

**§ 173.31 Use of tank cars.**

(a) *General.* (1) No person may offer a hazardous material for transportation in a tank car unless the tank car meets the applicable specification and packaging requirements of this subchapter or, when this subchapter authorizes the use of a non-DOT specification tank car, the applicable specification to which the tank was constructed.

(2) Tank cars and appurtenances may be used for the transportation of any commodity for which they are authorized in this part and specified on the certificate of construction (AAR Form 4-2 or by addendum on Form R-1). See § 179.5 of this subchapter. Transfer of a tank car from one specified service on its certificate of construction to another may be made only by the owner or with the owner's authorization. A tank car proposed for a commodity service other than specified on its certificate of construction must be approved for such service by the AAR's Tank Car Committee.

(3) No person may fill a tank car overdue for periodic inspection with a hazardous material and then offer it for transportation. Any tank car marked as meeting a DOT specification and any non-specification tank car transporting a hazardous material must have a periodic inspection and test conforming to subpart F of part 180 of this subchapter.

(4) No railroad tank car, regardless of its construction date, may be used for the transportation in commerce of any hazardous material unless the air brake equipment support attachments of such tank car conform to the standards for attachments set forth in §§ 179.100-16 and 179.200-19 of this subchapter.

(5) No railroad tank car, regardless of its construction date, may be used for the transportation in commerce of any hazardous material with a self-energized manway located below the liquid level of the lading.

(6) Unless otherwise specifically provided in this part:

(i) When the tank car delimiter is an "A," offerors may also use tank cars with a delimiter "S," "J" or "T".

(ii) When the tank car delimiter is an "S," offerors may also use tank cars with a delimiter "J" or "T".

(iii) When a tank car delimiter is a "T" offerors may also use tank cars with a delimiter of "J".

(iv) When a tank car delimiter is a "J", offerors may not use a tank car with any other delimiter.

(7) A class DOT-103 or DOT-104 tank car may continue to be used for the transportation of a hazardous material if it meets the requirements of this subchapter and the design requirements in Part 179 of this subchapter in effect on September 30, 2003; however, no new construction is authorized.

(b) *Safety systems—(1) Coupler vertical restraint.* Each tank car conforming to a DOT specification and any other tank car used for transportation of a hazardous material must be equipped with a coupler vertical restraint system that meets the requirements of § 179.14 of this subchapter.

(2) *Pressure relief devices.* (i) Pressure relief devices on tank cars must conform to part 179 of this subchapter.

(ii) A single-unit tank car transporting a Division 6.1 PG I or II, or Class 2, 3, or 4 material must have a reclosing pressure relief device. However, a single-unit tank car built before January 1, 1991, and equipped with a non-reclosing pressure relief device may be used to transport a Division 6.1 PG I or II material or a Class 4 liquid provided such materials do not meet the definition of a material poisonous by inhalation.

(3) *Tank-head puncture-resistance requirements.* The following tank cars must have a tank-head puncture-resistance system that conforms to the requirements in § 179.16 of this subchapter, or to the corresponding requirements in effect at the time of installation:

(i) Tank cars transporting a Class 2 material.

(ii) Tank cars constructed from aluminum or nickel plate that are used to transport hazardous material.

(iii) Except as provided in paragraph (b)(3)(iv) of this section, those tank cars specified in paragraphs (b)(3)(i) and (ii) of this section not requiring a tank-head puncture resistance system prior to July 1, 1996, must have a tank-head puncture resistance system installed no later than July 1, 2006.

(iv) Class DOT 105A tank cars built prior to September 1, 1981, having a tank capacity less than 70 kl (18,500 gallons), and used to transport a Division 2.1 (flammable gas) material, must have a tank-head puncture-resistant system installed no later than July 1, 2001.

(4) *Thermal protection requirements.* The following tank cars must have thermal protection that conforms to the requirements of § 179.18 of this subchapter:

(i) Tank cars transporting a Class 2 material, except for a class 106, 107A, 110, and 113 tank car. A tank car equipped with a thermal protection system conforming to § 179.18 of this subchapter, or that has an insulation system having an overall thermal conductance of no more than 0.613 kilojoules per hour, per square meter, per degree Celsius temperature differential (0.03 B.t.u. per square foot, per hour, per degree Fahrenheit temperature differential), conforms to this requirement.

(ii) A tank car transporting a Class 2 material that was not required to have thermal protection prior to July 1, 1996, must be equipped with thermal protection no later than July 1, 2006.

(5) *Bottom-discontinuity protection requirements.* No person may offer for transportation a hazardous material in a tank car with bottom discontinuity protection unless the tank car has bottom-discontinuity protection that conforms to the requirements of E9.00 and E10.00 of the AAR Specifications for Tank Cars. Tank cars not requiring bottom-discontinuity protection under the terms of appendix Y of the AAR Specifications for Tank Cars as of July 1, 1996, must conform to these requirements no later than July 1, 2006. Tank cars modified before July 1, 1996, may conform to the bottom-discontinuity protection requirements of appendix Y, instead of paragraphs E9.00 or E10.00 of the AAR Specifications for Tank Cars.

(6) *Scheduling of modifications and progress reporting.* The date of conformance for the continued use of tank cars subject to paragraphs (b)(3), (b)(4), (b)(5), (e)(2), and (f) of this section and §§ 173.314(j) and 173.323(c)(1) is subject to the following conditions and limitations.

(i) Each tank car owner shall modify, reassign, retire, or remove at least 50 percent of their in-service tank car fleet within the first half of the compliance period and the remainder of their in-service tank car fleet during the second half of the compliance period.

(ii) By October 1 of each year, each owner of a tank car subject to this paragraph (b)(6) shall submit to the Federal Railroad Administration, Hazardous Materials Division, Office of Safety Assurance and Compliance, 1120 Vermont Avenue, Mail Stop 25, Washington, DC 20590, a progress report that shows the total number of in-service tank cars that need head protection, thermal protection, or bottom-discontinuity protection; the number of new or different tank cars acquired to replace those tank cars required to be upgraded to a higher service pressure; and the total number of tank cars modified, reassigned, acquired, retired, or removed from service the previous year.

(c) *Tank car test pressure.* A tank car used for the transportation of a hazardous material must have a tank test pressure equal to or greater than the greatest of the following:

(1) Except for shipments of carbon dioxide, anhydrous hydrogen chloride, vinyl fluoride, ethylene, or hydrogen, 133 percent of the sum of lading vapor pressure at the reference temperature of 46 °C (115 °F) for non-insulated tank cars or 41 °C (105 °F) for insulated tank cars plus static head, plus gas padding pressure in the vacant space of a tank car;

(2) 133 percent of the maximum loading or unloading pressure, whichever is greater;

(3) 20.7 Bar (300 psig) for materials that are poisonous by inhalation (see § 173.31(e)(2)(ii) for compliance dates);

(4) The minimum pressure prescribed by the specification in part 179 of this subchapter; or

(5) The minimum test pressure prescribed for the specific hazardous material in the applicable packaging section in subpart F or G of this part.

(d) *Examination before shipping.* (1) No person may offer for transportation a

tank car containing a hazardous material or a residue of a hazardous material unless that person determines that the tank car is in proper condition and safe for transportation. As a minimum, each person offering a tank car for transportation must perform an external visual inspection that includes:

(i) Except where insulation or a thermal protection system precludes an inspection, the tank shell and heads for abrasion, corrosion, cracks, dents, distortions, defects in welds, or any other condition that makes the tank car unsafe for transportation;

(ii) The piping, valves, fittings, and gaskets for corrosion, damage, or any other condition that makes the tank car unsafe for transportation;

(iii) For missing or loose bolts, nuts, or elements that make the tank car unsafe for transportation;

(iv) All closures on tank cars and determine that the closures and all fastenings securing them are properly tightened in place by the use of a bar, wrench, or other suitable tool;

(v) Protective housings for proper securement;

(vi) The pressure relief device, including a careful inspection of the rupture disc in non-reclosing pressure relief devices, for corrosion or damage that may alter the intended operation of the device;

(vii) Each tell-tale indicator after filling and prior to transportation to ensure the integrity of the rupture disc;

(viii) The external thermal protection system, tank-head puncture resistance system, coupler vertical restraint system, and bottom discontinuity protection for conditions that make the tank car unsafe for transportation;

(ix) The required markings on the tank car for legibility; and

(x) The periodic inspection date markings to ensure that the inspection and test intervals are within the prescribed intervals.

(2) Closures on tank cars are required, in accordance with this subchapter, to be designed and closed so that under conditions normally incident to transportation, including the effects of temperature and vibration, there will be no identifiable release of

a hazardous material to the environment. In any action brought to enforce this section, the lack of securement of any closure to a tool-tight condition, detected at any point, will establish a rebuttable presumption that a proper inspection was not performed by the offeror of the car. That presumption may be rebutted by any evidence indicating that the lack of securement resulted from a specific cause not within the control of the offeror.

(e) *Special requirements for materials poisonous by inhalation*—(1) *Interior heater coils*. Tank cars used for materials poisonous by inhalation may not have interior heater coils.

(2) Tank car specifications. A tank car used for a material poisonous by inhalation must have a tank test pressure of 20.7 Bar (300 psig) or greater, head protection, and a metal jacket (e.g., DOT 105S300W), except that—

(i) A higher test pressure is required if otherwise specified in this subchapter; and

(ii) Other than as provided in paragraph (b)(6) of this section, a tank car which does not conform to the requirements of this paragraph (e)(2), and was authorized for the material poisonous by inhalation under the regulations in effect on June 30, 1996, may continue in use until July 1, 2006.

(f) *Special requirements for hazardous substances*. (1) A tank car used for a hazardous substance listed in paragraph (f)(2) of this section must have a tank test pressure of at least 13.8 Bar (200 psig), head protection and a metal jacket, except that—

(i) No metal jacket is required if—

(A) The tank test pressure is 23.4 Bar (340 psig) or higher; or

(B) The tank shell and heads are manufactured from AAR steel specification TC-128, normalized;

(ii) A higher test pressure is required if otherwise specified in this subchapter; and

(iii) Other than as provided in paragraph (b)(6) of this section, a tank car which does not conform to the requirements of this paragraph (f)(1), and was authorized for a hazardous substance under the regulations in effect on June 30, 1996, may continue in use until July 1, 2006.

(2) *List of hazardous substances.* Hazardous substances for which the provisions of this paragraph (f) apply are as follows:

Aldrin  
 Allyl chloride  
 alpha-BHC  
 beta-BHC  
 delta-BHC  
 gamma-BHC  
 Bis(2-chloroethyl) ether  
 Bromoform  
 Carbon tetrachloride  
 Chlordane  
 p-Chloroaniline  
 Chlorobenzene  
 Chlorobenzilate  
 p-Chloro-m-cresol  
 2-Chloroethyl vinyl ether  
 Chloroform  
 2-Chloronaphthalene  
 o-Chlorophenol  
 3-Chloropropionitrile  
 DDE  
 DDT  
 1,2-Dibromo-3-chloropropane  
 m-Dichlorobenzene  
 o-Dichlorobenzene  
 p-Dichlorobenzene  
 3,3'-Dichlorobenzidine  
 1,4-Dichloro-2-butene  
 1,1-Dichloroethane  
 1,2-Dichloroethane  
 1,1-Dichloroethylene  
 Dichloroisopropyl ether  
 Dichloromethane @  
 2,4-Dichlorophenol  
 2,6-Dichlorophenol  
 1,2-Dichloropropane  
 1,3-Dichloropropene  
 Dieldrin  
 alpha-Endosulfan  
 beta-Endosulfan  
 Endrin  
 Endrin aldehyde  
 Heptachlor  
 Heptachlor epoxide  
 Hexachlorobenzene  
 Hexachlorobutadiene  
 Hexachloroethane  
 Hexachlorophene  
 Hexachloropropene  
 Isodrin  
 Kepone  
 Methoxychlor  
 4,4'-Methylenebis(2-chloroaniline)  
 Methylene bromide  
 Pentachlorobenzene  
 Pentachloroethane  
 Pentachloronitrobenzene (PCNB)  
 Pentachlorophenol  
 Polychlorinated biphenyls (PCBs)  
 Pronamide  
 Silvex (2,4,5-TP)  
 2,4,5-T  
 TDE

1,2,4,5-Tetrachlorobenzene  
 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)  
 Tetrachloroethane  
 Tetrachloroethylene  
 2,3,4,6-Tetrachlorophenol  
 Toxaphene  
 1,2,4-Trichlorobenzene  
 1,1,1-Trichloroethane  
 1,1,2-Trichloroethane  
 Trichloroethylene  
 2,4,5-Trichlorophenol  
 2,4,6-Trichlorophenol  
 Tris(2,3-dibromopropyl) phosphate

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#### § 173.32 Requirements for the use of portable tanks.

(a) *General requirements.* No person may offer a hazardous material for transportation in a portable tank except as authorized by this subchapter.

(1) Except as otherwise provided in this subpart, no person may use a portable tank for the transportation of a hazardous material unless it meets the requirements of this subchapter.

(2) No person may fill and offer for transportation a portable tank when the prescribed periodic test or inspection under subpart G of part 180 of this subchapter has become due until the test or inspection has been successfully completed. This requirement does not apply to any portable tank filled prior to the test or inspection due date.

(3) When a portable tank is used as a cargo tank motor vehicle, it must conform to all the requirements prescribed for cargo tank motor vehicles. (See § 173.33.)

(b) *Substitute packagings.* A particular Specification portable tank may be substituted for another portable tank as follows:

(1) An IM or UN portable tank may be used whenever an IM or UN portable tank having less stringent requirements is authorized provided the portable tank meets or exceeds the requirements for pressure-relief devices, bottom outlets and any other special provisions specified in § 172.102(c)(7)(vi) of this subchapter.

(2) Where a Specification IM101 or IM102 portable tank is prescribed, a UN