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(h) Pressure vaccum relief valves shall be examined to determine that the operating mechanism is free and capable of activation.

(i) Safety relief valves shall be tested by bench testing or other suitable means. The valves shall relieve and reseat within the design tolerances of the set pressure, or it shall be removed and reset prior to being returned to service. This test shall be conducted at the time of the inspection for certification.

(j) Cargo hose stored on board the vessel which is used in transferring cargoes listed in Table 151.05 shall be inspected every 2 years. This inspection shall consist of a visual examination and a hydrostatic test of 1½ times the maximum pressure to which the hose will be subjected in service. The date of the most recent inspection and the test pressure shall be stenciled or otherwise marked on the hose.

(k) Cargo piping shall be inspected and tested at the same time as the cargo tanks.

(l) If the tank is a pressure vessel type cargo tank with an internal inspection interval of 10 years, and is 30 years old or older, determined from the date it was built, the owner shall conduct nondestructive testing of each tank in accordance with § 151.04–7, during each internal inspection.

[CFGR 70–10, 35 FR 3714, Feb. 25, 1970, as amended by CGD 88–100, 54 FR 40029, Sept. 29, 1989; CGD 85–061, 54 FR 50965, Dec. 11, 1989]

§ 151.04–7 Nondestructive testing.

(a) Before nondestructive testing may be conducted to meet § 151.04–5 (d) and (l), the owner shall submit a proposal to the Officer in Charge, Marine Inspection that includes—

(1) The test methods and procedures to be used all of which must meet section V of the ASME Boiler and Pressure Vessel Code (1986);

(2) Each location on the tank to be tested; and

(3) The test method and procedure to be conducted at each location on the tank.

(b) If the Officer in Charge, Marine Inspection rejects the proposal, the Officer in Charge, Marine Inspection informs the owner of the reasons why the proposal is rejected.

(c) If the Officer in Charge, Marine Inspection accepts the proposal, then the owner shall ensure that—

(1) The proposal is followed; and

(2) Nondestructive testing is performed by personnel meeting ASNT ''Recommended Practice No. SNT–TC–1A (1988), Personnel Qualification and Certification in Nondestructive Testing.''

(d) Within 30 days after completing the nondestructive test, the owner shall submit a written report of the results to the Officer in Charge, Marine Inspection.

[CGD 85–061, 54 FR 50966, Dec. 11, 1989]

Subpart 151.05—Summary of Minimum Requirements for Specific Cargoes

§ 151.05–1 Explanation of column headings in Table 151.05.

(a) *Cargo identification/name.* This column identifies cargoes by name. Words in italics are not part of the cargo name but may be used in addition to the cargo name. When one entry references another entry by use of the word ''see'' and both names are in roman type, either name may be used as the cargo name (e.g., ''Diethyl ether *see* Ethyl ether''). However, the referenced entry is preferred.

(b) *Cargo identification/pressure.* This column identifies cargo in terms of pressure within the tank. Terms used are:

(1) *Pressurized.* Cargo carried at a pressure in excess of 10 pounds per square inch gauge as measured at the top of the tank (i.e., exclusive of static head).

(2) *Atmospheric pressure.* Cargo carried at not more than 10 pounds per square inch gauge, exclusive of static head.

(c) *Cargo identification/temperature.* This column identifies the cargo by the temperature of the cargo during transit.

(1) *Ambient temperature.* Cargo which is carried at naturally occurring temperatures.

(2) *Low temperature.* Cargo carried below ambient temperatures when the product temperature is below 0°F.

(3) *Elevated temperature.* Cargo carried above ambient temperatures.

(d) *Hull type.* This column refers to the flotation features of the barge. Terms used are explained and defined in Subpart 151.10 of this part.

(e) *Cargo segregation/tanks.* This column refers to the separation of the cargo from its surroundings. Terms are explained in § 151.13–5 and in footnotes to Table 151.05 of this part.

(f) [Reserved]

(g) *Tanks/type.* This column refers to the design requirements for cargo tanks and their placement within the hull of the vessel. Terms are explained in § 151.15–1.

(h) *Tanks/venting.* This column refers to arrangements for preventing excess pressure or vacuum within the cargo tank. Terms used are explained and defined in § 151.15–5.

(i) *Tanks/gauging devices.* This column refers to arrangements provided for determining the amount of cargo present in cargo tanks. Terms used are explained and defined in § 151.15–10.

(j) *Cargo transfer/piping.* This column refers to the classification of piping in accordance with Subchapter F of this chapter as discussed in § 151.20–1.

(k) *Cargo transfer/control.* This column refers to the valving requirements for the cargo piping system. These requirements are defined in § 151.20–5.

(l) *Environmental control/cargo tanks.* This column refers to control of the composition of the environment within cargo tanks. Definitions and detailed requirements are given in § 151.25–1.

(m) *Environmental control/cargo handling space.* This column refers to control of the environment in the cargo handling spaces. Definitions and detailed requirements are found in § 151.25–2.

(n) *Fire protection.* This column specifies whether portable fire extinguishers are required on barges carrying the cargo named. Requirements for cargoes requiring extinguishers are given in Subpart 151.30 of this part.

(o) *Special requirements.* This column refers to requirements in subparts 151.40, 151.50, 151.55, 151.56, and 151.58 of this part which apply to specific cargoes. The section numbers listed omit the preceding part designation, ''151''.

(p) *Electrical hazard class—group.* This column lists the electrical hazard class and group used for the cargo when determining requirements for electrical equipment under subchapter J (Electrical engineering) of this chapter.

(q) *Temperature control installations.* This column refers to systems which are used to control the temperature of the cargo. Definitions and requirements which are applicable if such systems are used are given in Subpart 151.40 of this part.

(r) *Tank inspection period.* This column refers to the maximum period in years between internal cargo tank inspections. Applicable requirements are given in § 151.04–5.

[CGFR 70–10, 35 FR 3714, Feb. 25, 1970; 35 FR 6431, Apr. 22, 1970, as amended by CGD 74–275, 40 FR 21958, May 20, 1975; CGD 88–100, 54 FR 40029, Sept. 29, 19895; CGD 96–041, 61 FR 50731, Sept. 27, 1996]

§ 151.05–2 Compliance with requirements for tank barges carrying benzene and benzene containing cargoes, or butyl acrylate cargoes.

A tank barge certificated to carry benzene and benzene containing cargoes or butyl acrylate cargoes must comply with the gauging requirement of Table 151.05 of this part by August 15, 1998. Until that date, a tank barge certificated to carry benzene and benzene containing cargoes must meet either the gauging requirement of Table 151.05 or the restricted or closed gauging requirements in effect on September 29, 1994; and a tank barge certificated to carry butyl acrylate cargoes must meet either the gauging requirements of Table 151.05 or comply with the open, restricted, or closed gauging requirements in effect on September 29, 1994.

[CGD 95–900, 60 FR 34050, June 29, 1995]

TABLE 151.05—SUMMARY OF MINIMUM REQUIREMENTS

Cargo identification[1]			Hull type	Cargo segregation tank	Tanks				Cargo transfer		Environmental control		Fire protection required	Special requirements (section in 46 CFR part 151)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
Name	Pressure	Temp.			Type	Vent	Gauging device	Piping class	Control	Cargo tanks	Cargo handling space					
Acetaldehyde	Press.	Amb.	II	1NA 2ii	Ind. Pressure.	SR	Restr.	II	P-1	Inerted	Vent F	Yes	.55-1(h)	I-C	NA	G
•Acetic acid	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	**.50-73** .55-1(g)	I-D	NA	G
•Acetic anhydride	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	**.50-73** .55-1(g)	I-D	NA	G
Acetone cyanohydrin.	Atmos.	Amb.	I	1ii 2i	Integral Gravity.	PV	Closed	I	G-1	NR	Vent F	Yes	.50-5 ... **.50-70(b)**. .50-73 .50-81	**I-D**	NA	G
Acetonitrile	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
Acrylic acid	Atmos	Amb	III	1ii 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.50-70(a). .50-73 .50-81 .58-1(a)	I-D	NA	G
Acrylonitrile	Atmos.	Amb.	II	1ii 2ii	Integral Gravity.	PV	Closed	II	G-1	NR	Vent F	Yes	.55-1(e) .50-70(a).	I-D	NA	G
Adiponitrile	Atmos.	Amb.	II	1ii 2i	Integral Gravity.	PV	Open	II	G-1	NR	Vent F	Yes	No	**I-D**	NA	G
Alkyl(C7–C9) nitrates.	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	Open	Open	II	G–1	NR	Vent N	Yes	.50–81 .50–86	NA	NA	G

TABLE 151.05—SUMMARY OF MINIMUM REQUIREMENTS—Continued

Cargo identification[1]			Hull type	Cargo segregation tank	Tanks			Cargo transfer		Environmental control		Fire protection required	Special requirements (section in 46 CFR part 151)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
Name	Pressure	Temp.			Type	Vent	Gauging device	Piping class	Control	Cargo tanks	Cargo handling space					
Allyl alcohol	Atmos.	Amb.	I	1ii 2ii	Integral Gravity.	PV	Closed	I	G-1	NR	Vent F	Yes	.50-5 50-73	I-C	NA	G
Allyl chloride	Atmos.	Amb.	I	1ii 2ii	Integral Gravity.	PV	Closed	I	G-1	NR	Vent F	Yes	.50-5 ...	I-D	NA	G
Aluminum sulfate solution.	Atmos	Amb	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	.58-1(e)	NA	NA	G
Aminoethyl ethanol amine.	Atmos.	Amb.	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	.55-1(b)	NA	NA	G
Ammonia, anhydrous.	Press.	Amb.	II	1NA 2ii	Ind. Pressure.	SR 250 p.s.i.	Restr.	II	P-2	NR	Vent F	No	.50-30 .50-32	I-D	NA	G
Ammonia, anhydrous.	Atmos.	Low	II	1NA 2ii	Ind. Gravity.	PV	Restr.	II-L	G-2	NR	Vent F	No	.50-30 .50-32	I-D	.40-1(b)(1)	8
Ammonium bisulfite solution (70% or less).	Atmos	Amb	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	No	.50-73 .56-1(a), (b), (c).	NA	NA	G
Ammonium hydroxide (28% or less NH_3.	Atmos.	Amb.	III	1i 2i	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	No	.56-1(a), (b), (c), (f), (g).	I-D	NA	G

Aniline	Atmos.	Amb.	I	1ii 2ii	Integral Gravity.	PV	Closed	I	G-1	NR	Vent F	Yes	.50-5, .50-73.	**I-D**	NA	G
Anthracene oil (Coal tar fraction).	Atmos.	Amb. Elev.	II	1ii 2ii	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	No	I-D	NA	G
Argon, *liquefied*	Press.	Low	III	1NA 2i	Ind. Pressure.	SR	Restr.	II-L	P-1	NR	Vent F	No	.40-1(a) .50-30 .50-36.	NA	.40-1(a)	G
Benzene	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	**Closed**	II	G-1	NR	Vent F	Yes	.50-60	I-D	NA	G
Benzene hydrocarbon mixtures (containing Acetylenes) *(having 10% Benzene or more).*	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	**Closed**	II	G-1	NR	Vent F	Yes	.56-1(b), (d), (f), (g),.	I-D	NA	G
Benzene hydrocarbon mixtures *(having 10% Benzene or more).*	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	**Closed**	II	G-1	NR	Vent F	Yes	.....	I-D	NA	G
Benzene, Toluene, Xylene mixtures *(having* **10%** *Benzene or more).*	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	**Closed**	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
Butadiene	Press.	Amb.	II	1NA 2ii	Ind. Pressure.	SR	Restr.	II	P-2	NR	Vent F	Yes	.50-70(a), .50-73.	I-B	NA	G
Butadiene, Butylene mixtures *(containing Acetylenes).*	Press.	Amb.	II	1NA 2ii	Ind. Pressure.	SR	Restr.	II	P-1	NR	Vent F	Yes	.50-30 .50-70(a), .50-73. .56-1(b), (d), (f), (g).	I-B	NA	G

TABLE 151.05—SUMMARY OF MINIMUM REQUIREMENTS—Continued

Cargo identification[1]			Hull type	Cargo segregation tank	Tanks			Cargo transfer		Environmental control		Fire protection required	Special requirements (section in 46 CFR part 151)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
Name	Pressure	Temp.			Type	Vent	Gauging device	Piping class	Control	Cargo tanks	Cargo handling space					
iso-Butyl acrylate, *see* **Butyl acrylate, (all isomers)**.																
n-Butyl acrylate, *see* **Butyl acrylate, (all isomers)**.																
Butyl acrylate (all isomers).	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	**Restr**	II	G-1	NR	Vent F	Yes	.50-70(a). .50-81(a), (b).	I-D	NA	G
Butylamine (all isomers).	Atmos.	Amb.	II	1ii 2ii	Ind. Gravity.	PV	Closed	II	G-1	NR	Vent F	Yes	.55-1(c)	I-D	NA	G
•iso-Butyraldehyde, *see* **Butyraldehyde (all isomers)**.																
•n-Butyraldehyde, *see* **Butyraldehyde (all isomers)**.																
Butyl methacrylate ..	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.50-70(a). .50-81(a), (b).	I-D	NA	G
Butyraldehyde (all isomers).	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	Open	II	G–1	NR	Vent F	Yes	.55–1(h).	I–C	NA	G

Camphor oil *(light)* ..	Atmos.	Amb.	II	1ii 2ii	Integral Gravity.	Open	II	G-1	NR	Vent N	Yes	No	I-D	NA	G
Carbolic oil	Atmos.	Amb.	I	1ii 2ii	Integral Gravity.	PV	Closed	I	G-1	NR	Vent F	Yes	.50-5 50-73	NA	NA	G
•Carbon dioxide, *liquefied.*	Press.	Low	III	1 NA 2i	Ind. Pressure.	SR	Restr.	I-L	P-1	NR	Vent F	No	.50-30	NA	.40-1(b)(1)	G
Carbon disulfide	Atmos.	Amb.	II	1NA 2ii	Ind. Gravity.	PV	Restr.	II	G-1	Inert	Vent F	Yes	.50-40 .50-41	I-A	NA	G
Carbon tetrachloride	Atmos.	Amb.	III	1i 2i	Integral Gravity.	PV	Open	II	G-1	NR	Vent N	No	No	NA	NA	G
Caustic potash solution.	Atmos.	Amb. Elev.	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	NR	No	.50-73 .55-1(j)	NA	NA	G
Caustic soda solution.	Atmos.	Amb. Elev.	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	NR	No	.50-73 .55-1(j)	NA	NA	G
Chlorine	Press.	Amb.	I	1NA 2ii	Ind. Pressure.	SR 300 p.s.i.	Indirect	I	P-2	NR	Vent F	No	.50-30 .50-31	NA	NA	3
Chlorobenzene	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	Open	II	G-1	NR	Vent N	Yes	No	I-D	NA	G
Chloroform	Atmos.	Amb.	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent F	No	No	NA	NA	G
Chlorohydrins *(crude).*	Atmos.	Amb.	I	1ii 2ii	Integral Gravity.	PV	Closed	I	G-1	NR	Vent F	Yes	.50-5 ...	I-D	NA	G
Chlorosulfonic acid	Atmos.	Amb.	III	1ii 2ii	Integral Gravity.	PV	Open	II	G-1	NR	Vent N	No	.50-20 .50-21 .50-73	I-B	NA	G

TABLE 151.05—SUMMARY OF MINIMUM REQUIREMENTS—Continued

Cargo identification[1]			Hull type	Cargo segregation tank	Tanks			Cargo transfer		Environmental control		Fire protection required	Special requirements (section in 46 CFR part 151)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
Name	Pressure	Temp.			Type	Vent	Gauging device	Piping class	Control	Cargo tanks	Cargo handling space					
o-Chloronitrobenzene.	Atmos.	Amb.	I	1ii 2ii	Integral Gravity.	PV	Closed	I	G–1	NR	Vent F	Yes	.50–5 50–73	NA	NA	G
•Coal tar naphtha solvent.	Atmos.	Amb.	III	1i 2i	Integral Gravity.	PV	Restr	II	G-1	NR	Vent F	Yes	**.50-73**	I-D	NA	G
•Coal tar pitch (molten).	Atmos.	Elev.	III	1ii 2ii	Integral Gravity.	PV	Restr	II	G-1	NR	Vent F	Yes	**.50-73**	I-D	NA	G
Creosote	Atmos.	Amb.	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	No	NA	NA	G
Cresols (all isomers).	Atmos.	Amb.	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	No	NA	NA	G
Cresols with less than 5% Phenol, see Cresols (all isomers).																
Cresols with 5% or more Phenol, see Phenol.																
Cresylate spent caustic.	Atmos.	Amb.	III	1ii 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	No	.50-73 .55-1(b)	NA	NA	G
Cresylic acid, sodium salt solution, *see* Cresylate spent caustic.																

Crotonaldehyde	Atmos.	Amb.	II	1ii 2ii	Integral Grav-ity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.55-1(h)	I-C	NA	G
Cyclohexanone	Atmos.	Amb.	III	1i 2ii	Integral Grav-ity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.56-1(a), (b).	I-D	NA	G
Cyclohexylamine	Atmos.	Amb.	III	1ii 2ii	Integral Grav-ity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.56-1(a), (b), (c), (g).	I-D	NA	G
iso-Decyl acrylate ...	Atmos.	Amb.	III	1i 2i	Integral Grav-ity.	Open	Open	II	G-1	NR	Vent N	Yes	.50-70(a). .50-81(a), (b). .55-1(c)	NA	NA	G
Dichlorobenzene (all isomers).	Atmos.	Amb.	III	1ii 2i	Integral Grav-ity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.56-1(a), (b).	I-D	NA	G
1,1-Dichloroethane	Atmos.	Amb.	III	1ii 2ii	Integral Grav-ity.	PV	Restr.	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
Dichlorodifluoro-methane.	Press.	Amb.	III	1NA 2i	Ind. Pres-sure.	SR	Restr.	II	P-1	NR	NR	No	No	NA	NA	G
2,2'-Dichloroethyl ether.	Atmos.	Amb.	II	1ii 2ii	Integral Grav-ity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.55-1(f)	**I-C**	NA	G
Dichloromethane	Atmos.	Amb.	III	1i 2i	Integral Grav-ity.	PV	Restr.	II	G-1	NR	Vent F	No	No	**I-D**	NA	G
2,4-Dichlorophen-oxyacetic acid, diethanolamine salt solution.	Atmos.	Amb.	III	1i 2i	Integral Grav-ity.	Open	Open	II	G-1	NR	Vent N	No	.56-1(a), (b), (c), (g).	NA	NA	G

TABLE 151.05—SUMMARY OF MINIMUM REQUIREMENTS—Continued

Cargo identification[1]			Hull type	Cargo segregation tank	Tanks			Cargo transfer		Environmental control		Fire protection required	Special requirements (section in 46 CFR part 151)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
Name	Pressure	Temp.			Type	Vent	Gauging device	Piping class	Control	Cargo tanks	Cargo handling space					
2,4-Dichlorophenoxyacetic acid, dimethylamine salt solution.	Atmos.	Amb. Elev	III	1i 2i	Integral Gravity.	PV	Restr	II	G-1	NR	Vent F	No	.56-1(a), (b), (c), (g).	NA	NA	G
2,4-Dichlorophenoxyacetic acid, triisopropanolamine salt solution.	Atmos.	Amb.	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	No	.56-1(a), (b), (c), (g).	NA	NA	G
1,1-, 1,2-, or 1,3-Dichloropropane, *see individual entries.*																
1,1-Dichloropropane	Atmos.	Amb.	III	1i 2ii	Integral Gravity..	PV	Restr.	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
1,2-Dichloropropane	Atmos.	Amb.	III	1i 2ii	Integral Gravity..	PV	Restr.	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
1,3-Dichloropropane	Atmos.	Amb.	III	1i 2ii	Integral Gravity..	PV	Restr.	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
1,3-Dichloropropene	Atmos.	Amb.	II	1ii 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
Dichloropropene, Dichloropropane mixtures.	Atmos.	Amb.	II	1ii 2ii	Integral Gravity.	PV	Closed	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
2,2-Dichloropropionic acid.	Atmos.	Amb.	II	1ii 2i	Integral Gravity.	PV	Restr	II	G-1	Dry	Vent F	Yes	.50-73 .58-1(e)	NA	NA	G

Diethanolamine	Atmos.	Amb.	III	1i 2i	Integral Grav-ity.	Open	Open	II	G-1	NR	Vent N	Yes	.55-1(c)	NA	NA	G
Diethylamine	Atmos.	Amb.	III	1ii 2ii	Integral Grav-ity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.55-1(c)	I-C	NA	G
Diethylenetriamine ..	Atmos.	Amb.	III	1i 2i	Integral Grav-ity.	Open	Open	II	G-1	NR	Vent N	Yes	.55-1(c)	NA	NA	G
Diethyl ether, *see* Ethyl ether.																
Diisobutylamine	Atmos.	Amb.	III	1ii 2ii	Integral Grav-ity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.55-1(c)	I-C	NA	G
Diisopropanolamine	Atmos.	Amb.	III	1i 2i	Integral Grav-ity.	Open	Open	II	G-1	NR	Vent N	Yes	.55-1(c)	NA	NA	G
Diisopropylamine	Atmos.	Amb.	II	1ii 2ii	Integral Grav-ity.	PV	Closed	II	G-1	NR	Vent F	Yes	.55-1(c)	I-C	NA	G
N,N-Dimethylacet-amide.	Atmos.	Amb.	III	1ii 2i	Integral Grav-ity.	PV	Restr	II	G-1	NR	Vent F	Yes	.56-1(b)	I-D	NA	G
Dimethylamine	Press.	Amb.	II	1NA 2ii	Ind. Pres-sure.	SR	Restr.	II	P-2	NR	Vent F	Yes	.55-1(c)	I-C	NA	G
Dimethylethanol-amine.	Atmos.	Amb.	III	1i 2ii	Integral Grav-ity.	PV	Restr	II	G-1	NR	Vent F	Yes	.56-1(b), (c).	I-C	NA	G
Dimethylformamide	Atmos.	Amb.	III	1ii 2ii	Integral Grav-ity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.55-1(e)	I-D	NA	G
1,4-Dioxane	Atmos.	Amb.	II	1ii 2ii	Integral Grav-ity.	PV	Closed	II	G-1	Inerted	Vent F	Yes	No	I-C	NA	G

TABLE 151.05—SUMMARY OF MINIMUM REQUIREMENTS—Continued

Cargo identification[1]			Hull type	Cargo segregation tank	Tanks			Cargo transfer		Environmental control		Fire protection required	Special requirements (section in 46 CFR part 151)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
Name	Pressure	Temp.			Type	Vent	Gauging device	Piping class	Control	Cargo tanks	Cargo handling space					
Diphenylmethane diisocyanate.	Atmos.	Elev.	II	1ii 2i	Integral Gravity.	PV	Closed	I	G-1	Inert Dry	Vent F	Yes	.50-5 ... .56-1(a), (b).	NA	Yes	G
Di-n-propylamine	Atmos.	Amb.	II	1ii 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.55-1(c)	I-C	NA	G
Dodecyldimethylamine, Tetradecyldimethylamine mixture.	Atmos.	Amb.	III	1i 2i	Integral Gravity.	Open	Open	II	G–1	NR	Vent N	Yes	.56–1(b).	NA	NA	G
Epichlorohydrin	Atmos.	Amb.	I	1ii 2ii	Integral Gravity.	PV	Closed	I	G-1	NR	Vent F	Yes	.50-5 ...	I-C	NA	G
Ethanolamine	Atmos.	Amb.	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	.55-1(c)	**I-D**	NA	G
Ethyl acrylate	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.50-70(a). .50-81(a), (b).	I-D	NA	G
Ethylamine solution (72% or less).	Atmos.	Amb.	II	1ii 2ii	Integral Gravity.	PV	Closed	II	G-1	NR	Vent F	Yes	.55-1(b)	I-D	NA	G
N-Ethylbutylamine ..	Atmos.	Amb.	III	1ii 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.55-1(b)	I-C	NA	G
Ethyl chloride	Press.	Amb.	II	1NA 2ii	Ind. Pressure.	SR	Restr.	II	P-2	NR	Vent F	Yes	No	I-D	NA	8

N-Ethylcyclohexylamine.	Atmos.	Amb.	III	1ii 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.55-1(b)	I-C	NA	G
Ethylene chlorohydrin.	Atmos.	Amb.	I	1ii 2ii	Integral Gravity.	PV	Closed	I	G-1	NR	Vent F	Yes	.50-5 50-73	I-D	NA	G
Ethylene cyanohydrin.	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	No	NA	NA	G
Ethylenediamine	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.55-1(c)	I-D	NA	G
Ethylene dibromide	Atmos.	Amb.	II	1ii 2i	Integral Gravity.	PV	Closed	II	G-1	NR	Vent F	No	No	NA	NA	G
Ethylene dichloride	Atmos.	Amb.	III	1ii 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
Ethylene glycol monoalkyl ethers. *Including:* ..... *2-Ethoxyethanol* ..... *Ethylene glycol butyl ether. Ethylene glycol tert-butyl ether. Ethylene glycol ethyl ether. Ethylene glycol methyl ether. Ethylene glycol n-propyl ether. Ethylene glycol iso-propyl ether.*	Atmos.	Amb.	III	1i; 2i	Integral Gravity..	PV	Restr.	II	G–1	NR	Vent F	Yes	No	I–C	NA	G
Ethylene glycol hexyl ether.	Atmos.	Amb.	III	1i; 2i	Integral Gravity..	Open	Open	II	G–1	NR	Vent N	Yes	No	NA	NA	G
Ethylene glycol propyl ether.	Atmos.	Amb.	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	No	NA	NA	G

TABLE 151.05—SUMMARY OF MINIMUM REQUIREMENTS—Continued

Cargo identification[1]			Hull type	Cargo segregation tank	Tanks			Cargo transfer		Environmental control		Fire protection required	Special requirements (section in 46 CFR part 151)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
Name	Pressure	Temp.			Type	Vent	Gauging device	Piping class	Control	Cargo tanks	Cargo handling space					
Ethylene oxide	Press.	Amb.	I	1NA 2ii	Ind. Pressure.	SR	Restr.	II	P-2	Inert	Vent F	Yes	.50-10 .50-12	I-B	.40-1(c)	4
Ethyl ether	Atmos.	Amb.	II	1NA 2ii	Ind. Gravity.	PV	Closed	II	G-1	Inert	Vent F	Yes	.50-40 .50-42	I-C	NA	G
2-Ethylhexyl acrylate.	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	.50-70(a). .50-81(a), (b).	**I-D**	I-D	G
Ethylidene norbornene.	Atmos.	Amb.	II	1ii 2ii	Integral Gravity.	PV	Closed	II	G-1	NR	Vent F	Yes	.50-5 50-74	**NA**	NA	G
Ethyl methacrylate ..	Atmos.	Amb.	III	1ii 2ii	Integral Gravity.	PV	Restr	II	G-1	NR	Vent F	Yes	.50-70(a).	I-D	NA	G
2-Ethyl-3-propylacrolein.	Atmos.	Amb.	III	1i 2i	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	No	I-C	NA	G
Ferric chloride solutions.	Atmos.	Amb.	III	1ii 2ii	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	No	.50-20 .50-75	I-B	NA	G
Fluorosilicic acid (30% or less).	Atmos.	Amb.	II	1ii 2ii	Ind. Gravity.	PV	Closed	II	G–1	NR	Vent F	No	.50–20 .50–22 **.50–73 .50–77**	I–B	NA	4
Formaldehyde solution (37% to 50%).	Atmos.	Amb.	III	1ii 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	No	.55-1(h)	**I-B**	NA	G

•Formic acid	Atmos.	Amb.	III	1ii 2i	Integral Grav-ity.	PV	Restr.	II	G-1	NR	Vent F	Yes	**.50-73** .55-1(l)	I-D	NA	G
Furfural	Atmos.	Amb.	III	1ii 2i	Integral Grav-ity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.55-1(h)	I-C	NA	G
Glutaraldehyde solution (50% or less).	Atmos.	Amb.	III	1i 2i	Integral Grav-ity.	Open	Open	II	G-1	NR	Vent N	No	No	NA	NA	G
Hexamethylenediamine solution.	Atmos.	Amb.	III	1i 2i	Integral Grav-ity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.55-1(c)	I-D	NA	G
Hexamethylene-imine.	Atmos.	Amb.	II	1ii 2i	Integral Grav-ity.	PV	Restr	II	G-1	NR	Vent F	Yes	.56-1(b), (c).	I-C	NA	G
Hydrochloric acid	Atmos.	Amb.	III	1NA 2ii	Ind. Grav-ity.	Open	Open	II	G-1	NR	Vent F	No	.50-20 .50-22 .50-73	I-B	NA	4
Hydrofluoro silicic acid (25% or less), *see* **Fluorosilicic acid (30% or less)**.																
2-Hydroxyethyl acrylate.	Atmos.	Amb.	I	1ii 2i	Integral Grav-ity.	PV	Closed	I	G-1	NR	Vent F	Yes	.50-5 ... .50-70(a). .50-73 .50-81(a), (b).	NA	NA	G
Isoprene	Atmos.	Amb.	III	1i 2ii	Integral Grav-ity.	PV	Open	II	G-1	NR	Vent F	Yes	.50-70(a). .50-81(a), (b).	I-D	NA	G

TABLE 151.05—SUMMARY OF MINIMUM REQUIREMENTS—Continued

Cargo identification[1]			Hull type	Cargo segregation tank	Tanks			Cargo transfer		Environmental control		Fire protection required	Special requirements (section in 46 CFR part 151)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
Name	Pressure	Temp.			Type	Vent	Gauging device	Piping class	Control	Cargo tanks	Cargo handling space					
Kraft pulping liquors (free alkali content 3% or more) *(including: Black, Green, or White liquor).*	Atmos.	Amb.	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	NR	No	.50-73 .56-1(a), (c), (g).	NA	NA	G
Mesityl oxide	Atmos.	Amb.	III	1ii 2ii	Integral Gravity.	PV	Restr	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
Methylacetylene, Propadiene mixture.	Press.	Amb.	III	1 NA 2ii	Ind. Pressure.	SR	Restr.	II	P-2	NR	Vent F	Yes	.50-79	I-C	NA	G
Methyl acrylate	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.50-70(a). .50-81(a), (b).	I-D	NA	G
Methylamine solution (42% or less).	Atmos.	Amb.	II	1NA 2ii	Ind. Gravity.	PV	Closed	II	G-1	NR	Vent F	Yes	.56-1(a), (b), (c), (g).	I-D	NA	G
Methyl bromide	Press.	Amb.	I	1NA 2ii	Ind. Pressure.	SR	Closed	I	P-2	NR	Vent F	Yes	.50-5 ...	I-D	NA	2
Methyl chloride	Press.	Amb.	II	1NA 2ii	Ind. Pressure.	SR	Restr.	II	P-2	NR	Vent F	Yes	.55-1(c)	I-D	NA	8
Methylcyclopentadiene dimer.	Atmos	Amb	III	1i 2i	Integral Gravity.	PV	Restr	II	G-1	NR	Vent F	Yes	No	I-B	NA	G

Methyl diethanolamine.	Atmos	Amb	III	1i | 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	.56-1(b), (c).	I-C	NA	G
2-Methyl-5-ethylpyridine.	Atmos.	Amb.	III	1i | 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	.55-1(e)	**I-D**	NA	G
Methyl methacrylate	Atmos.	Amb.	III	1i | 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.50-70(a). .50-81(a), (b).	I-D	NA	G
2-Methylpyridine	Atmos.	Amb.	III	1i | 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.55-1(c)	I-D	NA	G
alpha-Methylstyrene	Atmos.	Amb.	III	1i | 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.50-70(a). .50-81(a), (b).	I-D	NA	G
Monochlorodifluoromethane.	Press.	Amb.	III	1NA | 2i	Ind. Pressure.	SR	Restr.	I	P-1	NR	NR	No	No	NA	NA	G
Morpholine	Atmos.	Amb.	III	1i | 2ii	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	.55-1(c)	I-C	NA	G
Motor fuel antiknock compounds (containing lead alkyls).	Atmos.	Amb.	I	1ii | 2ii	Ind. Gravity.	PV	Closed	I	G-1	NR	Vent F	Yes	.50-6 ... **.50-73**	I-D	NA	.50-6
Nitric acid (70% or less).	Atmos.	Amb.	II	1ii | 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	No	.50-20 .50-73 .50-80	I-B	NA	4
Nitrobenzene	Atmos.	Amb.	I	1ii | 2ii	Integral Gravity.	PV	Closed	I	G-1	NR	Vent F	Yes	.50-5 50-73	I-D	NA	G
Nitrogen, *liquefied* ..	Press.	Low	III	1NA | 2i	Ind. Pressure.	SR	Restr	II-L	P-1	NR	Vent F	No	.40-1(a) .50-30 .50-36.,	NA	.40-1(a)	G

TABLE 151.05—SUMMARY OF MINIMUM REQUIREMENTS—Continued

Cargo identification[1]			Hull type	Cargo segregation tank	Tanks			Cargo transfer		Environmental control		Fire protection required	Special requirements (section in 46 CFR part 151)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
Name	Pressure	Temp.			Type	Vent	Gauging device	Piping class	Control	Cargo tanks	Cargo handling space					
o-Nitrotoluene	Atmos.	Amb.	I	1ii 2ii	Integral Gravity.	PV	Closed	I	G–1	NR	Vent F	Yes	.50–5 50–73	I–D	NA	G
1- or 2-Nitropropane	Atmos.	Amb.	III	1ii 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.50-81	I-C	NA	G
•Octyl nitrates (all isomers), *see* **Alkyl(C7–C9) nitrates**.																
Oleum	Atmos.	Amb.	III	1ii 2ii	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	No	.50-20 .50-21 .50-73	I-B	NA	4
Pentachloroethane	Atmos	Amb	III	1ii 2i	Integral Gravity.	PV	Restr	II	G-1	NR	Vent F	No	No	NA	NA	G
1,3-Pentadiene	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.50-70(a). .50-81	I-D	NA	G
Perchloroethylene ..	Atmos.	Amb.	III	1i 2i	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	No	No	NA	NA	G
Phenol	Atmos.	Amb.	I	1ii 2i	Integral Gravity.	PV	Closed	I	G-1	NR	Vent F	Yes	.50-5 50-73	**I-D**	NA	2
•Phosphoric acid	Atmos.	Amb.	III	1ii 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	No	.50-20 .50-23 **.50-73**	I-B	NA	4
•Phosphorus, **white (elemental)**.	Atmos.	Elev.	I	1ii 2ii	Integral Gravity.	PV	Closed	I	G-1	Water Pad	Vent F	Yes	.50-50	NA	NA	4-8

Phthalic anhydride (molten).	Atmos.	Elev.	III	1ii 2ii	Integral Grav-ity.	PV	Restr.	II	G-1	NR	Vent F	Yes	No	**I-D**	NA	G
Polyethylene polya-mines.	Atmos.	Amb.	III	1i 2i	Integral Grav-ity.	Open	Open	II	G-1	NR	Vent N	Yes	.55-1(e)	NA	NA	G
Polymethylene poly-phenyl isocyanate.	Atmos.	Amb.	II	1ii 2i	Integral Grav-ity.	PV	Closed	II	G-1	Dry	Vent F	Yes	.55-1(e)	NA	NA	G
Potassium hydrox-ide solution, *see* Caustic potash solution.																
iso-Propanolamine	Atmos.	Amb.	III	1i 2i	Integral Grav-ity.	Open	Open	II	G-1	NR	Vent N	Yes	.55-1(c)	I-D	NA	G
Propanolamine (iso-, n-).	Atmos.	Amb.	III	1i 2i	Integral Grav-ity.	Open	Open	II	G-1	NR	Vent N	Yes	.56-1(b), (c).	I-D	NA	G
•Propionic acid	Atmos.	Amb.	III	1i 2ii	Integral Grav-ity.	Open	Open	II	G-1	NR	Vent N	Yes	**.50-73** .55-1(g)	I-D	NA	G
iso-Propylamine	Atmos.	Amb.	II	1ii 2ii	Integral Grav-ity.	PV	Closed	II	G-1	NR	Vent F	Yes	.55-1(c)	I-D	NA	G
Propylene oxide	Press.	Amb.	II	1NA 2ii	Ind. Pres-sure.	SR	Restr.	II	P-1	Inerted	Vent F	Yes	.50-10 .50-13	I-B	NA	G
iso-Propyl ether	Atmos.	Amb.	III	1ii 2ii	Integral Grav-ity.	PV	Restr	II	G-1	Inert	Vent F	Yes	.50-70(a).	I-D	NA	G
Pyridine	Atmos.	Amb.	III	1i 2ii	Integral Grav-ity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.55-1(e)	I-D	NA	G
•Sodium aluminate solution **(45% or less)**.	Atmos	Amb/ Elev	III	1i 2i	Integral Grav-ity.	Open	Open	II	G-1	NR	NR	No	.50-73 .56-1(a), (b), (c).	NA	NA	G

TABLE 151.05—SUMMARY OF MINIMUM REQUIREMENTS—Continued

Cargo identification[1]			Hull type	Cargo segregation tank	Tanks			Cargo transfer		Environmental control		Fire protection required	Special requirements (section in 46 CFR part 151)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
Name	Pressure	Temp.			Type	Vent	Gauging device	Piping class	Control	Cargo tanks	Cargo handling space					
•Sodium chlorate solution (50% or less).	Atmos.	Amb.	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	No	**.50-73**	NA	NA	G
Sodium dichromate solution (70% or less).	Atmos.	Amb.	II	1ii 2ii	Integral Gravity.	Open	Closed	II	G-1	NR	Vent N	No	.50-5(d) .50-73 .56-1(b), (c).	NA	NA	G
Sodium hydroxide solution, *see* Caustic soda solution.																
•Sodium hypochlorite solution **(20% or less)**.	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	Restr	II	G-1	NR	Vent F	No	.50-73 .56-1(a), (b).	NA	NA	G
Sodium sulfide, hydrosulfide solutions (H_2S 15ppm or less).	Atmos.	Amb.	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	No	.50-73 .55-1(b)	NA	NA	G
Sodium sulfide, hydrosulfide solutions (H_2S greater than 15ppm but less than 200ppm).	Atmos.	Amb.	III	1ii 2i	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	No	.50-73 .55-1(b)	NA	NA	G
Sodium sulfide, hydrosulfide solutions (H_2S greater than 200ppm).	Atmos.	Amb.	II	1ii 2i	Integral Gravity.	PV	Closed	II	G-1	NR	Vent F	No	.50-73 .55-1(b)	NA	NA	G
Sodium thiocyanate solution (56% or less).	Atmos	Amb	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	.58-1(a)	NA	NA	G

Styrene *monomer* ...	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	.50-70(a). .50-81(a), (b).	I-D	NA	G
Sulfur (molten)	Atmos.	Elev.	III	1i 2ii	Integral Gravity.	Open	Open	II	G-1	Vent N	Vent N	Yes	.50-55	I-C	.40-1(f)(1)	G
Sulfur dioxide	Press.	Amb.	I	1NA 2ii	Ind. Pressure.	SR	Closed	.....	P-2	NR	Vent F	No	.50-30 .50-84 .55-1(j)	NA	NA	2
Sulfuric acid	Atmos.	Amb.	III	1ii 2ii	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	No	.50-20 .50-21 .50-73	I-B	NA	4
Sulfuric acid, spent	Atmos.	Amb.	III	1ii 2ii	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	No	.50-20 .50-21 .50-73	I-B	NA	4
1,1,2,2-Tetrachloroethane.	Atmos.	Amb.	III	1ii 2ii	Integral Gravity.	PV	Restr	II	G-1	NR	Vent F	No	No	NA	NA	G
Tetraethylenepentamine.	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	.55-1(c)	**I-C**	NA	G
Tetrahydrofuran	Atmos	Amb	III	1i 2ii	Integral Gravity.	PV	Restr	II	G-1	NR	Vent F	Yes	.50-70(b).	I-C	NA	G
Toluene diisocyanate.	Atmos.	Amb.	I	1ii 2ii	Integral Gravity.	PV	Closed	I	G-1	Dry N_2	Vent F	Yes	.50-5 ... .55-1(e)	**I-D**	NA	G
1,2,4-Trichlorobenzene.	Atmos.	Amb.	III	1ii 2ii	Integral Gravity.	PV	Restr.	II	G–1	NR	Vent F	Yes	No	I–D	NA	G
1,1,2-Trichloroethane.	Amb	Amb	III	1ii 2i	Integral Gravity.	PV	Restr	II	G-1	NR	Vent F	No	.50-73 .56-1(a)	I-D	NA	G
Trichloroethylene	Atmos.	Amb.	III	1i 2i	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	No	No	I-D	NA	G

TABLE 151.05—SUMMARY OF MINIMUM REQUIREMENTS—Continued

Cargo identification[1]			Hull type	Cargo segregation tank	Tanks			Cargo transfer		Environmental control		Fire protection required	Special requirements (section in 46 CFR part 151)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
Name	Pressure	Temp.			Type	Vent	Gauging device	Piping class	Control	Cargo tanks	Cargo handling space					
1,2,3-Trichloropropane.	Atmos.	Amb.	II	1ii 2i	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.50-73 .56-1(a)	**I-D**	NA	G
Triethanolamine	Atmos.	Amb.	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	.55-1(b)	**I-C**	NA	G
Triethylamine	Atmos.	Amb.	II	1ii 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.55-1(e)	**I-C**	NA	G
Triethylenetetramine	Atmos.	Amb.	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	Vent N	Yes	.55-1(b)	**I-C**	NA	G
Triphenylborane (10% or less), Caustic soda solution.	Atmos.	Amb.	III	1i 2i	Integral Gravity.	Open	Open	II	G–1	NR	NR	No	.56–1(a), (b), (c).	NA	NA	G
Trisodium phosphate solution.	Atmos.	Amb. Elev.	III	1i 2i	Integral Gravity.	Open	Open	II	G–1	NR	NR	No	.50–73 .56–1(a), (c).	NA	NA	G
Urea, Ammonium nitrate solution (containing more than 2% NH_3).	Atmos.	Amb.	III	1i 2i	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	No	.56-1(b)	I-D	NA	G
Valeraldehyde (iso-, n-), *see* **Valeraldehyde (all isomers)**.																
Valeraldehyde (all isomers).	Atmos.	Amb.	III	1i 2ii	Integral Gravity..	PV	Restr.	II	G-1	Inert	Vent F	Yes	No	I-C	NA	G

Vanillan black liquor (free alkali content 3% or more).	Atmos.	Amb.	III	1i 2i	Integral Gravity.	Open	Open	II	G-1	NR	NR	No	.50-73 .56-1(a), (c), (g).	NA	NA	G
Vinyl acetate	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	Open	II	G-1	NR	Vent F	Yes	.50-70(a). .50-81(a), (b).	I-D	NA	G
Vinyl chloride	Press.	Amb.	II	1NA 2ii	Ind. Pressure.	SR	Closed	II	P-2	NR	Vent F	Yes	.50-30 .50-34	I-D	NA	8
Vinyl chloride	Atmos.	Low	II	1NA 2ii	Ind. Gravity.	PV	Closed	II-L	G-2	NR	Vent F	Yes	.50-30 .50-34	I-D	.40-1(b)(1)	8
Vinylidene chloride	Atmos.	Amb.	II	1NA 2ii	Ind. Gravity.	PV	Closed	II	P-2	Padded	Vent F	Yes	.55-1(f) .50-70(a). .50-81(a), (b).	I-D	NA	G
Vinyltoluene	Atmos.	Amb.	III	1i 2ii	Integral Gravity.	PV	Restr.	II	G-1	NR	Vent F	Yes	.50-70(a). .50-81 .56-1(a), (b), (c), (g).	I-D	NA	G
For requirements see these sections:.			151.10-1	151.13-5	151.15-1.	151.15-5	151.15-10	151.20-1	151.20-5	151.25-1	151.25-2	151.30		111.105 (Subchapter J)	151.40	151.04-5

See Table 2 of Part 153 for additional cargoes permitted to be carried by tankbarge.

Items with a bullet (•) or in **boldface** are changes since October 1, 1993.

Terms and symbols:
Segregation—Tank—
Line 1—Segregation of cargo from surrounding waters:
i=Skin of vessel (single skin) only required. Cargo tank wall can be vessel's hull.
ii=Double skin required. Cargo tank wall cannot be vessel's hull.
Line 2—Segregation of cargo space from machinery spaces and other spaces which have or could have a source of ignition:
i=Single bulkhead only required. Tank wall can be sole separating medium.
ii=Double bulkhead required. Cofferdam, empty tank, pumproom, tank with Grade E Liquid (if compatible with cargo) is satisfactory.

Internal tank inspection—
G—Indicates cargo is subject to general provisions of 151.04-5(b).
Specific numbers in this column are changes from the general provisions.
Abbreviations used:
Tank type: Ind=Independent.
Vent:
PV=Pressure vacuum valve.
SR=Safety relief.
Gauging device: Restr.=Restricted.
General usage:
NR=No requirement.
NA=Not applicable.
1. The provisions contained in 46 CFR Part 197, subpart C, apply to liquid cargoes contining 0.5% or more benzene by volume.

[CGD 88–100, 54 FR 40029, Sept. 29, 1989, as amended by CGD 85–061, 54 FR 50966, Dec. 11, 1989; CGD 88–100, 55 FR 17277, Apr. 24, 1990; CGD 88–040, 56 FR 52135, Oct. 17, 1991; 56 FR 65006, Dec. 13, 1991; CGD 92–100, 59 FR 17027, Apr. 11, 1994; CGD 94–900, 59 FR 45136, 45137, 45138, Aug. 31, 1994; CGD 94–902, 60 FR 34043, June 29, 1995; CGD 95–900, 60 FR 34050, June 29, 1995]

Subpart 151.10—Barge Hull Construction Requirements

§ 151.10–1 Barge hull classifications.

(a) Each barge constructed or converted in conformance with this subpart shall be assigned a hull type number.

(1) Effective dates for certain requirements:

(i) Barges constructed or converted between July 1, 1964, and June 1, 1970, in accordance with the construction requirements of §§ 32.63 and 98.03 of this chapter are considered to comply with the basic provisions of this subpart and will retain the hull type classification for the service for which they were originally approved. Changes in product endorsement will not be considered a change in service, except when a change to a product of higher specific gravity necessitates a reevaluation of the intact and damage stability requirements in subpart E of part 172 of this chapter.

(2) [Reserved]

(b) For this purpose the barge hull types shall be defined as follows:

(1) *Type I barge hull.* Barge hulls classed as Type I are those designed to carry products which require the maximum preventive measures to preclude the uncontrolled release of the cargo. These barges are required to meet:

(i) Standards of intact stability and a modified two compartment standard of subdivision and damage stability, as specified in subpart E of part 172 of this chapter; and

(ii) Hull structural requirements, including an assumed grounding condition.

(2) *Type I–S (special) barge hulls.* Type I–S (special) barge hulls are those constructed or converted for the carriage of chlorine in bulk prior to July 1, 1964, and modified to higher stability standards prior to July 1, 1968, but not meeting the requirements for full Type I classification.

(3) *Type II barge hull.* Barge hulls classed as Type II are those designed to carry products which require significant preventive measures to preclude the uncontrolled release of the cargo. These barges are required to meet:

(i) Standards of intact stability and a modified one compartment standard of subdivision and damage stability, as specified in subpart E of part 172 of this chapter; and

(ii) Hull structural requirements, including an assumed grounding condition.

(4) *Type III barge hull.* Barge hulls classed as Type III are those designed to carry products of sufficient hazard to require a moderate degree of control. These barges are required to meet:

(i) Standards of intact stability as specified in subpart E of part 172 of this chapter; and

(ii) Hull structural requirements.

[CGFR 70–10, 35 FR 3714, Feb. 25, 1970, as amended by CGD 79–023, 48 FR 51008, Nov. 4, 1983; CGD 88–100, 54 FR 40040, Sept. 29, 1989]

§ 151.10–5 Subdivision and stability.

Each barge must meet the applicable requirements in subchapter S of this chapter.

[CGD 70–023, 48 FR 51009, Nov. 4, 1983]

§ 151.10–15 Certificate endorsement.

(a)–(b) [Reserved]

(c) *Certificate endorsement.* The following information shall be submitted, and upon approval of calculations shall form part of the endorsement on the Certificate of Inspection:

(1) Limiting draft for each hull type service for which approval is requested.

(2) Maximum density (lb./gal.) and maximum cargo weight (tons) for each tank for which approval is requested. Their weights will normally reflect uniform loading except that for trim purposes the individual tank cargo weight may exceed the uniform loading tank cargo weight, corresponding to the barge fresh water deadweight at the limiting draft, by 5 percent. Where a greater degree of nonuniform loading