord; or

(3) It is packed and loaded in accordance with a method approved by the Department. One method approved by the Department is as follows:

(i) The detonators are in packagings as prescribed in § 173.66 of this subchapter which in turn are loaded into suitable containers or separate compartments. Both the detonators and the container or compartment must meet the requirements of the Institute of Makers of Explosives' Standard (IME Safety Library Publication No. 22).

(h) *Lading within body or covered tailgate closed.* Except as provided in paragraphs (g), (k), and (m) of this section, dealing with the transportation of liquid nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate, other than as defined in § 173.53(e) of this subchapter, all of that portion of the lading of any motor vehicle which consists of explosives shall be contained entirely within the body of the motor vehicle or within the horizontal outline thereof, without overhang or projection of any part of the load and if such motor vehicle has a tailboard or tailgate, it shall be closed and secured in place during such transportation. Every motor vehicle transporting explosives must either have a closed body or have the body thereof covered with a tar-

paulin, and in either event care must be taken to protect the load from moisture and sparks, except that subject to other provisions of these regulations, explosives other than black powder may be transported on flat-bed vehicles if the explosive portion of the load on each vehicle is packed in fire and water resistant containers or covered with a fire and water resistant tarpaulin.

(i) *Explosives to be protected against damage by other lading.* No motor vehicle transporting any explosive may transport as a part of its load any metal or other articles or materials likely to damage such explosive or any package in which it is contained, unless the different parts of such load be so segregated or secured in place in or on the motor vehicle and separated by bulkheads or other suitable means as to prevent such damage.

(j) *Transfer of explosives en route.* No class A or class B explosive shall be transferred from one container to another, or from one motor vehicle to another vehicle, or from another vehicle to a motor vehicle, on any public highway, street, or road, except in case of emergency. In such cases red electric lanterns, red emergency reflectors or red flags shall be set out in the manner prescribed for disabled or stopped motor vehicles. (See Motor Carrier Safety Regulations, Part 392 of this title.) In any event, all practicable means, in addition to these hereinbefore prescribed, shall be taken to protect and warn other users of the highway against the hazard involved in any such transfer or against the hazard occasioned by the emergency making such transfer necessary.

(k) *Loading requirements for liquid nitroglycerin, desensitized liquid nitroglycerin, or diethylene glycol dinitrate.* Liquid nitroglycerin, desensitized liquid nitroglycerin, or diethylene glycol dinitrate, other than as defined in § 173.53(e) of this chapter, may be accepted for transportation and transported only by motor carriers other than common carriers if it be loaded into or on a truck having the type of body specified in Spec. MC200 (§ 178.315 of this subchapter). No liquid nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinit-

trate may be loaded directly above any other explosive, or in any quantity in excess of 900 quarts on one motor vehicle or 10 quarts in any one individual container. Additional quantities of explosives, other than nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate, excepting any type of blasting or percussion cap or other detonating device, may be carried on such motor vehicle in a closed or covered bed or body which shall be firmly bolted or fastened above the lid of the compartment containing the nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate. In no case shall the net load be more than 7,500 pounds. (See paragraph (m) of this section and Spec. MC201 (§ 178.318 of this subchapter).

(l) *Separation of tools and supplies for preparing charges.* Motor vehicles transporting liquid nitroglycerin; desensitized liquid nitroglycerin or diethylene glycol dinitrate, may also transport the tools and supplies necessary for preparing and firing charges thereof: *Provided*, That such tools and supplies be properly secured in place so as to prevent their coming in contact with the body above specified.

(m) *Detonators or other explosives.* Any explosive, including desensitized liquid explosives as defined in § 173.53(e) of this subchapter, other than liquid nitroglycerin, desensitized 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. Detonators must be packed in specification MC 201 (§ 178.318 of this subchapter) containers.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For Federal Register citations affecting § 177.835, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 177.836 Nonexplosive material.

(a) No restrictions are prescribed in Parts 170-189 of this subchapter for

the packing, handling, and transportation of material relating to ammunition for cannon, but containing no explosive or other dangerous article, such as cartridge cases, "dummy" or "drill" cartridges, etc., sandloaded projectiles, sand-loaded bombs, empty projectiles, empty mines, empty bombs, solid projectiles, or empty torpedoes. Rotating bands should be protected against deformation by method of packing or loading.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 177-35, 41 FR 16130, Apr. 15, 1976]

§ 177.837 Flammable liquids.

(See also § 177.834 (a) to (j).)

(a) *Engine stopped.* Unless the engine of the motor vehicle is to be used for the operation of a pump, no flammable liquid shall be loaded into, or on, or unloaded from any motor vehicle while the engine is running.

(b) *Bonding and grounding containers other than cargo tanks prior to and during transfer of lading.* For containers which are not in metallic contact with each other, either metallic bonds or ground conductors shall be provided for the neutralization of possible static charges prior to and during transfers of flammable liquids between such containers. Such bonding shall be made by first connecting an electric conductor to the container to be filled and subsequently connecting the conductor to the container from which the liquid is to come, and not in any other order. To provide against ignition of vapors by discharge of static electricity, the latter connection shall be made at a point well removed from the opening from which the flammable liquid is to be discharged.

(c) *Bonding and grounding cargo tanks before and during transfer of lading.* (1) When a cargo tank is loaded through an open filling hole, one end of a bond wire shall be connected to the stationary system piping or integrally connected steel framing, and the other end to the shell of the cargo tank to provide a continuous electrical connection. (If bonding is to the framing, it is essential that piping and framing be electrically interconnected.) This connection must be

made before any filling hole is opened, and must remain in place until after the last filling hole has been closed. Additional bond wires are not needed around All-Metal flexible or swivel joints, but are required for nonmetallic flexible connections in the stationary system piping. When a cargo tank is unloaded by a suction-piping system through an open filling hole of the cargo tank, electrical continuity shall be maintained from cargo tank to receiving tank.

(2) When a cargo tank is loaded or unloaded through a vapor-tight (not open hole) top or bottom connection, so that there is no release of vapor at a point where a spark could occur, bonding or grounding, is not required. Contact of the closed connection must be made before flow starts and must not be broken until after the flow is completed.

(3) Bonding or grounding is not required when a cargo tank is unloaded through a nonvapor-tight connection into a stationary tank provided the metallic filling connection is maintained in contact with the filling hole.

(d) *Pyroforic liquids in cylinders.* Cylinders containing pyroforic liquids, unless packed in a strong box or case and secured therein to protect valves, must be loaded with all valves and safety relief devices in the vapor space. All cylinders must be secured so that no shifting may occur in transit.

(e) *Manholes and valves closed.* A person shall not drive a cargo tanks and a motor carrier shall not require or permit a person to drive a tank motor vehicle containing a flammable liquid (regardless of quantity) unless:

(1) All manhole closures on the cargo tank are closed and secured; and

(2) All valves and other closures in liquid discharge systems are closed and free of leaks.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5806, Apr. 5, 1967]

EDITORIAL NOTE: For Federal Register citations affecting § 177.837, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 177.838 Flammable solids and oxidizing materials.

(See also § 177.834 (a) to (j).)

(a) *Lading within body or covered; tailgate closed; pick-up and delivery.* All of that portion of the lading of any motor vehicle transporting flammable solids or oxidizing materials shall be contained entirely within the body of the motor vehicle and shall be covered by such body, by tarpaulins, or other suitable means, and if such motor vehicle has a tailboard or tailgate, it shall be closed and secured in place during such transportation: *Provided, however,* That the provisions of this paragraph need not apply to "pick-up and delivery" motor vehicles when such motor vehicles are used in no other transportation than in and about cities, towns, or villages. Shipment in water-tight bulk containers need not be covered by a tarpaulin or other means.

(b) *Articles to be kept dry.* Special care shall be taken in the loading of any motor vehicle with flammable solids or oxidizing materials which are likely to become hazardous to transport when wet, to keep them from being wetted during the loading process and to keep them dry during transit. Special care shall also be taken in the loading of any motor vehicle with flammable solids or oxidizing materials, which are likely to become more hazardous to transport by wetting, to keep them from being wetted during the loading process and to keep them dry during transit. Examples of such dangerous materials are charcoal screenings, ground, crushed, or pulverized charcoal, and lump charcoal.

(c) *Lading ventilation, precautions against spontaneous combustion.* Whenever a motor carrier has knowledge concerning the hazards of spontaneous combustion or heating of any article to be loaded on a motor vehicle, such article shall be so loaded as to afford sufficient ventilation of the load to provide reasonable assurance against fire from this cause; and in such a case the motor vehicle shall be unloaded as soon as practicable after reaching its destination. Charcoal screenings, or ground, crushed, granulated, or pulverized charcoal, in bags, shall be so loaded that the bags are laid horizontally in the motor vehicle, and so piled that there will be spaces for effective air circulation, which

spaces shall not be less than 4 inches wide; and air spaces shall be maintained between rows of bags. Bags shall not be piled closer than 6 inches from the top of any motor vehicle with a closed body.

(d) *Loose or baled nitrate of soda bags.* Loose or baled unwashed, empty bags, having contained nitrate of soda, may be transported in truckload lots only in motor vehicles, and such motor vehicles must have closed or covered bodies lined with paper; such shipments are required to be loaded by the shipper and to be unloaded by the consignee.

(e) *Staying or blocking of packages of matches.* Special care shall be exercised in the loading of packages containing "strike-anywhere" matches to prevent the shifting or jamming of any such package during transit. To this end, the packages shall be compactly loaded with the strongest dimensions of each box or other container loaded lengthwise of the motor vehicle.

(1) *Smooth vehicle interior for matches.* Unless strike-anywhere matches are contained in wooden outside boxes, special care shall be taken to provide that the inside surfaces of any motor vehicle into which such matches are to be loaded and with which surfaces the containers might come in contact, shall be smooth, without protrusions of any sort, such as bolts, nuts, sharp edges, or corners, etc., and there shall be provided for this purpose smooth wooden inner linings, if the interior of the motor vehicle is not otherwise smooth in accordance with this requirement.

(2) *Flammable liquids.* Matches must not be loaded next to a package bearing a flammable liquid label.

(f) Nitrates, except ammonium nitrate having organic coating, listed in § 173.182(b) of this subchapter must be loaded in closed or open type motor vehicles, which must be swept clean and be free of any projections capable of injuring bags when so packaged. When shipped in open typemotor vehicles, the lading must be suitably covered. Ammonium nitrate having organic coating must not be loaded in all-metal vehicles, other than those

made of aluminum or aluminum alloys of the closed type.

(g) Smokless powder for small arms in quantities not exceeding 100 pounds net weight transported in one rail car or motor vehicle may be classed as a flammable solid when examined for this classification by the Bureau of Explosives or the Bureau of Mines and approved by the Director, OHMT. Maximum quantity in any inside packaging may not exceed 8 pounds. Inside packagings must be arranged and protected to prevent simultaneous ignition of the contents. The complete package must be a type examined by the Bureau of Explosives or the Bureau of Mines and approved by the Director, OHMT. In addition, inside packages which have been examined by the Bureau of Explosives or the Bureau of Mines and approved by the Director, OHMT, may be overpacked in DOT-12A65, 12B65, or 12H65 fiberboard boxes provided all insider containers are firmly packed to prevent movement and the net weight of smokeless powder in any one box does not exceed 16 pounds. Each outside package must bear a **FLAMMABLE SOLID** label.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For Federal Register citations affecting § 177.838, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 177.839 Corrosive liquids.

(See also § 177.834 (a) to (j).)

(a) *Nitric acid.* In addition to the requirements set forth in paragraph (b) of this section no carboy or other container of nitric acid shall be loaded above any container containing any other kind of material. The loading of carboys or other containers of nitric acid shall be limited to two tiers high.

(b) *Carboys and frangible containers.* In general, individual carboys and frangible containers of corrosive liquids, including charged electric storage batteries, must, when loaded by hand, be individually loaded into and unloaded from any motor vehicle in which they are to be, or have been, transported. All reasonable precautions must be taken to prevent, by all

practicable means, the dropping of any such containers or batteries containing corrosive liquids. No such container or battery may be loaded into a motor vehicle having an uneven floor surface. It shall be permissible to load on or transport in any motor vehicle any authorized carboys or frangible shipping containers, containing corrosive liquids, more than one tier high above any floor only if such carboys or other containers are boxed or crated, or are in barrels or kegs, as required by Parts 170 through 189 of this subchapter, and only if such containers are so stacked that the weight of each tier above the first is entirely supported by the boxes, crates, barrels, kegs, or other authorized means of enclosing the carboys or frangible containers. Only so many tiers as may adequately be so supported without danger of crushing or breaking, shall be permitted. Means must be provided to prevent by all practicable means, in all cases, the shifting of containers or batteries during transit. Nothing contained in this section shall be so construed as to prevent the use of cleats or other retaining means for the purpose of preventing shifting of containers or batteries. For the purposes of this section a false floor or platform, secured against relative motion within the body of the motor vehicle, shall be deemed to be a floor. (For recommendations for handling leaking or broken packages, see § 177.858(a).)

(c) *Storage batteries.* In addition to the requirements set forth in paragraph (b) of this section, all storage batteries containing any electrolyte shall be so loaded, if loaded with other lading, that all such batteries will be protected against other lading falling onto or against them; and adequate means shall be provided in all cases for the protection and insulation of battery terminals against short circuits.

(d) *Corrosives in cargo tanks.* A person shall not drive a cargo tank and a motor carrier shall not require or permit a person to drive a cargo tank containing corrosives (regardless of quantity) unless:

(1) All manhole closures on the cargo tank are closed and secured; and

(2) All valves and other closures in liquid discharge systems are closed and free of leaks.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For Federal Register citations affecting § 177.839, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 177.840 Compressed gases, including cryogenic liquids.

(See also § 177.834 (a) to (j).)

(a) *Floors or platforms essentially flat.* Cylinders containing compressed gases shall not be loaded onto any part of the floor or platform of any motor vehicle which is not essentially flat; cylinders containing compressed gases may be loaded onto any motor vehicle not having a floor or platform only if such motor vehicle be equipped with suitable racks having adequate means for securing such cylinders in place therein. Nothing contained in this section shall be so construed as to prohibit the loading of such cylinders on any motor vehicle having a floor or platform and racks as hereinbefore described.

(1) *Cylinders.* To prevent their overturning, cylinders containing compressed gases must be securely lashed in an upright position; loaded into racks securely attached to the motor vehicle; packed in boxes or crates of such dimensions as to prevent their overturning; or loaded in a horizontal position. Specification DOT-4L cylinders must be loaded in an upright position and securely braced.

(2) *Cylinders for hydrogen, cryogenic liquid.* A Specification DOT-4L cylinder containing hydrogen, cryogenic liquid may only be transported on a motor vehicle as follows:

(i) The vehicle must have an open body equipped with a suitable rack or support having a means to hold the cylinder upright when subjected to an acceleration of 2 "g" in any horizontal direction;

(ii) The combined total of the hydrogen venting rates, as marked, on the cylinders transported on one motor vehicle may not exceed 60 SCF per hour;

(iii) The vehicle may not enter a tunnel; and

(iv) Highway transportation is limited to private and contract carriage and to direct movement from point of origin to destination.

(b) Portable tank containers containing compressed gases shall be loaded on motor vehicles only as follows:

(1) Onto a flat floor or platform of a motor vehicle.

(2) Onto a suitable frame of a motor vehicle.

(3) In either such case, such containers shall be safely and securely blocked or held down to prevent movement relative to each other or to the supporting structure when in transit, particularly during sudden starts and stops and changes of direction of the vehicle.

(4) Requirements of paragraphs (1) and (2) of this paragraph (b) shall not be construed as prohibiting stacking of containers provided the provisions of paragraph (3) of this paragraph (b) are fully complied with.

(c) [Reserved]

(d) *Engine to be stopped in cargo tanks, except for transfer pump.* No flammable compressed gas shall be loaded into or on or unloaded from any cargo tanks with the engine running unless the engine is used for the operation of the transfer pump of the vehicle. Unless the delivery hose is equipped with a shut-off valve at its discharge end, the engine of the motor vehicle shall be stopped at the finish of such loading or unloading operation while the filling or discharge connections are disconnected.

(e) Chlorine cargo tanks shall be shipped only when equipped (1) with a gas mask of a type approved by the U.S. Bureau of Mines for chlorine service; (2) with an emergency kit for controlling leaks in fittings on the dome cover plate.

(f) No chlorine cargo tanks used for transportation of chlorine shall be moved, coupled or uncoupled, when any loading or unloading connections are attached to the vehicle, nor shall any semi-trailer or trailer be left without the power unit unless such semi-trailer or trailer be chocked or equivalent means be provided to prevent motion.

(g) Each liquid discharge valve on a cargo tank, other than an engine fuel

line valve, must be closed during transportation except during loading and unloading.

(h) The driver of a motor vehicle transporting a flammable cryogenic liquid in a package exceeding 125 gallons of water capacity shall avoid unnecessary delays during transportation. If unforeseen conditions cause an excessive pressure rise, the driver shall manually vent the tank at a remote and safe location. For each shipment, the driver shall make a written record of the cargo tank pressure and ambient (outside) temperature:

(1) At the start of each trip,

(2) Immediately before and after any manual venting,

(3) At least once every five hours, and

(4) At the destination point.

(i) No person may transport a flammable cryogenic liquid in a cargo tank unless the pressure of the lading is equal to or less than that used to determine the marked rated holding time (MRHT) and the one-way travel time (OWTT), marked on the tank in conformance with § 173.318(g) of this subchapter, is equal to or greater than the elapsed time between the start and termination of travel. This prohibition does not apply if, prior to expiration of the OWTT, the tank is brought to full equilibration as specified in paragraph (j) of this section.

(j) Full equilibration of a cargo tank transporting a flammable cryogenic liquid may only be done at a facility that loads or unloads a flammable cryogenic liquid and must be performed and verified as follows:

(1) The temperature and pressure of the liquid must be reduced by a manually controlled release of vapor; and

(2) The pressure in the cargo tank must be measured at least ten minutes after the manual release is terminated.

(k) A carrier of carbon monoxide, cryogenic liquid must provide each driver with a self-contained air breathing apparatus that is approved by the National Institute of Occupational Safety and Health; for example, Mine Safety Appliance Co., Model 401, catalog number 461704.

(Approved by the Office of Management and Budget under control number 2137-0542)

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For Federal Register citations affecting § 177.840, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 177.841 Poisons.

(See also § 177.834 (a) to (j).)

(a) *Arsenical compounds in bulk.* Care shall be exercised in the loading and unloading of "arsenical dust", "arsenic trioxide", and "sodium arsenate", allowable to be loaded into sift-proof, steel hopper-type or dump-type motor-vehicle bodies equipped with water-proof, dust-proof covers well secured in place on all openings, to accomplish such loading with the minimum spread of such compounds into the atmosphere by all means that are practicable; and no such loading or unloading shall be done near or adjacent to any place where there are or are likely to be, during the loading or unloading process assemblages of persons other than those engaged in the loading or unloading process, or upon any public highway or in any public place.

(1) The motor vehicles must be marked in accordance with § 173.368(b) of this chapter.

(2) Before any motor vehicle may be used for transporting any other articles, all detectable traces of arsenical materials must be removed therefrom by flushing with water, or by other appropriate method, and the marking removed.

(b) No Class A or irritating materials in cargo tanks. No poison, Class A, or irritating material may be loaded into or transported in any cargo tank.

(c) *Class A poisons or irritating materials.* The transportation of a Class A poison or an irritating material is not permitted if there is any interconnection between packagings.

(d) *Poisons in cargo tanks.* A person shall not drive a cargo tanks and a motor carrier shall not require or permit a person to drive a cargo tanks containing poisons (regardless of quantity) unless:

(1) All manhole closures on the cargo tank are closed and secured; and

(2) All valves and other closures in liquid discharge systems are closed and free of leaks.

(e) A carrier may not transport a package bearing a poison label in the same motor vehicle with material that is marked as or known to be foodstuff, feed or any edible material intended for consumption by humans or animals unless the inside package is overpacked in a liquid-tight and dust-proof container identified as package 4000 in the National Motor Freight Classification 100-I or when overpacked in a metal drum as specified in § 173.25(c) of this subchapter. No motor carrier may transport a packaging containing a material which is required to be labeled "Poison", "Poison gas", or "Irritant" in the driver's compartment (including a sleeper berth) of a motor vehicle.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For Federal Register citations affecting § 177.841, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 177.842 Radioactive material.

(a) The number of packages of radioactive materials in any motor vehicle, trailer, or storage location must be limited so that the total transport index number, as defined in § 173.403 of this subchapter and determined by adding together the transport index numbers on the labels of the individual packages, does not exceed 50. This provision does not apply to exclusive use shipments described in §§ 173.441(b), 173.457, and 173.425 of this subchapter.

(b) Packages of radioactive material bearing "radioactive yellow-II" or "radioactive yellow-III" labels must not be placed in a motor vehicle or in any other place closer than the distances shown in the following table to any area which may be continuously occupied by passengers, employees, or shipments of animals, nor closer than the distances shown in the table below to any package containing undeveloped film (if so marked). If more than one of these packages is present, the dis-

tance shall be computed from the following table on the basis of the total transport index number (determined by adding together the transport index numbers on the labels of the individual packages) or packages in the vehicle or storeroom. Where more than one group of packages is present in any single storage location, a single group may not have a total transport index greater than 50. Each group of packages must be handled and stowed not closer than 6 meters (20 feet)

(measured edge to edge) to any other group.

(c) Shipments of low specific activity materials, as defined in § 173.403 of this subchapter, must be loaded so as to avoid spillage and scattering of loose materials. Loading restrictions are set forth in § 173.425 of this subchapter.

(d) Packages must be so blocked and braced that they cannot change position during conditions normally incident to transportation.

Total transport index	Minimum separation distances in feet to nearest undeveloped film for various times of transit					Minimum distance in feet to area of persons, or minimum distance in feet from dividing partition of cargo compartments
	Up to 2 hours	2-4 hours	4-8 hours	8-12 hours	Over 12 hours	
None.....	0	0	0	0	0	0
0.1 to 1.0.....	1	2	3	4	5	1
1.1 to 5.0.....	3	4	6	8	11	2
5.1 to 10.0.....	4	6	9	11	15	3
10.1 to 20.0.....	5	8	12	16	22	4
20.1 to 30.0.....	7	10	15	20	29	5
30.1 to 40.0.....	8	11	17	22	33	6
40.1 to 50.0.....	9	12	19	24	36	7

NOTE 1: The distance in the table must be measured from the nearest point on the packages of radioactive materials.

(e) Persons should not remain unnecessarily in a vehicle containing radioactive materials.

(f) Each fissile class III radioactive material shipment (as defined in § 173.455(a)(3) of this subchapter) must be transported in accordance with one of the methods prescribed in § 173.457 of this subchapter. The transport controls must be adequate to assure that no fissile class III shipment is transported in the same transport vehicle with any other fissile radioactive material shipment. In loading and storage areas each fissile class III shipment must be segregated by a distance of at least 20 feet from other packages required to bear one of the "Radioactive" labels described in § 172.403 of this subchapter.

(g) For shipments transported under exclusive use conditions the radiation dose rate must not exceed 2 millirem per hour in any position normally occupied in the motor vehicle. For ship-

ments transported as exclusive use under the provisions of § 173.441(b) for packages with external radiation levels in excess of 200 millirem per hour at the package surface, the motor vehicle must meet the requirements of a closed transport vehicle (§ 173.403 of this subchapter).

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 177-3, 33 FR 14933, Oct. 4, 1968; Amdt. 177-3, 33 FR 19823, Dec. 27, 1968]

EDITORIAL NOTE: For Federal Register citations affecting § 177.842, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 177.843 Contamination of vehicles.

(a) Each motor vehicle used for transporting radioactive materials under exclusive use conditions in accordance with § 173.425(c) or § 173.443(c) shall be surveyed with radiation detection instruments after

each use. A vehicle may not be returned to service until the radiation dose rate at each accessible surface is 0.5 millirem per hour or less and the removable (non-fixed) radioactive surface contamination is not greater than the level prescribed in § 173.443(a).

(b) This section does not apply to any vehicle used solely for transporting radioactive material if a survey of the interior surface shows that the radiation dose rate does not exceed 10 millirem per hour at the interior surface or 2 millirem per hour at 3 feet from any interior surface. These vehicles must be stenciled with the words "For Radioactive Materials Use Only" in lettering at least 3 inches high in a conspicuous place, on both sides of the exterior of the vehicle. These vehicles must be kept closed at all times other than loading and unloading.

(c) In case of fire, accident, breakage, or unusual delay involving shipments of radioactive material, see § 177.861.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1)

[Amdt. 177-3, 33 FR 14933, Oct. 4, 1968, as amended by Amdt. 177-35, 41 FR 16131, Apr. 15, 1976; Amdt. 177-51, 45 FR 81573, Dec. 11, 1980; Amdt. 177-57, 48 FR 10247, Mar. 10, 1983]

§ 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.)

[Amdt. 177-44, 43 FR 56668, Dec. 4, 1978]

Subpart C—Segregation and Separation Chart of Hazardous Materials

§ 177.848 Segregation and separation chart of hazardous materials.

(a) Charged electric storage batteries must not be loaded in the same vehicle with explosives, class A.

(b) Cyanides or cyanide mixtures must not be loaded or stored with acids or any other acidic materials which could release hydrocyanic acid from cyanides.

(c) Gas identification sets may be loaded and transported with all articles named in the segregation and separation chart, except those in column c.

(d) Nitric acid, when loaded in the same motor vehicle with other corrosive liquids in carboys, must be separated from the other carboys. A 2 by 6 inch plank set on edge, should be nailed across the motor vehicle floor at least 12 inches from the nitric acid carboys, and the space between the plank and the carboys of nitric acid should be filled with sand, sifted ashes, or other incombustible absorbent material.

(e) Smokeless powder for small arms in quantities not exceeding 100 pounds net weight in one motor vehicle shall be classed as a flammable solid for purposes of transportation when examined for this classification by the Bureau of Explosives and approved by the Director, OHMT.

(f) Hazardous materials must not be loaded, transported, or stored together, except as provided in the following table:

Subpart D—Vehicles and Shipments in Transit; Accidents

§ 177.853 Transportation and delivery of shipments.

(a) *No unnecessary delay in movement of shipments.* All shipments of hazardous materials shall be transported without unnecessary delay, from and including the time of commencement of the loading of the cargo until its final discharge at destination.

(b) *Delivery at destination.* Shipments of hazardous materials which are refused by the consignees, or which can not be delivered within 48 hours after arrival at destination, must be promptly disposed of (1) by return to the shipper, if in proper shipping condition, or (2) by storage, provided a suitable storage place for such articles is available, or (3) by sale, or (4) when necessary to safety, by destruction: *Provided*, That charged electric batteries may be held for 30 days after arrival at destination, pending delivery or disposition.

(c) *Delivery to authorized person, or magazine.* Every shipment of dangerous explosives by motor vehicle shall be delivered only to someone authorized to receive it, except such explosives shipments as are placed in magazines which are immediately thereafter locked.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

§ 177.854 Disabled vehicles and broken or leaking packages; repairs.

(See also Forbidden articles, § 177.821).

(a) *Care of lading, hazardous materials.* Whenever for any cause other than necessary traffic stops any motor vehicle transporting any hazardous material is stopped upon the traveled portion of any highway or shoulder thereof, special care shall be taken to guard the vehicle and its load or to take such steps as may be necessary to provide against hazard. Special effort shall be made to remove the motor vehicle to a place where the hazards of the materials being transported may be provided against. See §§ 392.22, 392.24, and 392.25 of this title for

warning devices required to be displayed on the highway.

(b) *Disposition of containers found broken or leaking in transit.* When leaks occur in packages or containers during the course of transportation, subsequent to initial loading, disposition of such package or container shall be made by the safest practical means afforded under paragraphs (c), (d), and (e) of this section.

(c) *Repairing or overpacking packages.* (1) Packages may be repaired when safe and practicable, such repairing to be in accordance with the best and safest practice known and available.

(2) Packages of hazardous materials that are damaged or found leaking during transportation, and hazardous materials that have spilled or leaked during transportation, may be forwarded to destination or returned to the shipper in a salvage drum in accordance with the requirements of § 173.3(c) of this subchapter.

(d) *Transportation of repaired packages.* Any package repaired in accordance with the requirements of paragraph (c)(1) of this section, except as provided in §§ 177.855(c), 177.856(c), and 177.858(b), may be transported to the nearest place at which it may safely be disposed of only in compliance with the following requirements:

(1) The package must be safe for transportation.

(2) The repair of the package must be adequate to prevent contamination of or hazardous admixture with other lading transported on the same motor vehicle therewith.

(3) If the carrier is not himself the shipper, the consignee's name and address must be plainly marked on the repaired package.

(e) *Disposition of unsafe broken packages.* In the event any leaking package or container cannot be safely and adequately repaired for transportation or transported, it shall be stored pending proper disposition in the safest and most expeditious manner possible.

(f) *Stopped vehicles; other dangerous articles.* Whenever any motor vehicle transporting flammable liquids, flammable solids, oxidizing materials, corrosive materials, compressed gases, or

poisons, is stopped for any cause other than necessary traffic stops upon the traveled portion of any highway, or a shoulder next thereto, the following requirements shall be complied with during the period of such stop:

(1) For motor vehicles other than cargo tanks used for the transportation of flammable liquids or flammable compressed gases and not transporting explosives, Class A, or Class B, warning devices must be set out in the manner prescribed by § 392.22 of this title.

(2) For cargo tanks used for the transportation of flammable liquids or flammable compressed gases, whether loaded or empty, and vehicles transporting explosives Class A or Class B, warning devices must be set out in the manner prescribed by § 392.25 of this title.

(g) *Repair and maintenance of vehicles containing certain hazardous materials*—(1) *General*. No person may use heat, flame or spark producing devices to repair or maintain the cargo or fuel containment system of a motor vehicle required to be placarded, other than COMBUSTIBLE, in accordance with Subpart F of Part 172 of this subchapter. As used in this section, "containment system" includes all vehicle components intended physically to contain cargo or fuel during loading or filling, transport, or unloading.

(2) *Repair and maintenance inside a building*. No person may perform repair or maintenance on a motor vehicle subject to paragraph (g)(1) of this section inside a building unless:

(i) The motor vehicle's cargo and fuel containment systems are closed (except as necessary to maintain or repair the vehicle's motor) and do not show any indication of leakage;

(ii) A means is provided, and a person capable to operate the motor vehicle is available, to immediately remove the motor vehicle if necessary in an emergency;

(iii) The motor vehicle is removed from the enclosed area upon completion of repair or maintenance work; and

(iv) For motor vehicles loaded with explosives A or B, flammable liquids or flammable gases, all sources of spark, flame or glowing heat within

the area of enclosure (including any heating system drawing air therefrom) are extinguished, made inoperable or rendered explosion-proof by a suitable method. *Exception*: Electrical equipment on the vehicle, necessary to accomplish the maintenance function, may remain operational.

(h) *No repair with flame unless gas-free*. No repair of a cargo tank used for the transportation of any flammable liquid or poisonous liquid, or any compartment thereof, or of any container for fuel of whatever nature, may be repaired by any method employing a flame, arc, or other means of welding, unless the tank or compartment shall first have been made gas-free.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For Federal Register citations affecting § 177.854, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 177.855 Accidents; explosives.

(a) *Vehicle disabled; warning of nearby persons; removal of explosives*. In the event of an accident involving any motor vehicle transporting any explosives, every available means shall be employed to prevent individuals, other than those employed in the protection of persons or property or in the removal of hazards or wreckage, from congregating in the vicinity; such means shall also be employed to prevent smoking, to keep flame away, and to safeguard against the aggravation of the hazard present, and to warn other users of the highway. In the event that any motor vehicle laden with or carrying dangerous explosives is entangled with another or with any other object or structure, following an accident, no attempt shall be made to disentangle either vehicle, or the laden vehicle from the object or structure, until the lading, together with any fragments thereof, be removed to a place at least 200 feet from the vehicle (and preferably 200 feet from any habitation). In the event of fire, involving a motor vehicle laden with any explosive every practicable effort shall be made to give warning of danger of explosion to habitants in the vicinity and to other users of the highway.

(b) *Disposition of spilled or leaking explosives.* In the event of any accident involving any motor vehicle transporting any explosive in which packages are broken, all unbroken packages and as much of any broken packages as possible shall be carefully gathered and removed to a place of safety, in order to prevent fire or explosion. In clearing any wreck in which a motor vehicle containing any explosive is involved, care shall be exercised not to produce sparks with tools or by other means in moving of or working about the wreckage, so as to avoid as far as possible fires or explosions.

(c) *Explosives packages in transit capable of repair.* Any package of explosives found injured or broken in transit may be repaired or recoopered when this is evidently practicable and not dangerous. When a box that contains any explosive is so damaged that it cannot be repaired it should be reinforced by stout wrapping paper and twine, placed in another strong box, and surrounded by dry, fine sawdust, or dry and clean cotton waste, or elastic wads made from dry newspapers. The box cover should then be securely attached. A ruptured can or keg should be inclosed in a grain bag of good quality, and boxed. Injured packages thus protected, and properly marked with name of contents and consignee's name and address, may be carried to destination: *Provided, however,* That the motor carrier, if himself the shipper, need not mark his own name and address on the package.

(d) *Liquid nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate.* When any liquid nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate has been spilled on any portion of any motor vehicle it shall be washed with a suitable neutralizing agent until all of any such spillage shall have become completely neutralized.

NOTE 1: Liquid nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate may be destroyed by use of a solution composed of:

Acetone..... 2 fluid ounces.
Water..... 3 fluid ounces.

(e) *Explosives other than liquid nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate.* When particles of any explosive composition other than liquid nitroglycerin, desensitized liquid nitroglycerin or diethylene glycol dinitrate have escaped from a damaged container to the floor of the body of the carrier's motor vehicle the floor shall be thoroughly swept and any absorbed portion removed.

(f) *Unrepairable explosives packages.* When any package of explosives in transit is found to be leaking or damaged and cannot be recoopered, it may not be transported beyond the minimum distance necessary to reach a place where the explosive may be disposed of with safety, except as provided in § 177.854(e) and paragraph (c) of this section.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 15, 1967]

§ 177.856 Accidents; flammable liquids.

(a) *Accident to vehicle; warnings; no sparks or flame.* In the event of an accident involving any motor vehicle transporting any flammable liquid every available means shall be employed to prevent individuals, other than those employed in the protection of persons or property or in the removal of hazards or wreckage, from congregating in the vicinity; such means shall also be employed to prevent smoking, to keep fires or flame away, to safeguard against the hazard present, and to warn other users of the highway. (See also § 177.807.)

(b) *Prevent leakage from spreading.* Whenever any flammable liquid is escaping from a container, all practical means shall be taken to prevent such liquid from spreading over a wide area, from flowing into sewers and streams, and from becoming ignited.

(c) *Disposition of contents of cargo tank when unsafe to continue.* In the event of a leak in a cargo tank of such a character as to make further transportation unsafe, the leaking vehicle should be removed from the traveled portion of the highway; and every

60 percent commercial sodium sulfide. 1 ounce.
Denatured alcohol 7½ fluid ounces.

available means employed for the safe disposal of the leaking liquid by preventing, so far as practicable, its spread over a wide area, such as by digging trenches to drain to a hole or depression in the ground, diverting the liquid away from streams or sewers if possible, or catching the liquid in containers if practicable. Smoking and the lighting of cigarettes, cigars, or pipes in the vicinity is prohibited, and fires or flames in the vicinity of the leaking cargo tank must be extinguished.

(d) *Transfer of flammable liquids en route.* No flammable liquid shall be transferred from one container to another, or from one motor vehicle to another vehicle, or from another vehicle to a motor vehicle, on any public highway, street, or road, except in case of emergency. In such cases warning devices must be set out in the manner prescribed by § 392.25 of this title. In any event, all practicable means, in addition to those hereinbefore prescribed, shall be taken to protect and warn other users of the highway against the hazard involved in any such transfer, or against the hazard occasioned by the emergency making such transfer necessary. Nothing contained in this rule shall be so construed as to prohibit the fueling of machinery or vehicles used in road construction and maintenance.

(e) *Transportation of leaking cargo tanks.* A leaking cargo tank may only be transported the minimum distance necessary to reach a place where the contents of the tank or compartment may be disposed of with safety. Every available means must be utilized to prevent the leakage or spillage of the liquid upon the highway.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For Federal Register citations affecting § 177.856, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 177.857 Accidents; flammable solids and oxidizing materials.

(a) *Dangerous articles spilled; warning of nearby persons.* In the event of any accident involving any motor vehicle in which any flammable solid or oxidizing material may have become spilled, every practicable and available

means shall be taken to warn all approaching persons of the hazard of fire.

(b) *Prevent spread of fire where possible.* Care shall be exercised in the event of damage to packages of flammable solids or oxidizing materials which either have been or may be on fire to limit the spread of the fire.

(c) *Disposition of spilled or leaking materials.* In the event of any accident involving any motor vehicle transporting any flammable solid or oxidizing material in which packages are broken, as much as possible of any broken packages shall be carefully gathered and removed to a place of safety, and if the removal of unbroken packages from the motor vehicle would decrease the hazard of fire or other hazard, they shall be removed. The handling of any such materials not contained in packages shall be such as to promote the greatest safety to other users of the highway.

(d) *Reloading of damaged packages of matches; repairs.* In the event of damage to matches or packages of matches by fire or by water in extinguishing a fire in transit, they shall be reloaded in accordance with the applicable requirements for the packing and loading of matches. Great care shall be taken, however, first to examine and repair any damage to outside containers before reloading, and all loose matches shall be destroyed. Smoking boxes of matches shall not be opened in the vicinity of the remainder of the lading. Such boxes shall be destroyed at a safe distance from the motor vehicle, preferably by burning, and shall not be left, either smoking or burning.

(e) *Calcium hypochlorite compounds, dry, involved in fires.* Calcium hypochlorite compounds, dry, packed in metal drums when involved in motor vehicles where fire has occurred from any cause must be held at least five days before forwarding. Drums showing evidence of spontaneous heating or stress from internal pressure must not be reshipped.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

§ 177.858 Accidents; corrosive materials.

(a) *Accident to vehicle; other lading damaged; vehicle washed.* In the event of any accident involving any motor vehicle transporting corrosive materials in which has been involved the breakage, spillage, or leakage of containers of such materials, care shall be exercised in the handling of any other lading which may have become damaged thereby so as to minimize the hazard in handling such damaged lading during the unloading process. The interior or any other parts of the motor vehicle upon which a corrosive liquid may have become spilled shall be thoroughly washed with water as soon after the unloading process as feasible and prior, in any event, to the subsequent reloading of the motor vehicle. (See also § 177.807.)

(b) *Leaking cargo tanks.* In the event of leakage of liquid from any cargo tank or any compartment thereof used for the transportation of corrosive liquids, which develops or is discovered subsequent to the commencement of transportation, any one of the following means, or any means in addition to those herein prescribed, equally or more effective, shall be employed to minimize further hazard:

(1) Further to transport the cargo tank only the minimum distance to reach a place where the contents of the tank or compartment which is leaking may be disposed of with safety, meanwhile employing every available means to prevent the spillage or leaking of any liquid on the highway.

(2) In the event the leak is of such a character as to make further transportation of the cargo tank unsafe, to draw off the traveled portion of the highway, and to employ every available means for the safe disposal of the leaking liquid by preventing, so far as practicable, its spread over a wide area, as by absorbing by means of the use of noncombustible absorbent material, such as fine ashes, sand, earth, etc., or by any other practicable means; by digging trenches to drain to a hole or depression in the ground; by diverting the liquid away from streams or sewers if possible; or by catching the liquid in containers if practicable. So far as practicable, every available

means shall be employed to prevent the congregation of spectators and to prevent them from coming in contact with the liquid or its fumes. All available means shall be taken to prevent injury or damage to other users of the highway, or to livestock or farm animals, which might be occasioned by the unloading of the corrosive liquid.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 177-21, 37 FR 5950, Mar. 23, 1972; Amdt. 177-27, 38 FR 23792, Sept. 4, 1973]

§ 177.859 Accidents; compressed gases.

(a) *Accident to vehicle; warnings; keep fire away.* In the event of an accident involving any motor vehicle transporting any compressed gas, the release of which would constitute a hazard to other users of the highway, due care shall be taken that only persons employed in the removal of hazards or wreckage shall be allowed in proximity to the motor vehicle, and the shipper should be notified. In such cases, every practicable and available means shall be taken to warn all approaching persons of the danger involved and to caution them against the use of matches or flame-producing devices, if the gas is flammable.

(b) *Transfer of flammable gas en route; no flame or sparks.* No flammable compressed gas shall be transferred from one container to another, or from one cargo tank to another tank vehicle, or from another tank vehicle to a cargo tank, on any public highway, street, or road, except in case of emergency. In such cases every precaution shall be taken to prevent the escape of gas. Warning devices must be set out in the manner prescribed in § 392.25 of this title. All cargo tanks involved in such transfer shall be grounded. The transfer shall be made only during daylight, unless the emergency occurs at night or extends into hours of darkness and the hazard would be increased by waiting until daylight. In any such event, all practicable means, in addition to those hereinbefore prescribed, shall be taken to protect and warn other users of the highway against the hazard involved in any such transfer, or against the hazard occasioned by the emergency

making such transfer necessary. Every precaution shall be taken to prevent the ignition of any flammable compressed gas from any source; and when it is possible to prevent the congregation of persons not directly concerned with the emergency, this shall be done. Every practicable precaution shall be taken to keep flames or fire away from the scene of the emergency and to prevent smoking or the lighting of pipes, cigars, or cigarettes. Similarly, special care shall be exercised in the operation of any engine, whether of the motor vehicles involved or any other, and where the operation of any such engine would be likely to produce ignition of the flammable compressed gas, the transfer shall be accomplished by other means, if possible. Nothing contained in this section shall be so construed as to prohibit the fueling of machinery or vehicles used in road construction and maintenance.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 177-17, 36 FR 18469, Sept. 15, 1971; Amdt. 177-31, 39 FR 41743, Dec. 2, 1974; Amdt. 177-68, 51 FR 5975, Feb. 18, 1986]

§ 177.860 Accidents or leakage; poisons.

(a) *Accident to vehicle; warnings; no sparks or flame.* In the event of an accident involving any motor vehicle transporting any poison which is flammable, noxious, or toxic, every available means shall be employed in the protection of persons or property or in the removal of hazards or wreckage, from congregating in the vicinity; such means shall also be employed to prevent smoking, to keep flame away, to safeguard against the aggravation of the hazard present, and to warn other users of the highway. Care shall also be taken to prevent any poison, whether flammable or nonflammable, from contaminating streams or flowing or being spilled into sewers, and poison in powdered form from being scattered by wind. (See also § 177.807.)

(1) *Leakage.* A vehicle which has been used to transport material marked as or known to be poison (class A or B) must be inspected for contamination before reuse. A vehicle which has been contaminated must not be returned to service until such contamination has been removed. This para-

graph does not apply to vehicles used solely for transporting such poisons so long as they are used in that service.

(b) *Leaking cargo tanks.* In the event of leakage of liquid from any cargo tank or any compartment thereof used for the transportation of any poison which is also flammable, or which would come also within the definition of a flammable liquid, or of any gas or combination of gas and liquid, or any poison which would come within the definition of a compressed gas, the requirements shall be the same as those set forth for flammable liquids and compressed gases. In addition, all possible care shall be taken to warn bystanders or other users of the highway against the hazard of inhaling vapors or coming in contact with the poison.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For Federal Register citations affecting § 177.860, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

§ 177.861 Accidents; radioactive materials.

(a) In addition to the incident reporting requirements of §§ 171.15 and 171.16 of this subchapter, the carrier must also notify the shipper at the earliest practicable moment following any incident in which there has been breakage, spillage, or suspected radioactive contamination involving radioactive materials shipments. Vehicles, buildings, areas, or equipment in which radioactive materials have been spilled may not be again placed in service or routinely occupied until the radiation dose rate at any accessible surface is less than 0.5 millirem per hour and there is no significant removable radioactive surface contamination (see § 173.443 of this subchapter).

NOTE 1: In these instances, the package or materials should be segregated as far as practicable from personnel contact. If radiological advice or assistance is needed, the U.S. Department of Energy should also be notified. In case of obvious leakage, or if it appears likely that the inside container may have been damaged, care should be taken to avoid inhalation, ingestion, or contact with the radioactive material. Any loose radioactive material should be left in a segregated

area and held pending disposal instructions from qualified persons.

NOTE 2: Details involving the handling of radioactive materials in the event of an accident can be found in Bureau of Explosives' Pamphlets 1 and 2.

(b) *Cleaning vehicles.* See § 177.843.

[Amdt. 177-3, 33 FR 14934, Oct. 4, 1968]

EDITORIAL NOTE: For Federal Register citations affecting § 177.861, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

Subpart E—Regulations Applying to Hazardous Material on Motor Vehicles Carrying Passengers for Hire

§ 177.870 Regulations for passenger carrying vehicles.

(a) *Vehicles transporting passengers and property.* In addition to the regulations in Parts 170-189 of this subchapter the following requirements shall apply to vehicles transporting passengers and property.

(b) *No explosives or other hazardous materials on passenger-carrying vehicles, exceptions.* No hazardous materials except small-arms ammunition, emergency shipments of drugs, chemicals and hospital supplies, and the accompanying munitions of war of the Departments of the Army, Navy, and Air Force of the United States Government, are authorized by Parts 170-189 of this subchapter to be transported on motor vehicles carrying passengers for hire where other practicable means of transportation is available.

(c) *Explosives in passenger-carrying space forbidden.* No explosive, except small-arms ammunition, may be carried in the passenger-carrying space of any motor vehicle transporting passengers for hire.

(d) *Hazardous materials on passenger carrying vehicles; quantity.* Where no other practicable means of transportation is available the following articles in the quantities as shown may be transported in motor vehicles carrying passengers for hire in a space other than that provided for passengers: Not to exceed 100 pounds gross weight of any or all of the kinds of explosives permitted to be transported by passenger-carrying aircraft or rail car may be transported on a motor ve-

hicle transporting passengers: *Provided, however,* That samples of explosives for laboratory examination, not to exceed two samples, or a total of no more than 100 detonators, Class C explosives at one time in a single motor vehicle, may be transported in a motor vehicle transporting passengers.

(e) *Articles other than explosives on passenger-carrying vehicles.* The gross weight of any given class of hazardous material other than explosives shall not exceed 100 pounds, and the aggregate weight of all such other dangerous articles shall not exceed 500 pounds. This provision does not apply to nontoxic, nonflammable refrigerants, when such refrigerant is for servicing operations of a motor carrier on whose motor vehicles the refrigerant is used. A cylinder secured against movement while in transit and not exceeding 250 pounds gross weight may be transported.

(f) *Poisons on passenger-carrying vehicles.* No motor carrier may transport any extremely dangerous poison, class A, any tear gas or irritating substance, class C, any less dangerous poison, class B, which is a liquid, or any par-anitraniline, in any amount, in or on any bus while engaged in the transportation of passengers; or any less dangerous poison, class B, which is other than a liquid, in any amount exceeding an aggregate of 100 pounds gross weight in or on any such bus.

(g) *Radioactive materials.* In addition to the limitations prescribed in paragraphs (b) and (e) of this section, no person may transport any radioactive material requiring labels under §§ 172.436, 172.438, and 172.440 of this subchapter in or on any motor vehicle carrying passengers for hire except where no other practicable means of transportation is available. Packages of radioactive materials must be stored only in the trunk or baggage compartment of the vehicle, and must not be stored in any compartment occupied by persons. Packages of radioactive materials must be handled and placed in the vehicle as prescribed in § 177.842.

[29 FR 18795, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE For Federal Register citations affecting § 177.870 see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

APPENDIX A—RELATIONSHIP BETWEEN ROUTING REQUIREMENTS IN PART 177 WITH STATE AND LOCAL REQUIREMENTS

I. Purpose. This appendix is a statement of the Department of Transportation policy regarding the relationship of State and local rules with Federal rules in Part 177 of this subchapter for routing motor carriers transporting radioactive materials. The purpose of this appendix is to advise a State or local government how it can exercise authority over motor carriers under its own laws in a manner that the Department of Transportation considers to be consistent with rules in Part 177 (see 49 U.S.C. 1811(a)). This appendix and Part 177 do not delegate Federal authority to regulate motor carriers.

II. Definition. "Routing rule" means any action which effectively redirects or otherwise significantly restricts or delays the movement by public highway of motor vehicles containing hazardous materials, and which applies because of the hazardous nature of the cargo. Permits, fees and similar requirements are included if they have such effects. Traffic controls are not included if they are not based on the nature of the cargo, such as truck routes based on vehicles weight or size, nor are emergency measures.

III. Highway route controlled quantity radioactive materials. A. State routing rules. A State routing rule which applies to highway route controlled quantity radioactive materials is inconsistent with Part 177 if:

1. It prohibits transportation of highway route controlled quantity radioactive materials by highway between any two points without providing an alternate route for the duration of the prohibition; or

2. It does not meet all of the following criteria:

(a) The rule is established by a State routing agency as defined in § 171.8 of this subchapter;

(b) The rule is based on a comparative radiological risk assessment process at least as sensitive as that outlined in the "DOT Guidelines";

(c) The rule is based on evaluation of radiological risk wherever it may occur, and on

a solicitation and substantive consideration of views from each affected jurisdiction, including local jurisdictions and other States; and

(d) The rule ensures reasonable continuity of routes between jurisdictions.

B. Local routing rules. A local routing rule that applies to highway route controlled quantity radioactive materials is inconsistent with this Part if it prohibits or otherwise affects transportation on routes or at locations either:

1. Authorized by Part 177, or

2. Authorized by a State routing agency in a manner consistent with Part 177.

IV. Quantities of radioactive materials required to be placarded. A State or local routing rule that applies to a radioactive material (other than a highway route controlled quantity radioactive material), for which Part 177 requires placarding, is inconsistent with Part 177 unless it is identical to § 177.825(a) of this part.

V. Radioactive materials for which placarding is not required. A State or local routing rule that applies to a radioactive material for which Part 172 does not require placarding is inconsistent with this part.

VI. Other related State and local rules. A State or local transportation rule is inconsistent with Part 177 if it:

A. Conflicts with physical security requirements which the Nuclear Regulatory Commission has established in 10 CFR Part 73 or requirements approved by the Department of Transportation under § 173.22(c) of this subchapter;

B. Requires additional or special personnel, equipment, or escort;

C. Requires additional or different shipping paper entries, placards, or other hazard warning devices;

D. Requires filing route plans or other documents containing information that is specific to individual shipments;

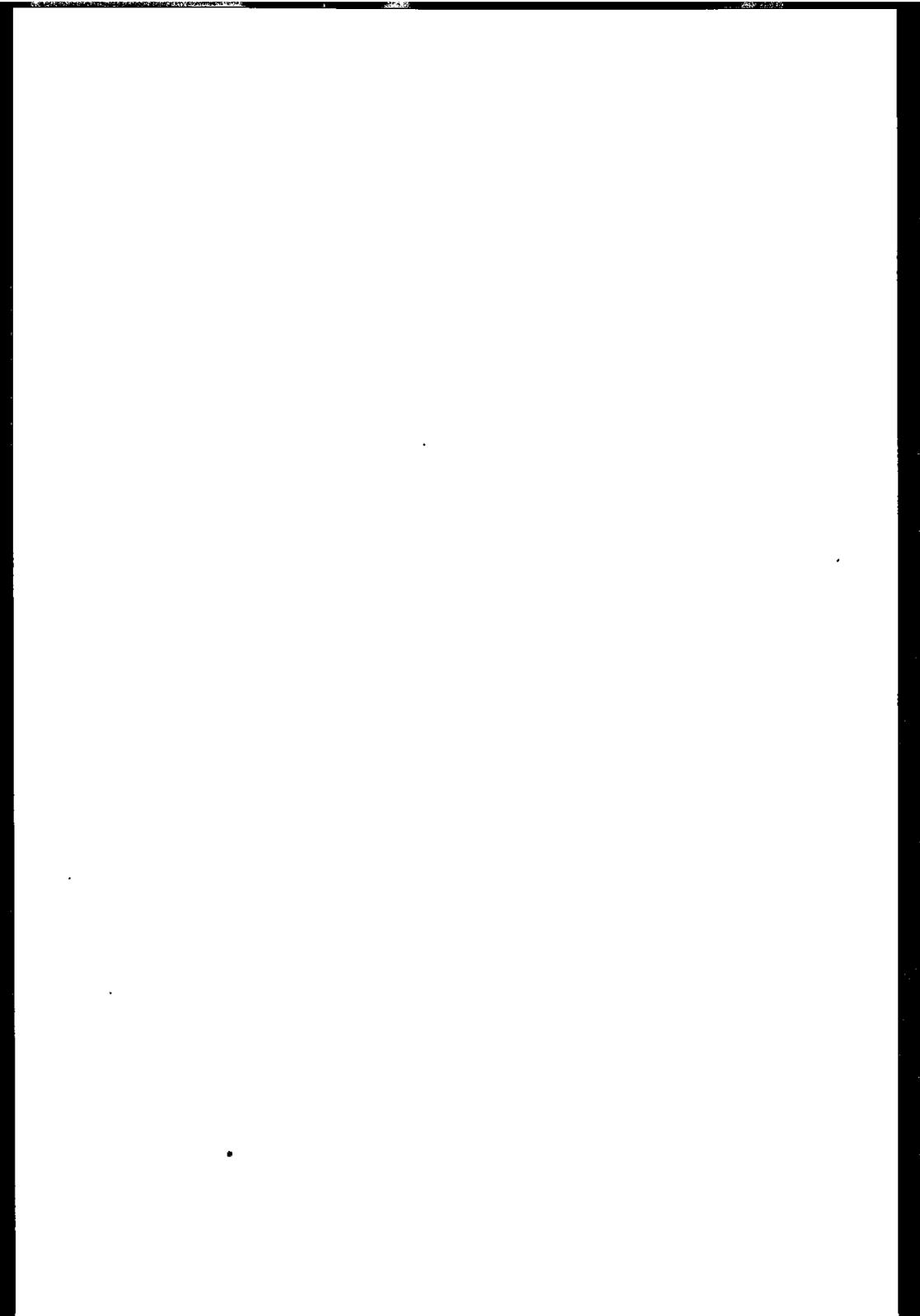
E. Requires prenotification;

F. Requires accident or incident reporting other than as immediately necessary for emergency assistance; or

G. Unnecessarily delays transportation.

(49 U.S.C. 1803, 1804, 1808, 49 CFR 1.53, App. A to Part 1)

[Amdt. 177-52, 46 FR 5317, Jan. 19, 1981, as amended by Amdt. 177-57, 48 FR 10247, Mar. 10, 1983; Amdt. 177-58, 48 FR 17094, Apr. 21, 1983]



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49 CFR CHAPTER I (PARTS 100-177)

RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION, DEPARTMENT OF TRANSPORTATION (HAZARDOUS MATERIALS REGULATIONS)

49 CFR

The Aluminum Association

420 Lexington Ave., New York, NY 10017

Aluminum Standards and Data, 1970-71 Dated December 1969..... 173.266

Aluminum Standards and Data, Sixth Ed., 1979 171.7

American National Standards Institute

1430 Broadway, New York, NY 10018

ANSI N14.1-82 Packaging of Uranium Hexafluoride for Transport, 1982 171.7; 173.420

American Society of Mechanical Engineers

United Engineering Ctr., 345 47th St., New York, NY 10017

ASME Code:

Sections II (Parts A and B), V, VIII (Div. I) and IX of 1986 Ed. of 171.7; 173.32; 173.33;

American Society of Mechanical Engineers Boiler and Pressure Code 173.306, 173.315,

and Addenda through June 30, 1985. 177.814

ASME Code, Section V (FR Nondestructive examination, 1977) 173.33

American Society for Testing and Materials

1916 Race St., Philadelphia, PA 19103

Noncurrent ASTM standards are available from: Engineering Societies Library, 345 E. 47th St., New York, NY 10017.

ASTM A 20-81 is titled "Standard Specification for General Requirements for Steel Plates for Pressure Vessels," revision C, 1982. 171.7

ASTM A 240-82 is titled, "Standard Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Fusion-Welded Unfired Pressure Vessels," revision A. 171.7

ASTM A 242-81 "Standard Specification for High-Strength Low-Alloy Structural Steel," 1982. 171.7

ASTM A 265-69 Nickel and Nickel-Base Alloy Clad Steel Plate..... 173.252

ASTM A 285-78 Pressure Vessel Plates, Carbon Steel, Low- and Intermediate-Tensile Strength. 172.300

ASTM A 370-77 is titled, "Standard Methods and Definition for Mechanical Testing of Steel Products," 1982. 171.7

ASTM A 441-81 "Standard Specification for High-Strength Low-Alloy Structural Manganese Vanadium Steel". 171.7

ASTM A 514-81 "Standard Specification for High-Yield-Strength, Quenched and Tempered Alloy Steel Plate, Suitable for Welding". 171.7

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ASTM A 515–69 Carbon Steel Plates for Pressure Vessels for Intermediate and Higher Temperature Service.	174.300
ASTM A 516–79b is titled, "Standard Specification for Pressure Vessel Plates, Carbon Steel, for Moderate- and Lower-Temperature Service," 1982.	171.7
ASTM A 537–80 is titled "Standard Specification for Pressure Vessel Plates, Heat-Treated, Carbon-Manganese-Silicon Steel," 1982.	171.7
ASTM A 572 "Standard Specification for High-Strength Low Alloy Columbium-Vanadium Steels of Structural Quality," 1982.	171.7
ASTM A 588–81 "Standard Specification for High-Strength Low-Alloy Structural Steel with 50 kml Minimum Yield Point to 4 in. Thick".	171.7
ASTM A 606–75 "Standard Specification for Steel Sheet and Strip, Hot-Rolled and Cold-Rolled, High-Strength, Low-Alloy, with Improved Atmospheric Corrosion Resistance," 1975 [reapproved 1981].	171.7
ASTM A 607–75 "Standard Specification for Sheet and Strip, Hot-Rolled and Cold-Rolled, High-Strength, Low-Alloy Columbium and/or Vanadium".	171.7
ASTM A 639–79a "Standard Specification for Normalized High-Strength Low-Alloy Structural Steel".	171.7
ASTM A 715–81 "Standard Specification for Steel Sheet and Strip, Hot-Rolled, High-Strength, Low-Alloy, with Improved Formability".	171.7
ASTM B 162–69 Nickel Plate, Sheet, and Strip	173.252
ASTM B 221–76 Aluminum alloy Extruded Bars, Rods, Shapes, and Tubes.	171.7
ASTM B 557–79 Tension Testing Wrought and Cast Aluminum and Magnesium—Alloy Products.	171.7
ASTM B 580–79 Standard Specification for Anodic Oxide Coatings on Aluminum.	171.7
ASTM C 148–77 Polariscopic Examination of Glass Containers	171.7
ASTM D 56–79 Flash Point by Tag Closed Tester	171.7; 173.115
ASTM D 88–56 [Reapproved 60] Standard Method for Test of Saybolt Viscosity.	171.7, 173.115
ASTM D 93–80 Flash Point by Pensky Martens Closed Tester	171.7, 173.115
ASTM D 323–58, 68 Vapor Pressure of Petroleum Products (Reid Method).	171.7; 173.119; 173.300
ASTM D 1505–68 Density of Plastics by the Density-Gradient Technique.	171.7
ASTM D 1838–64 Copper Strip Corrosion by Liquefied Petroleum (LP) Gases.	173.315
ASTM D 445–65 Viscosity of Transparent and Opaque Liquids (Kinematic and Dynamic Viscosities).	173.115
ASTM D 1056–68 Testing Sponge and Expanded Cellular Rubber Products.	171.7
ASTM D 2161–79 Conversion of Kinematic Viscosity to Saybolt Universal Viscosity or to Saybolt Furof Viscosity.	171.7, 173.115
ASTM D 3243–73T Flash Point of Aviation Turbine Fuels by Setaflash Closed Tester.	173.115
ASTM D 3278–78 Flash Point of Liquids by Setaflash Closed Tester	171.7, 173.115
ASTM D 445–79 Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity).	171.7, 171.8
ASTM D 1200–70 Viscosity of Paints, Varnishes, and Lacquers by Ford Viscosity Cup.	171.8

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ASTM D 4359-84 Standard Test Method for Determining Whether a Material is a Liquid or a Solid.	171.7
ASTM E 290-77 Semi-Guided Bend Test for Ductility of Metallic Materials.	171.7
ASTM E 487-74 Constant Temperature Stability of Chemical Materials	171.7; 173.21
ASTM G 23-69 Standard Recommended Practice for Operating Light-and-Water Exposure Apparatus (Carbon-Arc Type) for Exposure of Nonmetallic Materials.	171.7; 172.407; 172.519
ASTM G 26-70 Standard Recommended Practice for Operating Light-and-Water-Exposure Apparatus (Xenon-Arc-Type) for Exposure of Nonmetallic Materials.	171.7; 172.407; 172.519
American Water Works Association	
2 Park Ave., New York, NY 10016	
AWWA Standard C207-55, Steel Pipe Flanges; 1955	171.7
American Welding Society	
550 N.W. Le Jeune Road, Miami, FL 33126	
AWS Code B 3.0; Standard Qualification Procedure; 1972 (FRB 3.0-41 rev. May 73).	171.7
AWS Code D1.0; Code for Welding in Building Construction, (FR D1.0-66).	171.7
Association of American Railroads	
59 East Van Buren St., Chicago, IL 60605	
Specification for Tank Cars, Specification M-1002, 1985	171.7; 173.31
Bureau of Explosives	
1920 L St., NW., Washington, DC 20036	
Impact Apparatus (test), Jan. 24, 1961.....	173.53; 173.64; 173.65; 173.114
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Open Drum Apparatus (Test).....	173.300
Fetterley's Formula (The Determination of the Relief Dimensions for Safety Valves on Containers in which Liquefied gas is charged and when the exterior Surface of the container is Exposed to a Temperature of 1,200°F.).	173.315
Flame Projection Test, 1958.....	173.300
Pamphlet 6a (includes Appendix No. 1, Oct. 1944 and Appendix 2, Dec. 1945) "Illustrating Methods for Loading and Bracing Carload and Less Than Carload Shipments of Loaded Projectiles, Loaded Bombs, Etc." 1943.	171.7; 174.101; 174.290
Pamphlet 6c "Illustrating Methods for Loading and Bracing Trailers and Less-Than-Trailer Shipments of Explosives and Other Dangerous Articles Via Trailer-on-Flatcar (TOFC) or Container-on-Flatcar (CDFC)", Sept. 1968.	171.7; 174.55; 174.63; 174.101; 174.112; 174.115
Pamphlets 1 & 2 "Emergency Handling of Hazardous Materials in Surface Transportation; June 1973".	171.7
Canadian Transport Commission	
275 Slater St., Ottawa, Ontario K1A 0N9	
Canadian Transport Commission Regulations; 1974	173.8; 174.11
Compressed Gas Association, Inc.	
1235 Jefferson Davis Highway, Arlington, Virginia 22202	
CGA Pamphlet C-3 "Standards for Welding and Brazing on Thin Walled Containers," 1975.	171.7

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CGA Pamphlet C-6 "Standards for Visual Inspection of Steel Compressed Gas Cylinders," 1984.	171.7; 173.31; 173.34; 173.126
CGA Pamphlet C-6.1 "Standards for Visual Inspection of Compressed Gas Cylinders, 1984.	171.7
CGA Pamphlet C-7 "A Guide for the Preparation of Precautionary Markings for Compressed Gas Containers," 1983, including Appendix A, issued April 15, 1983.	171.7; 172.400
CGA Pamphlet C-8 "Standard for Requalification of DOT-3HT Cylinders," 1985.	171.7; 173.34
CGA Pamphlet C-12 "Qualification Procedure for Acetylene Cylinder Design," 1979.	171.7
CGA Pamphlet C-14 "Procedures for Fire Testing of DOT Cylinder Pressure Relief Device Systems," 1979.	171.7
CGA Pamphlet G-2.2 "Guideline Method for Determining Minimum of 0.2% Water in Anhydrous Ammonia," 1985.	173.315
CGA Pamphlet G-4.1 "Cleaning Equipment for Oxygen Service," 1985...	171.7
CGA Technical Bulletin TB-2 "Guidelines for Inspection and Repair of MC-330 and MC-331 Cargo Tanks," 1980.	173.33
CGA Pamphlet S-1.1 "Pressure Relief Device Standards Part 1—Cylinders for Compressed Gases", 1979.	171.7
CGA Pamphlet S-1.2 "Pressure Relief Device Standards Part 2—Cargo and Portable Tanks for Compressed Gases," 1980.	171.7; 173.315

Department of Defense

2461 Eisenhower Ave., Alexandria, VA

DOD TB 700-2 "Explosives Hazard Classification Procedures".....	173.86
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Department of Energy

1000 Independence Ave., SW., Washington, DC 20545

International Atomic Energy Agency Regulations (IAEA)—Regulations for the Safe Transport of Radioactive Materials, Safety Series No. 6, 1967 Ed. (R 73).	171.7; 171.12; 172.203; 173.296; 173.369; 173.393; 173.394; 173.395
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USAEC, ORO-651—"Uranium Hexafluoride Handling Procedures and Container Criteria," Revision 3, 1972.	171.7; 173.396
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Department of Health, Education and Welfare

Public Health Service, Center for Disease Control, National Institute for Occupational Safety and Health, Cincinnati, OH 45226

NIOSH Registry—"Registry of Toxic Effects of Chemical Substances," 1978.	171.7; 172.203
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Department of Transportation

400 Seventh Street, S.W., Washington, DC 20590

"Guidelines for Selecting Preferred Highway Routes for Highway Route Controlled Quantity Shipments of Radioactive Materials", June 1984.	171.7
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Fertilizer Institute

1015 18th St., Washington, DC 20036

"Definitions and Test Procedures for Ammonium Nitrate Fertilizer (Revised May 7, 1971)" Jan. 16, 1973.	173.182; 174.510
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Institute of Makers of Explosives

420 Lexington Ave., New York, NY 10017

"IME Standard for the Safe Transport of Class C Detonators (Blasting Caps) in a Vehicle with Certain Other Explosives." Mar. 21, 1979.	171.7
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International Maritime Organization

4 Albert Embankment, London, SE17SR, United Kingdom

International Maritime Dangerous Goods Codes, Volumes I, II, III, IV, 171.7; 171.12; 172.102;
1977, and Amendments 14-76, 15-77, and 16-78 thereto. 172.401; 172.407;
176.5; 176.11;
176.27; 176.30

International Civil Aviation Organization

P.O. Box 400, Place de l'Aviation Internationale, 1000 Sherbrooke
Street, West, Montreal, Quebec, Canada H3A2R2

Technical Instructions for the Safe Transport of Dangerous Goods by 171.7
Air, DOC 9284-AN905 (1987-88).

ICAO Technical Instructions also available from INTEREG, P.O. Box
60105, Chicago, IL 60660

International Organization for Standardization

Case Postale 56, CH-1211, Geneve 20, Switzerland

Also available from ANSI, 1430 Broadway, New York, NY 10018.

ISO 82-1974(e) "Steel Tensile Testing," 1974 171.7

National Bureau of Standards

Department of Commerce, 5285 Port Royal Rd., Springfield, VA
22151

NBS Handbook H-28 [1957] "1957 Handbook of Screw-Thread Stand- 171.7
ards for Federal Services, Part II," Dec. 1986 Ed.

USDC, USDOE Material and Equipment Specification No. SP-9, Revi- 171.7
sion 1 and Supplement "Fire Resistant Phenolic Foam."

National Fire Protection Association

Batterymarch Park, Quincy, MA 02269

NFPA Pamphlet No. 58—"Standard for the Storage and Handling of 171.7; 173.315
Liquefied Petroleum Gases," 1979.

National Motor Freight Traffic Ass'n, Inc.

Agent, 1616 "P" Street, NW., Washington, DC 20036

National Motor Freight Classification NMF 100-I, 1982 171.7

Society of the Plastics Industries, Inc.

Organic Peroxide Producers Safety Division, 355 Lexington Ave.,
New York, NY 10017

Self Accelerating Decomposition Temperature Test, 1972 171.7; 173.21

Transport Canada, TDG Canadian Government Publishing Center, Supply and Services,
Canada, Ottawa, Ontario, Canada K1A0S9

Transportation of Dangerous Goods Regulations, as of July 1, 1985, 171.7
including Registration Numbers SOR/85-77, SOR/85-585 and SOR/
85-609.

Uniform Classification Committee

222 South Riverside Plaza, Chicago, IL 60606

UFC Classification 6000A, 1981 171.7; 173.620;
173.630; 173.650

United Nations

United Nations Sales Section, New York, NY 10017

Transport of Dangerous Goods, 1986 171.7; 172.401;
172.407; 172.519

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- VII Advisory Commission on Intergovernmental Relations (Parts 1700—1799)
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173.151a Added.....Δ16069
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173.172 (b) removed.....Δ16070

173.174 Heading revised; (b) and (d) removed.....Δ16070

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