

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 any other source of ignition, in the vicinity of a leaking cargo tank is not permitted.

(c) *Movement of leaking cargo tanks.* A leaking cargo tank may be transported only the minimum distance necessary to reach a place where the contents of the tank or compartment may be disposed of safely. Every available means must be utilized to prevent the leakage or spillage of the liquid upon the highway.

[Amdt. 177–35, 41 FR 16130, Apr. 15, 1976, as amended by Amdt. 177–67, 50 FR 41521, Oct. 11, 1985; Amdt. 177–86, 61 FR 18933, Apr. 29, 1996]

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 Class 3 (flammable liquid), Class 2 (gases), Class 8 (corrosive), Division 6.1 (poisonous), or Class 7 (radioactive) material must be secured against movement within the vehicle on which it is being transported, under conditions normally incident to transportation.

(b) [Reserved]

(c) *No smoking while loading or unloading.* Smoking on or about any motor vehicle while loading or unloading any Class 1 (explosive), Class 3 (flammable liquid), Class 4 (flammable solid), Class 5 (oxidizing), or Division 2.1 (flammable gas) materials is forbidden.

(d) *Keep fire away, loading and unloading.* Extreme care shall be taken in the loading or unloading of any Class 1 (explosive), Class 3 (flammable liquid), Class 4 (flammable solid), Class 5 (oxidizing), or Division 2.1 (flammable gas) materials 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 Class 1 (explosive) material or other dangerous article.

(g) *Prevent relative motion between containers.* Containers of Class 1 (explosive), Class 3 (flammable liquid), Class 4 (flammable solid), Class 5 (oxidizing), Class 8 (corrosive), Class 2 (gases) and Division 6.1 (poisonous) materials, 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 or IM portable 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.

(i) *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) Except for unloading operations subject to §§ 177.837(d), 177.840(p), and 177.840(q), a qualified person "attends" the loading or unloading of a cargo tank if, throughout the process, he is alert and is within 7.62 m (25 feet) of the cargo tank. The qualified person attending the unloading of a cargo tank must have an unobstructed view of the cargo tank and delivery hose to the maximum extent practicable during the unloading operation.

(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.

(j) *Manholes and valves closed.* A person may not drive a cargo tank and a motor carrier may not permit a person to drive a cargo tank motor vehicle containing a hazardous material regardless of quantity unless:

(1) All manhole closures are closed and secured; and

(2) All valves and other closures in liquid discharge systems are closed and free of leaks.

(k) [Reserved]

(l) *Use of cargo heaters when transporting certain hazardous material.* Transportation includes loading, carrying, and unloading.

(1) *When transporting Class 1 (explosive) materials.* A motor vehicle equipped with a cargo heater of any type may transport Class 1 (explosive) materials 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 Class 3 (flammable liquid) or Division 2.1 (flammable gas) materials only if each of the following requirements are met:

(A) It is a catalytic heater.

(B) The heater's surface temperature cannot exceed 54 °C (130 °F)—either on a thermostatically controlled heater or on a heater without thermostatic control when the outside or ambient temperature is 16 °C (61 °F) 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.

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(A) *Use restrictions.* An automatic cargo-space-heating temperature control device may be used when transporting Class 3 (flammable liquid) or Division 2.1 (flammable gas) materials 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 54 °C (129 °F).
- (5) Heater requirements under §393.77 of this title are complied with.

(B) *Protection against use.* Class 3 (flammable liquid) or Division 2.1 (flammable gas) materials 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 subchapter 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.

(o) *Unloading of IM portable tanks.* An IM portable tank may be unloaded while remaining on a transport vehicle with the power unit attached if the tank meets the outlet requirements in §178.345-11 of this subchapter and the tank is attended by a qualified person during the unloading in accordance with the requirements in paragraph (i) of this section.

[29 FR 18795, 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 which appears in the Finding Aids section of the printed volume and on GPO Access.

EFFECTIVE DATE NOTE: At 67 FR 53142, Aug. 14, 2002, §177.834 was amended by revising paragraphs (a) and (g), effective Oct. 1, 2002. At 67 FR 54967, Aug. 27, 2002, the effective date was corrected to Feb. 14, 2003. For the convenience of the user, the revised text is set forth as follows:

§ 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 and containing any Class 2 (gases), Class 3 (flammable liquid), Division 6.1 (poisonous), Division 6.2 (infectious substance), Class 7 (radioactive), or Class 8 (corrosive) material must be secured against movement within the vehicle on which it is being transported, under conditions normally incident to transportation.

* * * * *

(g) *Prevent relative motion between containers.* Containers of Class 1 (explosive), Class 2 (gases), Class 3 (flammable liquid), Class 4 (flammable solid), Class 5 (oxidizing), Division 6.1 (poisonous), Division 6.2 (infectious substance), or Class 8 (corrosive) materials must be so braced as to prevent motion thereof relative to the vehicle while in transit. Containers having valves or other fittings must be loaded to minimize the likelihood of damage thereto during transportation.

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