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SUBCHAPTER O—CERTAIN BULK DANGEROUS CARGOES

PART 150—COMPATIBILITY OF CARGOES

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AUTHORITY: 46 U.S.C. 3306, 3703; 49 CFR 1.45, 1.46. Section 150.105 issued under 44 U.S.C. 3507; 49 CFR 1.45.

SOURCE: CGD 75–59, 45 FR 70263, Oct. 23, 1980, unless otherwise noted.

§ 150.105 OMB control numbers assigned pursuant to the Paperwork Reduction Act.

(a) *Purpose.* This section collects and displays the control numbers assigned to information collection and recordkeeping requirements in this subchapter by the Office of Management and Budget (OMB) pursuant to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). The Coast Guard intends that this section comply with the requirements of 44 U.S.C. 3507(f) which requires that agencies display a current control number assigned by the Director of the OMB for each approved agency information collection requirement.

(b) *Display.*

46 CFR part or section where identified or described	Current OMB control No.
§ 150.01–15	2115–0016
§ 153.5	2115–0016
§ 153.905	2115–0089
§ 153.910	2115–0089
§ 153.968	2115–0089
Part 154	2115–0113
§ 154.12	2115–0016

[49 FR 38121, Sept. 27, 1984, as amended by CGD 77–069, 52 FR 31626, Aug. 21, 1987]

§ 150.110 Applicability.

This subpart prescribes rules for identifying incompatible hazardous materials and rules for carrying these materials in bulk as cargo in permanently attached tanks or in tanks that are loaded or discharged while aboard the vessel. The rules apply to all vessels that carry liquid dangerous cargoes in bulk that are subject to 46 U.S.C. Chapter 37.

[CGD 95–028, 62 FR 51209, Sept. 30, 1997]

EFFECTIVE DATE NOTE: At 62 FR 51209, Sept. 30, 1997, § 150.110 was revised by CGD 95–028, effective Oct. 30, 1997. For the convenience of the user, the superseded text is set forth as follows:

§ 150.110 Applicability.

This subpart prescribes rules for identifying incompatible hazardous materials and rules for carrying these materials in bulk as cargo in permanently attached tanks or in tanks that are loaded or discharged while aboard the vessel. The rules apply to all vessels subject to 46 U.S.C. 391a.

§ 150.115 Definitions.

As used in this subpart: *Hazardous material* means:

(a) A flammable liquid as defined in § 30.10–22 or a combustible liquid as defined in § 30.10–15 of this chapter;

(b) A material listed in Table 151.05, Table 1 of part 153, or Table 4 of part 154 of this chapter; or

(c) A liquid, liquefied gas, or compressed gas listed in 49 CFR 172.101.

Person in charge means the master of a self-propelled vessel, or the person in charge of a barge.

§ 150.120 Definition of incompatible cargoes.

Except as described in § 150.150, a cargo of hazardous material is incompatible with another cargo listed in Table I if the chemical groups of the two cargoes have an ''X'' where their columns intersect in Figure 1 and are not shown as exceptions in Appendix I. (See also § 150.140.)

[CGD 83–047, 50 FR 33038, Aug. 16, 1985]

§ 150.130 Loading a cargo on vessels carrying cargoes with which it is incompatible.

Except as described in § 150.160, the person in charge of a vessel shall ensure that the containment system for a cargo that is a hazardous material meets the following requirements:

(a) The containment system must separate the hazardous material or its residue from any cargo in table I with which it is incompatible by two barriers such as formed by a:

(1) Cofferdam;

(2) Empty tank;

(3) Void space;

(4) Cargo handling space;

(5) Tank containing a compatible cargo; or

(6) Piping tunnel.

(b) In this subpart, isolation across a cruciform joint is equivalent to isolation by two barriers.

(c) The containment system for the hazardous material must not have a piping or venting system that connects to a containment system carrying a cargo with which the hazardous material is incompatible. Any such piping or venting system must have been separated from the containment system carrying the incompatible cargo by:

(1) Removing a valve or spool piece and blanking off the exposed pipe ends, or

(2) Installing two spectacle flanges in series with a means of detecting leakage into the pipe between the spectacle flanges.

§ 150.140 Cargoes not listed in Table I or II.

A cargo of hazardous material not listed in Table I or II must be handled as if incompatible with all other cargoes until the Commandant (G–MSO) (tel. no. (202) 267–1577) assigns the hazardous material to a compatibility group. (Table I lists cargoes alphabetically while Table II lists cargoes by compatibility group).

[CGD 83–047, 50 FR 33038, Aug. 16, 1985, CGD 86–100, 52 FR 21037, June 4, 1987; CGD 95–072, 60 FR 50465, Sept. 29, 19955; CGD 96–041, 61 FR 50731, Sept. 27, 1996]

§ 150.150 Exceptions to the compatibility chart.

The Commandant (G–MSO) authorizes, on a case by case basis, exceptions to the rules in this subpart under the following conditions:

(a) When two cargoes shown to be incompatible in Figure 1 meet the standards for a compatible pair in Appendix III, or

(b) When two cargoes shown to be compatible in Figure 1 meet the standards for an incompatible pair in Appendix III.

Appendix I contains cargoes which have been found to be exceptions to Figure 1, the Compatibility Chart.

[CGD 83–047, 50 FR 33038, Aug. 16, 1985, as amended at CGD 95–072, 60 FR 50465, Sept. 29, 1995; CGD 96–041, 61 FR 50731, Sept. 27, 1996]

§ 150.160 Carrying a cargo as an exception to the compatibility chart.

The Operator of a vessel having on board a cargo carried as an exception under § 150.150 but not listed in Appendix I, Exceptions to the Chart, shall make sure that:

(a) The Commandant (G–MSO) has authorized by letter or message the cargo pair as an exception to the compatibility chart; and

(b) A copy of the letter or message is on the vessel.

[CGD 75–59, 45 FR 70263, Oct. 23, 1980, as amended by CGD 82–063b, 48 FR 4781, Feb. 3, 1983; CGD 83–047, 50 FR 33038, Aug. 16, 1985; CGD 95–072, 60 FR 50465, Sept. 29, 19955; CGD 96–041, 61 FR 50731, Sept. 27, 1996]

§ 150.170 Right of appeal.

Any person directly affected by a decision or action taken under this part, by or on behalf of the Coast Guard, may appeal therefrom in accordance with subpart 1.03 of this chapter.

[CGD 88–033, 54 FR 50381, Dec. 6, 1989]

Figure 1 - Compatibility chart

CARGO COMPATIBILITY / CARGO GROUPS	1. NON-OXIDIZING MINERAL ACIDS	2. SULFURIC ACID	3. NITRIC ACID	4. ORGANIC ACIDS	5. CAUSTICS	6. AMMONIA	7. ALIPHATIC AMINES	8. ALKANOLAMINES	9. AROMATIC AMINES	10. AMIDES	11. ORGANIC ANHYDRIDES	12. ISOCYANATES	13. VINYL ACETATE	14. ACRYLATES	15. SUBSTITUTED ALLYLS	16. ALKYLENE OXIDES	17. EPICHLOROHYDRIN	18. KETONES	19. ALDEHYDES	20. ALCOHOLS, GLYCOLS	21. PHENOLS, CRESOLS	22. CAPROLACTAM SOLUTION	
1. NON-OXIDIZING MINERAL ACIDS		X			X	X	X	X	X	X	X	X	X			X	X						1
2. SULFURIC ACID	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2
3. NITRIC ACID		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		3
4. ORGANIC ACIDS		X			X	X	X	X				X				X	X						4
5. CAUSTICS	X	X	X	X							X	X				X	X		X	X	X	X	5
6. AMMONIA	X	X	X	X						X	X	X	X			X	X		X				6
7. ALIPHATIC AMINES	X	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X	7
8. ALKANOLAMINES	X	X	X	X							X	X	X	X	X	X	X		X				8
9. AROMATIC AMINES	X	X	X								X	X							X				9
10. AMIDES	X	X	X			X						X									X		10
11. ORGANIC ANHYDRIDES	X	X	X		X	X	X	X	X														11
12. ISOCYANATES	X	X	X	X	X	X	X	X	X	X										X		X	12
13. VINYL ACETATE	X	X	X			X	X	X															13
14. ACRYLATES		X	X				X	X															14
15. SUBSTITUTED ALLYLS		X	X				X	X															15
16. ALKYLENE OXIDES	X	X	X	X	X	X	X	X															16
17. EPICHLOROHYDRIN	X	X	X	X	X	X	X	X															17
18. KETONES		X	X				X																18
19. ALDEHYDES		X	X		X	X	X	X	X														19
20. ALCOHOLS, GLYCOLS		X	X		X		X					X											20
21. PHENOLS, CRESOLS		X	X		X		X			X													21
22. CAPROLACTAM SOLUTION		X			X		X					X											22
30. OLEFINS		X	X																				30
31. PARAFFINS																							31
32. AROMATIC HYDROCARBONS			X																				32
33. MISCELLANEOUS HYDROCARBON MIXTURES			X																				33
34. ESTERS		X	X																				34
35. VINYL HALIDES			X																		X		35
36. HALOGENATED HYDROCARBONS																							36
37. NITRILES		X																					37
38. CARBON DISULFIDE							X	X															38
39. SULFOLANE																							39
40. GLYCOL ETHERS		X										X											40
41. ETHERS		X	X																				41
42. NITROCOMPOUNDS					X	X	X	X	X														42
43. MISCELLANEOUS WATER SOLUTIONS		X										X											43
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	

TABLE I—ALPHABETICAL LIST OF CARGOES

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Acetaldehyde	19	AAD	
Acetic acid	[2]4	AAC	
Acetic anhydride	11	ACA	
Acetone	[2]18	ACT	
Acetone cyanohydrin	[1,2]0	ACY	
Acetonitrile	37	ATN	
Acetophenone	18	ACP	
Acrolein	[2]19	ARL	
Acrylamide solution	10	AAM	
Acrylic acid	[2]4	ACR	
Acrylonitrile	[2]15	ACN	
Acrylonitrile-Styrene copolymer dispersion in Polyether polyol	20	ALE	
Adiponitrile	37	ADN	
Alachlor technical	33	ALH	
•Alcohols (C13+)	20	ALY	TDN/TTN/PDC/TFA
Alcoholic beverages	20		
•Alcohol polyethoxylates	20		APU/APV/APW(APK/APL)
Alcohol polyethoxylates, secondary	20		AEA/AEB
Alkanes (C6–C9)	31	ALK	HXS/HMX/OAX/NAX
n-Alkanes (C10+)	31		DCC/DOC/TRD/ALJ
iso- & cyclo-Alkanes (C10–C11)	31	AKI	
iso- & cyclo-Alkanes (C12+)	31		
Alkane (C14–C17) sulfonic acid, sodium salt solution	34	AKA	
Alkaryl polyether (C9–C20)	41	AKP	
Alkenyl(C11+)amide	11	AKM	
Alkenylsuccinic anhydride	11	AAH	
Alkyl acrylate-Vinyl pyridine copolymer in Toluene	32	AAP	
Alkyl(C8+)amine, Alkenyl (C12+) acid ester mixture	34	AAA	
Alkyl(C3–C4)benzenes	32	AKC	PBY/BBE
Alkyl(C5–C8)benzenes	32	AKD	
•Alkyl(C9+)benzenes	32	AKB	DBZ/UDB/DDB/TRB/TDB
•Alkylbenzene, Alkylindane, Alkylindene mixture (each C12–C17)	32	AIH	
Alkylbenzenesulfonic acid	[1,2]0	ABS	
Alkylbenzenesulfonic acid, sodium salt solutions	33	ABT	
Alkyl dithiothiadiazole (C6–C24)	33	ADT	
Alkyl ester copolymer (C6–C18)	34	AES	
Alkyl(C7–C9) nitrates	[2]34	AKN	ONE
Alkyl phenol sulfide (C8–C40)	34	AKS	
Alkyl phthalates	34		
Allyl alcohol	[2]15	ALA	
Allyl chloride	15	ALC	
Aluminium chloride, Hydrochloric acid solution	0	AHS	
Aluminum sulfate solution	[2]43	ASX	ALM
2-(2-Aminoethoxy)ethanol	8	AEX	
Aminoethyldiethanolamine, Aminoethylethanolamine solution	8		
Aminoethylethanolamine	8	AEE	
N-Aminoethylpiperazine	7	AEP	
2-Amino-2-hydroxymethyl-1,3-propanediol solution	43	AHL	
2-Amino-2-methyl-1-propanol	8	APR	
Ammonia, anhydrous	6	AMA	
Ammonia, aqueous, *see* Ammonium hydroxide	6		AMH
Ammonium bisulfite solution	[2]43	ABX	ASU
•Ammonium hydrogen phosphate solution	0	AMI	
Ammonium hydroxide (28% or less Ammonia)	6	AMH	
Ammonium nitrate solution	[1]0	ANR	AMN
Ammonium nitrate, Urea solution (containing Ammonia)	6	UAS	
•Ammonium nitrate, Urea solution (not containing Ammonia)	43	ANU	UAT
•Ammonium polyphosphate solution	43	AMO	APP
Ammonium sulfate solution	43	AME	AMS
Ammonium sulfide solution	5	ASS	ASF
Ammonium thiocyanate, Ammonium thiosulfate solution	0	ACS	
Ammonium thiosulfate solution	43	ATV	ATF
Amyl acetate	34	AEC	IAT/AML/AAS/AYA
Amyl alcohol	20	AAI	IAA/AAN/ASE/APM
•Amylene, *see* Pentene	30	AMZ	PTX
•Amyl methyl ketone, *see* Methyl amyl ketone	18	AMK	MAK
Aniline	9	ANL	
Animal and Fish oils, n.o.s.	34	AFN	
Animal and Fish acid oils and distillates, n.o.s.	34	AFA	

TABLE I—ALPHABETICAL LIST OF CARGOES—Continued

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Anthracene oil (Coal tar fraction), *see* Coal tar	33	AHO	COR
Apple juice	43		
Aryl polyolefin (C11–C50)	30	AYF	
Asphalt	33	ASP	ACU
Asphalt blending stocks, roofers flux	33	ARF	
Asphalt blending stocks, straight run residue	33	ASR	
Aviation alkylates	33	AVA	GAV
Barium long chain alkaryl sulfonate (C11–C50)	34	BCA	
Barium long chain alkyl(C8–C14)phenate sulfide	34	BCH	
Behenyl alcohol	20		
Benzene	32	BNZ	
Benzene hydrocarbon mixtures (having 10% Benzene or more)	32	BHB	
Benzenesulfonyl chloride	[1,2]0	BSC	
Benzene, Toluene, Xylene mixtures	32	BTX	
Benzene tricarboxylic acid, trioctyl ester	34		
Benzylacetate	34	BZE	
Benzyl alcohol	21	BAL	
Benzyl chloride	36	BCL	
Brake fluid base mixtures	20	BFX	
Butadiene	30	BDI	
Butadiene, Butylene mixtures (cont. Acetylenes)	30	BBM	
Butane	31	BMX	IBT/BUT
Butene, *see* Butylene	30		IBL/BTN
Butene oligomer	30	BOL	
Butyl acetate	34	BAX	IBA/BCN/BTA/BYA
Butyl acrylate	14	BAR	BAI/BTC
Butyl alcohol	[2]20		IAL/BAN/BAS/BAT
Butylamine	7	BTY	IAM/BAM/BTL/BUA
Butylbenzene	32	BBE	
Butyl benzyl phthalate	34	BPH	
Butyl butyrate	34	BBA	BUB/BIB
Butylene	30	BTN	IBL
Butylene glycol	[2]20	BUG	
Butylene oxide	16	BTO	
Butyl ether	41	BTE	
Butyl formate	34		BFI/BFN
Butyl heptyl ketone	18	BHK	
Butyl methacrylate	14	BMH	BMI/BMN
Butyl methacrylate, Decyl methacrylate, Cetyl-Eicosyl methacrylate mixture	14	DER	
Butyl phenol, Formaldehyde resin in Xylene	32		
n-Butyl propionate	34	BPN	
Butyl stearate	34		
Butyl toluene	32	BUE	
Butyraldehyde	19	BAE	BAD/BTR/BFA
Butyric acid	4	BRA	IBR
gamma-Butyrolactone	[1,2]0	BLA	
Calcium alkyl(C9)phenol sulfide, polyolefin phosphorosulfide mixture	34	CPX	
Calcium bromide solution *see* Drilling brines	43		DRB
Calcium bromide, Zinc bromide solution, *see* Drilling brine (containing Zinc salts)	43		DZB
Calcium carbonate slurry	34		
Calcium chloride solution	43	CCS	CLC
Calcium hydroxide slurry	5	COH	
Calcium hypochlorite solutions	5		CHZ/CHU/CHY
Calcium long chain alkaryl sulfonate (C11–C50)	34	CAY	
Calcium long chain alkyl phenate (C8–C40)	34	CAN	
Calcium long chain alkyl phenate sulfide (C8–C40)	34	CPI	
Calcium long chain alkyl salicylate (C13+)	34	CAK	
Calcium long chain alkyl phenolic amine (C8–C40)	7		
Calcium nitrate, Magnesium nitrate, Potassium chloride solution	34		
Calcium sulfonate, Calcium carbonate, Hydrocarbon solvent mixture	33		
Camphor oil	18	CPO	
Caprolactam solution	22	CLS	
Carbolic oil	21	CBO	
Carbon disulfide	38	CBB	
Carbon tetrachloride	36	CBT	
Cashew nut shell oil (untreated)	4	OCN	
Caustic potash solution	[2]5	CPS	
Caustic soda solution	[2]5	CSS	
Cetyl-Eicosyl methacrylate mixture	14	CEM	
Cetyl-Stearyl alcohol	20		
Chlorinated paraffins (C10–C13)	36	CLH	

TABLE I—ALPHABETICAL LIST OF CARGOES—Continued

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Chlorinated paraffins (C14–C17)	36		
Chlorine	[1] 0	CLX	
Chloroacetic acid solution	4	CHM	CHL/MCA
Chlorobenzene	36	CRB	
Chlorodifluoromethane	36	MCF	
Chloroform	36	CRF	
Chlorohydrins	17	CHD	
4-Chloro-2-methylphenoxyacetic acid, Dimethylamine salt solution	9	CDM	
•Chloronitrobenzene	42	CNO	
Chloropropionic acid	4	CPM	CLA/CLP
Chlorosulfonic acid	[1] 0	CSA	
Chlorotoluene	36	CHI	CTM/CTO/CRN
Choline chloride solutions	20	CCO	
Citric acid	4	CIS	CIT
Clay slurry, *see also* Kaolin clay slurry	43		
Coal tar	33	COR	OCT
Coal tar pitch	33	CTP	
Cobalt naphthenate in solvent naphtha	34	CNS	
Coconut oil, fatty acid	34	CFA	
Corn syrup	43	CSY	
Cottonseed oil, fatty acid	34	CFY	
Creosote	[2] 21	CCT	CCW/CWD
Cresols	21	CRS	CRL/CSL/CSO
Cresylate spent caustic	5	CSC	
Cresylic acid	21	CRY	
Cresylic acid, dephenolized	21	CAD	
Cresylic acid, sodium salt solution, *see* Cresylate spent caustic	5		CSC
Cresylic acid tar	21	CRX	
Crotonaldehyde	[2] 19	CTA	
Cumene*(isopropyl benzene), see* Propylbenzene	32	CUM	PBY
1,5,9-Cyclododecatriene	30	CYT	
Cycloheptane	31	CYE	
Cyclohexane	31	CHX	
Cyclohexanol	20	CHN	
Cyclohexanone	18	CCH	
Cyclohexanone, Cyclohexanol mixtures	[2] 18	CYX	
Cyclohexyl acetate	34	CYC	
Cyclohexylamine	7	CHA	
•1,3-Cyclopentadiene dimer	30	CPD	DPT
Cyclopentane	31	CYP	
Cyclopentene	30	CPE	
Cymene	32	CMP	
Decahydronaphthalene	33	DHN	
Decaldehyde	19		IDA/DAL
•Decane, *see* n-Alkanes (C10+)	31	DCC	ALJ
Decanoic acid	4	DCO	
Decene	30	DCE	
Decyl acetate	34	DYA	
Decyl acrylate	14	DAT	IAI/DAR
Decyl alcohol	[2] 20	DAX	ISA/DAN
Decylbenzene	32	DBZ	AKB
Decyloxytetrahydro-thiophene dioxide	[2] 0	DHT	
Dextrose solution	43	DTS	
Diacetone alcohol	[2] 20	DAA	
Dialkyl(C10–C14) benzenes	32	DAB	
•Dialkyl(C7–C13) phthalates	34	DAH	DHP/DIE/DOP/DIF/ DTP/DUP/DID/DIN/ DIO/EHE
Dibutylamine	7	DBA	
Dibutyl hydrogen phosphonate	34	DHD	
Dibutyl phthalate	34	DPA	
Dichlorobenzene	36	DBX	DBM/DBO/DBP
Dichlorodifluoromethane	36	DCF	
1,1-Dichloroethane	36	DCH	
2,2'-Dichloroethyl ether	41	DEE	
1,6-Dichlorohexane	36	DHX	
2,2'-Dichloroisopropyl ether	36	DCI	
Dichloromethane	36	DCM	
2,4-Dichlorophenol	21	DCP	
2,4-Dichlorophenoxyacetic acid, Diethanolamine salt solution	43	DDE	
2,4-Dichlorophenoxyacetic acid, Dimethylamine salt solution	[1, 2] 0	DAD	DDA/DSX

TABLE I—ALPHABETICAL LIST OF CARGOES—Continued

Chemical name	Group No.	CHRIS code	Related CHRIS codes
2,4-Dichlorophenoxyacetic acid, Triisopropanolamine salt solution	[2] 43	DTI	
Dichloropropane	36	DPX	DPB/DPP/DPC/DPL
1,3-Dichloropropene	15	DPS	DPU/DPF
Dichloropropene, Dichloropropane mixtures	15	DMX	
2,2-Dichloropropionic acid	4	DCN	
•Dicyclopentadiene, *see* 1,3-Cyclopentadiene dimer	30	DPT	CPD
Diethanolamine	8	DEA	
Diethanolamine salt of 2,4-Dichlorophenoxyacetic acid solution	43	DDE	
Diethylamine	7	DEN	
Diethylaminoethanol, *see* Diethylethanolamine	8		DAE
2,6-Diethylaniline	9	DMN	
Diethylbenzene	32	DEB	
Diethylene glycol	[2] 40	DEG	
Diethylene glycol butyl ether, *see* Poly(2-8)alkylene glycol monoalkyl(C1-C6) ether	40	DME	PAG
Diethylene glycol butyl ether acetate, *see* Poly(2-8)alkylene glycol monoalkyl(C1-C6) ether acetate.	34	DEM	PAF
Diethylene glycol dibutyl ether	40	DIG	
Diethylene glycol diethyl ether	40		
Diethylene glycol ethyl ether, *see* Poly(2-8)alkylene glycol monoalkyl (C1-C6) ether	40	DGE	PAG
•Diethylene glycol ethyl ether acetate, *see* Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether acetates.	34	DGA	PAF
Diethylene glycol n-hexyl ether, *see* Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether.	40	DHE	PAG
•Diethylene glycol methyl ether, *see* Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether.	40	DGM	PAG
Diethylene glycol methyl ether acetate, *see* Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether acetate.	34	DGR	PAF
Diethylene glycol phenyl ether	40	DGP	
Diethylene glycol phthalate	34	DGL	
Diethylene glycol propyl ether, *see* Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether	40	DGO	PAG
Diethylenetriamine	[2] 7	DET	
Diethylenetriamine pentaacetic acid, pentasodium salt solution	43		
Diethylethanolamine	8	DAE	
Diethyl ether, *see* Ethyl ether	41		EET
Di-(2-ethylhexyl)adipate	34	DEH	
Di-(2-ethylhexyl)phosphoric acid	1	DEP	
•Di-(2-ethylhexyl)phthalate, *see* Dialkyl(C7–C13) phthalates	34	DIE	DAH/DDIO/DOP/DAH
Diethyl phthalate	34	DPH	
Diethyl sulfate	34	DSU	
Diglycidyl ether of Bisphenol A	41	BDE	BPA
Diglycidyl ether of Bisphenol F	41	DGF	
Diheptyl phthalate	34	DHP	
Di-n-hexyl adipate	34	DHA	
Dihexyl phthalate	34		
1, 4-Dihydro-9,10-dihydroxy anthracene, disodium salt solution	5	DDH	
Diisobutylamine	7	DBU	
•Diisobutyl carbinol, *see* Nonyl alcohol	20	DBC	NNS
Diisobutylene	30	DBL	
Diisobutyl ketone	18	DIK	
Diisobutyl phthalate	34	DIT	
•Diisodecyl phthalate, *see* Dialkyl(C7–C13) phthalates	34	DID	DAH
Diisononyl adipate	34	DNY	
•Diisononyl phthalate, *see* Dialkyl(C7–C13) phthalates	34	DIN	DAH
Diisooctyl phthalate	34	DIO	
Diisopropanolamine	8	DIP	
Diisopropylamine	7	DIA	
Diisopropylbenzene	32	DIX	
Diisopropyl naphthalene	32	DII	
N,N-Dimethylacetamide	10	DAC	
N,N-Dimethylacetamide solution	10	DLS	
Dimethyl adipate	34	DLA	
Dimethylamine	7	DMA	
Dimethylamine solution	7		DMG/DMY/DMC
Dimethylamine salt of 4-Chloro-2-methylphenoxyacetic acid solution	9	CDM	
Dimethylamine salt of 2,4-Dichlorophenoxyacetic acid solution	[1, 2] 0	DAD	DDA/DSX
2,6-Dimethylaniline	9	DMM	
Dimethylcyclicsiloxane hydrolyzate	34		
N,N-Dimethylcyclohexylamine	7	DXN	
Dimethylethanolamine	8	DMB	
Dimethylformamide	10	DMF	
Dimethyl furan	41		

TABLE I—ALPHABETICAL LIST OF CARGOES—Continued

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Dimethyl glutarate	34	DGT	
Dimethyl hydrogen phosphite	[2]34	DPI	
Dimethyl naphthalene sulfonic acid, sodium salt solution	[2]34	DNS	
Dimethyloctanoic acid	4	DMO	
Dimethyl phthalate	34	DTL	
Dimethylpolysiloxane	34	DMP	
2,2-Dimethylpropane-1,3-diol	20	DDI	
Dimethyl succinate	34	DSE	
Dinitrotoluene	42	DNM	DTT/DNL/DNU
•Dinonyl phthalate, *see* Dialkyl(C7–C13) phthalates	34	DIF	DAH
•Dioctyl phthalate, *see* Dialkyl(C7–C13) phthalates	34	DOP	DAH
1,4-Dioxane	41	DOX	
Dipentene	30	DPN	
Diphenyl	32	DIL	
Diphenylamines, alkylated	7	DAJ	
Diphenylamine, reaction product with 2,2,4-trimethylpentene	7	DAK	
Diphenyl, Diphenyl ether mixture	33	DDO	DTH
Diphenyl ether	41	DPE	
Diphenyl ether, Diphenyl phenyl ether mixture	41	DOB	
Diphenylmethane diisocyanate	12	DPM	
Diphenylol propane-Epichlorohydrin resins	[1]0	DPR	
Di-n-propylamine	7	DNA	
Dipropylene glycol	40	DPG	
Dipropylene glycol butyl ether, *see* Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether	40	DBG	PAG
Dipropylene glycol dibenzoate	34	DGY	
Dipropylene glycol methyl ether, *see* Poly (2-8)alkylene glycol monoalkyl(C1-C6) ether.	40	DPY	PAG
Distillates, flashed feed stocks	33	DFF	
Distillates, straight run	33	DSR	
•Ditridecyl phthalate, *see* Dialkyl(C7–C13) phthalates	34	DTP	DAH
•Diundecyl phthalate, *see* Dialkyl(C7–C13) phthalates	34	DUP	DAH
Dodecane	31	DOC	PFN
Dodecanol	20	DDN	LAL
Dodecene	30	DOZ	DDC/DOD
2-Dodecenylsuccinic acid, dipotassium salt solution	34		DSP
•Dodecyl alcohol, *see* Dodecanol			DDN
Dodecylamine, Tetradecylamine mixture	[2]7	DTA	
Dodecylbenzene	32	DDB	AKB
Dodecylbenzenesulfonic acid	[2]0	DSA	
Dodecyldimethylamine, Tetradecyldimethylamine mixture	7	DOT	
Dodecyl diphenyl ether disulfonate solution	43	DOS	
Dodecyl hydroxypropyl sulfide	[2]	DOH	
Dodecyl methacrylate	14	DDM	
Dodecyl-Pentadecyl methacrylate mixtures	14	DDP	
Dodecyl phenol	21	DOL	
Dodecyl xylene	32	DXY	
Drilling brine (containing Calcium, Potassium or Sodium salts)	43		DRB
Drilling brine (containing Zinc salts)	43	DZB	
Drilling mud (low toxicity) *(if flammable or combustible)*	33		DRM
Drilling mud (low toxicity) *(if non-flammable or non-combustible)*	43		DRM
Epichlorohydrin	17	EPC	
Epoxy resin	18		
Ethane	31	ETH	
Ethanolamine	8	MEA	
•2-Ethoxyethanol, *see* Ethylene glycol monoalkyl ethers	40	EEO	EGC/EGE
2-Ethoxyethyl acetate	34	EEA	
•Ethoxylated alcohols, C11–C15, *see the alcohol poylethoxylates*	20		APU/APV/APW (EOD/ENP/EOP/EOT/ETD)
Ethoxy triglycol	40	ETG	
Ethyl acetate	34	ETA	
Ethyl acetoacetate	34	EAA	
Ethyl acrylate	14	EAC	
Ethyl alcohol	[2]20	EAL	
Ethylamine	[2]7	EAM	
Ethylamine solution	7	EAN	
Ethyl amyl ketone	18	EAK	ELK
Ethylbenzene	32	ETB	
Ethyl butanol	20	EBT	
N-Ethyl-n-butylamine	7	EBA	
Ethyl butyrate	34	EBR	

TABLE I—ALPHABETICAL LIST OF CARGOES—Continued

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Ethyl chloride	36	ECL	
Ethyl cyclohexane	31	ECY	
N-Ethylcyclohexylamine	7	ECC	
Ethylene	30	ETL	
Ethylene carbonate	34		
Ethylene chlorohydrin	20	ECH	
Ethylene cyanohydrin	20	ETC	
Ethylenediamine	[2]7	EDA	EMX
Ethylenediaminetetracetic acid, tetrasodium salt solution	43	EDS	
Ethylene dibromide	36	EDB	
Ethylene dichloride	[2]36	EDC	
Ethylene glycol	[2]20	EGL	
Ethylene glycol acetate	34	EGO	
Ethylene glycol butyl ether, *see* Ethylene glycol monoalkyl ethers	40	EGM	EGC
Ethylene glycol tert-butyl ether, *see* Ethylene glycol monoalkyl ethers	40		EGC
Ethylene glycol butyl ether acetate	34	EMA	
Ethylene glycol diacetate	34	EGY	
Ethylene glycol dibutyl ether	40	EGB	
•Ethylene glycol ethyl ether, *see* Ethyl glycol monoalkyl ethers	40	EGE	EGC/EEO
Ethylene glycol ethyl ether acetate, *see* 2-Ethoxyethyl acetate	34	EGA	EEA
Ethylene glycol hexyl ether	40	EGH	
Ethylene glycol isopropyl ether, *see* Ethylene glycol monoalkyl ethers	40	EGI	EGC
Ethylene glycol methyl butyl ether	40	EMB	
Ethylene glycol methyl ether, *see* Ethylene glycol monoalkyl ethers	40	EME	EGC
Ethylene glycol methyl ether acetate	34	EGT	
Ethylene glycol monoalkyl ethers	40	EGC	
Ethylene glycol phenyl ether	40	EPE	
Ethylene glycol phenyl ether, Diethylene glycol phenyl ether mixture	40	EDX	
Ethylene glycol propyl ether, *see* Ethylene glycol momalkyl ethers	40	EGP	EGC
Ethylene oxide	[1]0	EOX	
Ethylene oxide, Propylene oxide mixture	16	EPM	
Ethylene-Propylene copolymer	30		
Ethylene-Vinyl acetate copolymer emulsion	43		
Ethyl ether	41	EET	
Ethyl-3-ethoxypropionate	34	EEP	
•2-Ethylhexaldehyde, *see* Octyl aldehydes	19	EHA	OAL
•2-Ethylhexanoic acid, *see* Octanoic acids	4	EHO	OAY
•2-Ethylhexanol, *see* Octanol	20	EHX	OCX
2-Ethylhexyl acrylate	14	EAI	
2-Ethylhexylamine	7	EHM	
Ethyl hexyl phthalate	34	EHE	
•*Ethyl hexyl tallate*	*34*	*EHT*	
2-Ethyl-1-(hydroxymethyl)propane-1,3-diol, C8-C10 ester	34	EHD	
Ethylidene norbornene	[2]30	ENB	
Ethyl methacrylate	14	ETM	
2-Ethyl-6-methyl-N-(1'-methyl-2-methoxyethyl)aniline	9	EEM	
o-Ethyl phenol	21	EPL	
Ethyl propionate	34	EPR	
2-Ethyl-3-propylacrolein	[2]19	EPA	
Ethyl toluene	32	ETE	
•Fatty acids (saturated, C13+)	34	FAD	SRA
Ferric chloride solution	1	FCS	FCL
Ferric hydroxyethylethylenediaminetriacetic acid, trisodium salt solution	[2]43	FHX	STA
Ferric nitrate, Nitric acid solution	3	FNN	
Fish solubles *(water based fish meal extracts)*	43	FSO	
Fluorosilicic acid	1	FSJ	
Formaldehyde, Methanol mixtures	[2]19	MTM	
Formaldehyde solution	[2]19	FMS	
Formamide	10	FAM	
Formic acid	[2]4	FMA	
Fructose solution	43		
Fumaric adduct of Rosin, water dispersion	43	FAR	
Furfural	19	FFA	
Furfuryl alcohol	[2]20	FAL	
Gas oil, cracked	33	GOC	
Gasoline blending stock, alkylates	33	GAK	
Gasoline blending stock, reformates	33	GRF	
Gasolines:			
Automotive *(not over 4.23 grams lead per gal.)*	33	GAT	
Aviation *(not over 4.86 grams lead per gal)*	33	GAV	AVA
Casinghead *(natural)*	33	GCS	

TABLE I—ALPHABETICAL LIST OF CARGOES—Continued

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Polymer	33	GPL	
Straight run	33	GSR	
Glucose solution	43		
Glutaraldehyde solution	19	GTA	
Glycerine	[2] 20	GCR	
Glycerine, Dioxanedimethanol mixture	20	GDM	
Glycerol monooleate	20	GMO	
Glycerol polyalkoxylate	34		
Glyceryl triacetate	34		
Glycidyl ester of C10 trialkyl acetic acid, *see* Glycidyl ester of tridecyl acetic acid	34		GLT
Gylcidyl ester of tridecylacetic acid	34	GLT	
•Glycidyl ester of Versatic acid, *see* Gylcidyl ester of tridecylacetic acid	34		
Glycine, sodium salt solution	7		
Glycol diacetate	34		
Glyoxal solutions	19	GOS	
Glyoxylic acid	4	GAC	
Heptane	31	HMX	HPI/HPT
n-Heptanoic acid	4	HEP	
Heptanol	20	HTX	HTN
Heptene	30	HPX	HTE
Heptyl acetate	34	HPE	
•Herbicide (C15–H22–NO2–Cl), see Metolachlor	.....		MCO
Hexaethylene glycol, *see* Polyethylene glycol	40		
Hexamethylene glycol	20		
Hexamethylenediamine adipate solution	43	HAM	
Hexamethylenediamine solution	7	HMC	HMD
Hexamethylenetetramine	7	HMT	
Hexamethylenetetramine solutions	7	HTS	
Hexamethylenimine	7	HMI	
Hexane	[2] 31	HXS	IHA/HXA
Hexanoic acid	4	HXO	
Hexanol	20	HXN	
•Hexene	30	HEX	HXE/HXT/MPN/MTN
Hexyl acetate	34	HAE	HSA
Hexylene glycol	20	HXG	
Hydrochloric acid	1	HCL	
•Hydrofluorosilicic acid, *see Fluorosilicic acid*	1	HFS	FSJ
Hydrogen peroxide solutions	[1] 0		HPN/HPS/HPO
2-Hydroxyethyl acrylate	[1,2] 0	HAI	
N-(Hydroxyethyl)ethylenediaminetriacetic acid, trisodium salt solution	43	HET	
2-Hydroxy-4-(methylthio)butanoic acid	4	HBA	
Hydroxy terminated polybutadiene, *see* polybutadiene, hydroxyl terminated	20		
Isophorone	[2] 18	IPH	
Isophorone diamine	7	IPI	
Isophorone diisocyanate	12	IPD	
Isoprene	30	IPR	
Isopropylbenzene *(cumene), see* Propylbenzene	32	CUM	PBY/CUM
Jet fuels:			
JP-4	33	JPF	
JP-5	33	JPV	
JP-8	33	JPE	
Kaolin clay slurry	43		
Kerosene	33	KRS	
Ketone residue	18		
Kraft black liquor	5		KPL
Kraft pulping liquors *(Black, Green, or White)*	5	KPL	
Lactic acid	[2]	LTA	
Lactonitrile solution	37	LNI	
Lard	34		
Latex (ammonia inhibited)	30	LTX	
Latex, liquid synthetic	43	LLS	LTX
Lauric acid	34	LRA	
Lauryl polyglucose (50% or less)	20	LAP	
Lecithin (*soyabean*)	34	LEC	
Lignin liquor	43		
Liquid Streptomyces solubles	43		
Long chain alkaryl polyether (C11–C20)	41	LCP	
Long chain alkaryl sulfonic acid (C16–C60)	[2]	LCS	
Long chain alkylphenate/Phenol sulfide mixture	21		
Long chain polyetheramine in alkyl(C2–C4)benzenes	7	LCE	
Magnesium chloride solution	[1,2] 0		

TABLE I—ALPHABETICAL LIST OF CARGOES—Continued

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Magnesium hydroxide slurry	5		
Magnesium long chain alkaryl sulfonate (C11–C50)	34	MAS	
Magnesium long chain alkyl phenate sulfide (C8–C20)	34	MPS	
Magnesium long chain alkyl salicylate (C11+)	34	MLS	
•Magnesium nonyl phenol sulfide, *see* Magnesium long chain alkyl phenate sulfide (C8–C20).	.....		MPS
•Magnesium sulfonate, *see* Magnesium long chain sulfonate (C11–C50)	34	MSE	MAS
Maleic anhydride	11	MLA	
Mercaptobenzothiazol, sodium salt solution	5		SMB
Mesityl oxide	[2]18	MSO	
Metam sodium solution	7	MSS	SMD
Methacrylic acid	4	MAD	
Methacrylic resin in Ethylene dichloride	14	MRD	
Methacrylonitrile	15	MET	
Methane	31	MTH	
3-Methoxy-1-butanol	20		
3-Methoxybutyl acetate	34	MOA	
N-(2-Methoxy-1-*methyl* ethyl)-2-ethyl-6-methyl chloroacetanilide, *see* Metolachlor	.....		
1-Methoxy-2-propyl acetate	34	MPO	
•*Methoxy triglycol*	*40*	*MTG*	
Methyl acetate	34	MTT	
Methyl acetoacetate	34	MAE	
Methyl acetylene, Propadiene mixture	30	MAP	
Methyl acrylate	14	MAM	
Methyl alcohol	[2]20	MAL	
Methylamine solutions	7	MSZ	
Methyl amyl acetate	34	MAC	
•Methyl amyl alcohol	20	MAA	MIC
Methyl amyl ketone	18	MAK	
Methyl bromide	36	MTB	
Methyl butenol	20	MBL	
Methyl butyl ketone	18	MBK	
Methyl tert-butyl ether	[2]41	MBE	
Methylbutynol	20	MBY	
3-Methyl butyraldehyde	19		
Methyl butyrate	34	MBU	
Methyl chloride	36	MTC	
Methylcyclohexane	31	MCY	
Methylcyclopentadiene dimer	30	MCK	
Methyl diethanolamine	8	MDE	MAB
2-Methyl-6-ethylaniline	9	MEN	
Methyl ethyl ketone	[2]18	MEK	
2-Methyl-5-ethylpyridine	9	MEP	
Methyl formate	34	MFM	
N-Methylglucamine solution	43	MGC	
N-Methylglucamine solution (70% or less)	43	MGC	
Methyl heptyl ketone	18	MHK	
2-Methyl-2-hydroxy-3-butyne	20	MHB	
Methyl isoamyl ketone	18		MAK
•Methyl isobutyl carbinol, *see* Methyl amyl alcohol	20	MIC	MAA
Methyl isobutyl ketone	[2]18	MIK	
Methyl methacrylate	14	MMM	
3-Methyl-3-methoxybutanol	20		
3-Methyl-3-methoxybutyl acetate	34		
Methyl naphthalene	32	MNA	
Methylolureas	19	MUS	
2-Methyl pentane	31		IHA
•2-Methyl-1-pentene, *see* Hexene	30	MPN	HEX
•4-Methyl-1-pentene, *see* Hexene	30	MTN	HEX
Methyl propyl ketone	18	MKE	
Methylpyridine	9		MPR/MPE/MPF
N-Methyl-2-pyrrolidone	[2]9	MPY	
Methyl salicylate	34	MES	
alpha-Methylstyrene	30	MSR	
Metolachlor	34	MCO	
Milk	43		
Mineral spirits	33	MNS	
Molasses	20		
Molasses residue	0		
Monochlorodifluoromethane	36	MCF	
Morpholine	[2]7	MPL	

TABLE I—ALPHABETICAL LIST OF CARGOES—Continued

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Motor fuel antiknock compounds containing lead alkyls	[1] 0	MFA	
Myrcene	30	MRE	
Naphtha:			
Aromatic	33		
Coal tar solvent	33	NCT	
•*Cracking fraction*	[2] 33		
Heavy	33		
Paraffinic	33		
Petroleum	33	PTN	
Solvent	33	NSV	
Stoddard solvent	33	NSS	
Varnish Makers' and Painters'	33	NVM	
Naphthalene	32	NTM	
Naphthalene sulfonic acid-formaldehyde copolymer, sodium salt solution	0	NFS	
Naphthalene sulfonic acid, sodium salt solution	34	NSA	
Naphthenic acid	4	NTI	
Naphthenic acid, sodium salt solution	43	NTS	
Neodecanoic acid	4	NEA	
Nitrating acid	[1] 0	NIA	
Nitric acid (70% or less)	3	NCD	
Nitric acid (greater than 70%)	[1] 0		NAC
Nitrobenzene	42	NTB	
•o-Nitrochlorobenzene, *see* Chloronitrobenzene	42		CNO/CNP
Nitroethane	42	NTE	
o-Nitrophenol	[1,2] 0	NTP	NIP/NPH
Nitropropane	42	NPM	NPN/NPP
Nitropropane, Nitroethane mixture	42		NNM/NNL
Nitrotoluene	42	NIT	NIE/NTT/NTR
Nonane	31	NAX	NAN
Nonanoic acid	4	NNA	NAI/NIN
Nonanoic, Tridecanoic acid mixture	4	NAT	
•Nonene	30	NOO	NON/NNE
Nonyl acetate	34	NAE	
•Nonyl alcohol	[2] 20	NNS	NNI/NNN/DBC
Nonyl methacrylate	14	NMA	
Nonyl phenol	21	NNP	
•Nonyl phenol (ethoxylated)	40		NPE
Nonyl phenol poly(4-12)ethoxylates	40	NPE	
•Nonyl phenol sulfide solution, *see* Alkyl phenol sulfide (C8–C40)	.....		AKS/NPS
Noxious Liquid Substance, n.o.s. (NLS's)	0		
1-Octadecene	30		
Octadecenoamide	10	ODD	
Octane	31	OAX	IOO/OAN
•Octanoic acid	4	OAY	OAA/EHO
Octanol	[2] 20	OCX	IOA/OTA/EHX
Octene	30	OTX	OTE
n-Octyl acetate	34	OAF	OAE
•Octyl alcohol, *see* Octanol	[2] 20	OCX	IOA/OTA
•Octyl aldehyde	19	OAL	IOC/OLX/**EHA**
Octyl decyl adipate	34	ODA	
•Octyl nitrate, *see* Alkyl(C7–C9) nitrates	[2] 34	ONE	AKN
Octyl phenol	21		
Octyl phthalate, *see* Dialkyl(C7-C13)phthalates	34		DAH
Oil, edible:			
Beechnut	34	OBN	VEO
•Castor	34	OCA	VEO
Cocoa butter	34	OCB	VEO
•Coconut	[2] 34	OCC	VEO
Cod liver	34	OCL	AFN
•Corn	34	OCO	VEO
•Cottonseed	34	OCS	VEO
•Fish	[2] 34	OFS	AFN
Groundnut	34	OGN	VEO
Hazelnut	34	OHN	VEO
•Lard	34	OLD	AFN
Maize	34		VEO/OCO
Nutmeg butter	34	ONB	VEO
•Olive	34	OOL	VEO
•Palm	[2] 34	OPM	VEO
•Palm kernel	34	OPO	VEO
•Peanut	34	OPN	VEO

TABLE I—ALPHABETICAL LIST OF CARGOES—Continued

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Poppy	34	OPY	VEO
Poppy seed	34		VEO
Raisin seed	34	ORA	VEO
•Rapeseed	34	ORP	VEO
•Rice bran	34	ORB	VEO
•Safflower	34	OSF	VEO
Salad	34	OSL	VEO
Sesame	34	OSS	VEO
•Soya bean	34	OSB	VEO
•Sunflower seed	34	OSN	VEO
•Tucum	34	OTC	VEO
•Vegetable	34	OVG	VEO
Walnut	34	OWN	VEO
Oil, fuel:			
No. 1	33	OON	
No. 1–D	33	OOD	
No. 2	33	OTW	
No. 2–D	33	OTD	
No. 4	33	OFR	
No. 5	33	OFV	
No. 6	33	OSX	
Oil, misc:			
Aliphatic	33		
Animal	34	OMA	AFN
Aromatic	33		
Clarified	33	OCF	
Coal	33		
Coconut oil, fatty acid methyl ester	34	OCM	
Cotton seed oil, fatty acid	34	CFY	
Crude	33	OIL	
Diesel	33	ODS	
Gas, high pour	33		
Gas, low pour	33		
Gas, low sulfur	33		
Heartcut distillate	33		
Lanolin	34	OLL	AFN
Linseed	33	OLS	
Lubricating	33	OLB	
Mineral	33	OMN	
Mineral seal	33	OMS	
Motor	33	OMT	
•Neatsfoot	33	ONF	AFN
Oiticica	34	OOI	
Palm oil, fatty acid methyl ester	34	OPE	
Penetrating	33	OPT	
Perilla	34	OPR	
Pilchard	34	OPL	AFN
Pine	33	OPI	
Residual	33		
Road	33	ORD	
Rosin	33	ORN	
Seal	34		
Soapstock	34	OIS	
•Soybean (epoxidized)	34		EVO
•Sperm	33	OSP	AFN
Spindle	33	OSD	
Tall	34	OTL	
Tall, fatty acid	[2]34	TOF	
Transformer	33	OTF	
Tung	34	OTG	
Turbine	33	OTB	
Wood	34		
Olefin/Alkyl ester copolymer (molecular weight 2000+)	34	OCP	
Olefin mixtures	30		OFX/OFY
alpha-Olefins (C6–C18) mixtures	30	OAM	
•Olefins (C13+)	30		
Oleic acid	34	OLA	
Oleum	[1,2]0	OLM	
Oleylamine	10	OLY	
Oxyalkylated alkyl phenol formaldehyde	33		
Palm kernel acid oil	34	PNO	

TABLE I—ALPHABETICAL LIST OF CARGOES—Continued

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Palm kernel acid oil, methyl ester	34	PNF	
•Palm kernel oil, fatty acid, *see* Palm kernel acid oil	.....		
•Palm kernel oil, fatty acid methyl ester, *see* Palm kernel acid oil, methyl ester	.....		
Palm stearin	34	PMS	
•n-Paraffins (C10–C20), *see* n-Alkanes (C10+)	31	PFN	
Paraldehyde	19	PDH	
Pentachloroethane	36	PCE	
•Pentadecanol, *see* Alcohols (C13+)	20	PDC	ALY
1,3-Pentadiene	30	PDE	PDN
Pentaethylenehexamine	7	PEN	
Pentaethylenehexamine, Tetraethylenepentamine mixture	7	PEP	
Pentane	31	PTY	IPT/PTA
Pentanoic acid	4	POC	
Pentene	30	PTX	PTE
Pentene, Miscellaneous hydrocarbon mixture	[2]30		
Pentyl aldehyde	19		
n-Pentyl propionate	34	PPE	
Perchloroethylene	36	PER	
Petrolatum	33	PTL	
Phenol	21	PHN	
1-Phenyl-1-xylyl ethane	32	PXE	
Phosphoric acid	1	PAC	
Phosphorus	[1]0		PPW/PPR/PPB
Phthalic anhydride	11	PAN	
Phthalate based polyester polyol	[2]0	PBE	
alpha-Pinene	30	PIO	
beta-Pinene	30	PIP	
•Pinene	30	PIN	PIO/PIP
•Pine oil	33	PNL	OPI
Polyalkyl(C18–C22) acrylate in Xylene	14	PIX	
Polyalkylene glycol butyl ether, *see* Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether.	40	PGB	PAG
Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether	40	PAG	
Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether acetate	34	PAF	
Polyalkylene glycols, Polyalkylene glycol monoalkyl ethers mixtures	40	PPX	
Polyalkylene oxide polyol	20	PAO	
Polyalkyl methacrylate (C1–C20)	*14*	*PMT*	
Polyaluminum chloride solution	1		
Polybutadiene, hydroxyl terminated	20		
Polybutene	30	PLB	
Polybutenyl succinimide	10	PBS	
Poly(2+)cyclic aromatics	32	PCA	
Polydimethylsiloxane	34		
Polyether (molecular weight 2000+)	41	PYR	
Polyethylene glycol	40		
Polyethylene glycol dimethyl ether	40		
•Polyethylene glycol monoalkyl ether, *see* Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether.	40	PEE	PAG
Polyethylene polyamines	[2]7	PEB	
Polyferric sulfate solution	34	PSS	
Polyglycerine, Sodium salts solution (containing less than 3% Sodium hydroxide)	[2]20	PGT	
Polyglycerol	20		GCR
Poly(4+)isobutylene	30		
Polymethylene polyphenyl isocyanate	12	PPI	
Polymethylsiloxane	34		
Polyolefin (molecular weight 300+)	30		
Polyolefin amide alkeneamine (C28+)	7	POD	
Polyolefin amide alkeneamine borate (C28–C250)	34	PAB	
Polyolefin amide alkeneamine/Molybdenum oxysulfide mixture	7		
Polyolefin amide alkeneamine polyol	7	PAP	
Polyolefinamine in alkyl(C2–C4)benzenes	7	POF	
Polyolefin anhydride	11	PAR	
Polyolefin ester (C28–C250)	34	POS	
Polyolefin phenolic amine (C28–C250)	7	PPH	
Polyolefin phosphorosulfide, barium derivative (C28–C250)	34	PPS	
Poly(20)oxyethylene sorbitan monooleate	34	PSM	
Polypropylene	30	PLP	
Poly(5+)propylene	30	PLQ	
Polypropylene glycol	40	PGC	
Polypropylene glycol methyl ether	40	PGM	
•Polysiloxane	34		DMP

TABLE I—ALPHABETICAL LIST OF CARGOES—Continued

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Potassium chloride solution	43	PCS	(DRB)
Potassium hydroxide solution	[2]5		CPS
Potassium oleate	34	POE	
Potassium polysulfide, Potassium thiosulfide solution (41% or less)	0	PTG	
Potassium thiosulfate solution	43	PTF	
Propane	31	PRP	
Propanil, Mesityl oxide, Isophorone mixture	7	PMI	
Propanolamine	8	PAX	MPA/PLA
Propionaldehyde	19	PAD	
Propionic acid	4	PNA	
Propionic anhydride	11	PAH	
Propionitrile	37	PCN	
•n-Propoxypropanol, *see* Propylene glycol monoalkyl ether	40	PXP	PGE
Propyl acetate	34		IAC/PAT
Propyl alcohol	[2]20		IPA/PAL
Propylamine	7		IPP/PRA/IPO
Propylbenzene	32	PBY	PBZ/CUM
n-Propyl chloride	36	PRC	
iso-Propylcyclohexane	31	IPX	
Propylene	30	PPL	
Propylene-butylene copolymer	30	PBP	
Propylene carbonate	34		
Propylene dimer	30	PDR	
Propylene glycol	[2]20	PPG	
Propylene glycol n-butyl ether, *see* Propylene glycol monoalkyl ether	40	PGD	PGE
•Propylene glycol ethyl ether, *see* Propylene glycol monoalkyl ether	40	PGY	PGE
•Propylene glycol methyl ether, *see* Propylene glycol monoalkyl ether	40	PME	PGE
Propylene glycol methyl ether acetate	34	PGN	
Propylene glycol monoalkyl ether	40	PGE	PME/PGY
Propylene glycol phenyl ether	40	PGP	
Propylene glycol propyl ether, *see* Propylene glycol monoalkyl ether	40		PGE
Propylene oxide	16	POX	
Propylene tetramer	30	PTT	
Propylene trimer	30	PTR	
Propyl ether	41		IPE/PRE
•Pseudocumene, *see* Trimethylbenzene	32		TME/TRE
Pyridine	9	PRD	
Pyridine bases	9	PRB	
Rosin oil	33	ORN	
Rosin soap (disproportionated) solution	43	RSP	
•Rum, *see* Alcoholic beverages	20		
Sewage sludge	43		
Silica slurry	43		
Sludge, treated	43		
Sodium acetate, Glycol, Water mixture (not containing Sodium hydroxide)	[2]34	SAO	SAP
Sodium acetate, Glycol, Water mixture (containing Sodium hydroxide)	5	SAP	SAO
Sodium acetate solution	34	SAN	
Sodium alkyl sulfonate solution	43	SSU	
Sodium aluminate solution	5	SAU	
Sodium aluminosillicate slurry	34		
Sodium benzoate solution	34	SBN	
Sodium borohydride, Sodium hydroxide solution	5	SBX	SBH/SBI
Sodium carbonate solutions	5	SCE	
Sodium chlorate solution	[1,2]0	SDD	SDC
Sodium cyanide solution	5	SCS	SCN
Sodium dichromate solution	[1,2]0	SDL	SCR
Sodium dimethyl naphthalene sulfonate solution	[2]34		DNS
Sodium hydrogen sulfide, Sodium carbonate solution	[2]0	SSS	
Sodium hydrogen sulfite solution	43	SHX	
Sodium hydrosulfide solution	[2]5	SHR	
Sodium hydrosulfide, Ammonium sulfide solution	[2]5	SSA	
Sodium hydroxide solution	[2]5		CSS
Sodium hypochlorite solution	5	SHP	SHC
Sodium long chain alkyl salicylate (C13+)	34	SLS	
Sodium 2-mercaptobenzothiazol solution	5	SMB	
Sodium naphthalene sulfonate solution	34	SNS	
Sodium naphthenate solution, *see* Napthenic acid, sodium salt solution	5		
Sodium nitrite solution	5	SNI	SNT
Sodium petroleum sulfonate	33	SPS	
Sodium polyacrylate solution	[2]43		
Sodium salt of Ferric hydroxyethylethylenediaminetriacetic acid solution	43	STA	FHX

TABLE I—ALPHABETICAL LIST OF CARGOES—Continued

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Sodium silicate solution	[2]43	SSN	SSC
Sodium sulfide, Hydrosulfide solution	[1,2]0		SSH/SSI/SSJ
Sodium sulfide solution	43	SDR	
Sodium sulfite solution	43	SUP	SUS
•Sodium tartrates, Sodium succinates solution	43	STM	
Sodium thiocyanate solution	[1,2]0	STS	SCY
Sorbitol solutions	20		SBT
Soyabean oil (expoxidized)	34		OSC/EVO
•Stearic acid, *see* Fatty acids (saturated, C13+)	34	SRA	FAD
Stearyl alcohol	20		
Styrene	30	STY	STX
Sulfolane	39	SFL	
Sulfohydrocarbon (C3–C88)	33	SFO	
Sulfohydrocarbon, long chain (C18+) alkylamine mixture	7	SFX	
Sulfonated polyacrylate solutions	[2]43		
Sulfur	[1]0	SXX	
Sulfuric acid	[2]2	SFA	
Sulfuric acid, spent	2	SAC	
Tall oil	34	OTL	
Tall oil fatty acid, barium salt	[2]	TOB	
Tall oil soap (disproportionated) solution	43	TOS	
Tallow	[2]34	TLO	
Tallow fatty acid	[2]34	TFD	
•Tallow fatty alcohol, *see* Alcohols (C13+)	20	TFA	ALY
Tallow nitrile	37	TAN	
1,1,2,2-Tetrachloroethane	36	TEC	
•Tetradecanol, *see* Alcohols (C13+)	20	TTN	ALY
•Tetradecene, *see the olefins entires*	30	TTD	
Tetradecylbenzene	32	TDB	AKB
Tetraethylene glycol	40	TTG	
Tetraethylenepentamine	7	TTP	
Tetrahydrofuran	41	THF	
Tetrahydronaphthalene	32	THN	
•1,2,3,5-Tetramethylbenzene, *see* Tetramethylbenzene	32	TTB	TTC
Tetramethylbenzene	32	TTC	TTB
Tetrapropylbenzene, see Alkyl(C9+)benzenes	32		AKB
Tetrasodium salt of EDTA solution	43		EDS
Titanium tetrachloride	2	TTT	
Toluene	32	TOL	
Toluenediamine	9	TDA	
Toluene diisocyanate	12	TDI	
o-Toluidine	9	TLI	
•Triarylphosphate, *see* Triisopropylated phenyl phosphates	34		TPL
Tributyl phosphate	34	TBP	
1,2,4-Trichlorobenzene	36	TCB	
1,1,1-Trichloroethane	[2]36	TCE	
1,1,2-Trichloroethane	36	TCM	
Trichloroethylene	[2]36	TCL	
1,2,3-Trichloropropane	36	TCN	
1,1,2-Trichloro-1,2,2-trifluoroethane	36	TTF	
Tricresyl phosphate	34		TCO/TCP
•Tridecane, *see* n-Alkanes (C10+)	31	TRD	
Tridecanoic acid	34		
•*Tridecanol, see* Alcohols (C13+)	20	TDN	ALY
•Tridecene, *see* Olefins (C13+)	30	TDC	
Tridecyl acetate	34	TAE	
Tridecylbenzene	32	TRB	AKB
Triethanolamine	[2]8	TEA	
Triethylamine	7	TEN	
Triethylbenzene	32	TEB	
Triethylene glycol	40	TEG	
Triethylene glycol butyl ether, *see* Poly(2-8)alkylene glycol monoalkyl(C1-C6) ether	40		PAG
Triethylene glycol butyl ether mixture	40		
Triethylene glycol di-(2-ethylbutyrate)	34	TGD	
Triethylene glycol ether mixture	40		
•Triethylene glycol ethyl ether, *see* Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether.	40	TGE	PAG
Triethylene glycol methyl ether, *see* Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether.	40	TGY	PAG
Triethylenetetramine	[2]7	TET	
Triethyl phosphate	34	TPS	

TABLE I—ALPHABETICAL LIST OF CARGOES—Continued

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Triethyl phosphite	[2]34	TPI	
Trifluralin in Xylene	18	TFX	
Triisobutylene	30	TIB	
Triisooctyl trimellitate	34		
Triisopropanolamine	8	TIP	
Triisopropanolamine salt of 2,4-Dichlorophenoxyacetic acid solution	43		DTI
Triisopropylated phenyl phosphates	34	TPL	
Trimethylacetic acid	4	TAA	
Trimethylamine solution	7	TMT	
Trimethylbenzene	32	TRE	TME/TMB/TMD
Trimethylhexamethylenediamine (2,2,4- and 2,4,4-)	7	THA	
Trimethylhexamethylene diisocyanate (2,2,4- and 2,4,4-)	12	THI	
Trimethylol propane polyethoxylate	20	TPR	
•*2,2,4-Trimethyl pentanediol-1,3-diisobutyrate, see* 2,2,4-Trimethyl-1,3-pentanediol diisobutyrate.	.....		
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	34	TMQ	
2,2,4-Trimethyl-1,3-pentanediol-1-isobutyrate	34	TMP	
2,2,4-Trimethyl-3-pentanol-1-isobutyrate	34		
Trimethyl phosphite	[2]34	TPP	
1,3,5-Trioxane	[2]41	TRO	
Triphenylborane, Caustic soda solution	5	TPB	
•Tripropylene, *see* Propylene trimer	30		PTR
Tripropylene glycol	40	TGC	
•Tripropylene glycol methyl ether, *see* Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether.	40	TGM	PAG
Trisodium nitrilotriacetate	34		
Trisodium phosphate solution	5	TSP	
Trixylyl phosphate, *see* Trixylenyl phosphate	34		TRP
Trixylenyl phosphate	34	TRP	
Turpentine	30	TPT	
Undecanoic acid	4	UDA	
Undecanol, see Undecanol alcohol	20		UND
Undecene	30	UDC	
Undecyl alcohol	20	UND	
Undecylbenzene	32	UDB	AKB
Urea, Ammonium mono- and di-hydrogen phosphate, Potassium chloride solution	0	UPX	
Urea, Ammonium nitrate solution (containing Ammonia)	6	UAS	
•Urea, Ammonium nitrate solution (not containing Ammonia)	43	UAT	ANU
Urea, Ammonium phosphate solution	43	UAP	
Urea solution	43		URE
Valeraldehyde	19	VAK	IVA/VAL
Vanillin black liquor	5	VBL	
Vegetable acid oils and distillates, n.o.s.	34	VAO	
Vegetable oils, n.o.s.	34	VEO	
Vegetable protein solution	43		
Vinyl acetate	13	VAM	
Vinyl chloride	35	VCM	
Vinyl ethyl ether	13	VEE	
Vinylidene chloride	35	VCI	
Vinyl neodecanate	13	VND	
Vinyltoluene	13	VNT	
Water	43		
Waxes:	.....	WAX	
Candelilla	34	WDC	
Carnauba	34	WCA	
Paraffin	31	WPF	
Petroleum	33		
White spirit (low (15–20%) aromatic)	33	WSL	WSP
Xylene	32	XLX	XLM/XLO/XLP
Xylenols	21	XYL	
Zinc alkaryl dithiophosphate (C7–C16)	34	ZAD	
Zinc alkenyl carboxamide	10	ZAA	
Zinc alkyl dithiophosphate (C3–C14)	34	ZAP	
Zinc bromide, Calcium bromide solution, *see* Drilling brine (containing Zinc salts)	43		DZB

Items with a bullet (•) or in **boldface** are changes per CGD 92–100.

[1] Because of very high reactivity or unusual conditions of carriage or potential compatibility problems, this product is not assigned to a specific group in the Compatibility Chart. For additional compatibility information, contact Commandant (G–MSO), U.S. Coast Guard, 2100 Second Street, SW., Washington, D.C. 20593–0001. Telephone (202) 267–1577.

[2] See Appendix I—Exceptions to the Chart.

[CGD 92–100, 59 FR 17011, Apr. 11, 1994, as amended by CGD 94–902, 60 FR 34042, June 29, 1995; CGD 95–900, 60 FR 34045, 34046, 34047, 34049 June 29, 1995; CGD 95–900, 60 FR 39267, Aug. 2, 1995; CGD 96–041, 61 FR 50731, Sept. 27, 1996]

TABLE II—GROUPING OF CARGOES

0. UNASSIGNED CARGOES

Acetone cyanohydrin [1,2]
Alkylbenzenesulfonic acid [1,2]
Aluminium chloride, Hydrochloric acid solution [1]
Ammonium hydrogen phosphate solution [1]
Ammonium nitrate solution [1]
Ammonium thiocyanate, Ammonium thiosulfate solution [1]
Benzenesulfonyl chloride [1,2]
gamma-Butyrolactone [1,2]
Chlorine [1]
Chlorosulfonic acid [1]
Decyloxytetrahydro-thiophene dioxide [2]
2,4-Dichlorophenoxyacetic acid, Dimethylamine salt solution [1,2]
Dimethylamine salt of 2,4-Dichlorophenoxyacetic acid solution [1,2]
Diphenylol propane-Epichlorohydrin resins [1]
Dodecylbenzenesulfonic acid [1,2]
Dodecyl hydroxypropyl sulfide [2]
Ethylene oxide [1]
Fluorosilicic acid
2-Hydroxyethyl acrylate [1,2]
Lactic acid [2]
Long chain alkaryl sulfonic acid (C16–C60) [2]
Magnesium chloride solution [1,2]
Molasses residue [1]
Motor fuel antiknock compounds containing Lead alkyls [1]
Naphthalene sulfonic acid-formaldehyde copolymer, sodium salt solution [1]
Nitrating acid [1]
Nitric acid (greater than 70%) [1]
o-Nitrophenol [1,2]
Noxious Liquid Substance, n.o.s. (NLS's) [1]
Oleum [1,2]
Phosphorus [1]
Phthalate based polyester polyol [2]
Potassium polysulfide, Potassium thiosulfide solution (41% or less)
Sodium chlorate solution [1,2]
Sodium dichromate solution [1,2]
Sodium hydrogen sulfide, Sodium carbonate solution [1,2]
Sodium sulfide, Hydrosulfide solution [1,2]
Sodium thiocyanate solution [1,2]
Sulfur [1]
Tall oil fatty acid, barium salt [2]
Urea, Ammonium mono- and di-hydrogen phosphate, Potassium chloride solution

1. NON-OXIDIZING MINERAL ACIDS

Di-(2-ethylhexyl)phosphoric acid
Ferric chloride solution
Fluorosilicic acid
Hydrochloric acid
Phosphoric acid
Polyaluminum chloride solution

2. SULFURIC ACIDS

Sulfuric acid [2]
Sulfuric acid, spent
Titanium tetrachloride

3. NITRIC ACID

Ferric nitrate, Nitric acid solution
Nitric acid (70% or less)

4. ORGANIC ACIDS

Acetic acid [2]
Acrylic acid [2]
Butyric acid
Cashew nut shell oil (untreated)
Citric acid
Chloroacetic acid solution
Chloropropionic acid
Decanoic acid
2,2-Dichloropropionic acid
2,2-Dimethyloctanoic acid
2-Ethylhexanoic acid
Formic acid [2]
Glyoxylic acid
n-Heptanoic acid
Hexanoic acid
2-Hydroxy-4-(methylthio)butanoic acid
Methacrylic acid
Naphthenic acid
Neodecanoic acid
Nonanoic acid
Nonanoic, Tridecanoic acid mixture
Octanoic acid
Pentanoic acid
Propionic acid
Trimethylacetic acid
Undecanoic acid

5. CAUSTICS

Ammonium sulfide solution
Calcium hypochlorite solutions
Caustic potash solution [2]
Caustic soda solution [2]
Cresylate spent caustic
Cresylic acid, sodium salt solution
Kraft black liquor
Kraft pulping liquors
Mercaptobenzothiazol, sodium salt solution
Potassium hydroxide solution [2]
Sodium acetate, Glycol, Water mixture (containing Sodium hydroxide)
Sodium aluminate solution
Sodium borohydride, Sodium hydroxide solution
Sodium carbonate solutions
Sodium cyanide solution
Sodium hydrosulfide solution [2]
Sodium hydrosulfide, Ammonium sulfide solution [2]
Sodium hydroxide solution [2]
Sodium hypochlorite solution

Sodium 2-mercaptobenzothiazol solution
Sodium naphthenate solution
Sodium nitrite solution
Triphenylborane, Caustic soda solution
Trisodium phosphate solution
Vanillin black liquor

6. AMMONIA

Ammonia, anhydrous
Ammonia, aqueous
Ammonium hydroxide (28% or less Ammonia)
Ammonium nitrate, Urea solution (containing Ammonia)
Urea, Ammonium nitrate solution (containing Ammonia)

7. ALIPHATIC AMINES

N-Aminoethylpiperazine
Butylamine
Calcium long chain alkyl phenolic amine (C8–C40)
Cyclohexylamine
Dibutylamine
Diethylamine [2]
Diethylenetriamine
Diisobutylamine
Diisopropylamine
Dimethylamine
Dimethylamine solution
N,N-Dimethylcyclohexylamine
Di-n-propylamine
Diphenylamine, reaction product with 2,2,4-Trimethylpentene
Diphenylamines, alkylated
Dodecylamine, Tetradecylamine mixture [2]
Dodecyldimethylamine, Tetradecyldimethylamine mixture
Ethylamine [2]
Ethylamine solution
N-Ethyl-n-butylamine
N-Ethyl cyclohexylamine
Ethylenediamine [2]
2-Ethyl hexylamine
Hexamethylenediamine solution
Hexamethylenetetramine
Hexamethylenetetramine solutions
Hexamethylenimine
Isophorone diamine
Long chain polyetheramine in alkyl(C2–C4)benzenes
Metam sodium solution
Methylamine solutions
Morpholine [2]
Oleylamine
Pentaethylenehexamine
Pentaethylenehexamine, Tetraethylenepentamine mixture
Polyalkyl methacrylate (C1–C20)
Polyethylene polyamines [2]
Polyolefin amide alkeneamine (C28+)
Polyolefin amide alkeneamine/Molybdenum oxysulfide mixture
Polyolefin amide alkeneamine polyol
Polyolefinamine in alkyl(C2–C4)benzenes
Polyolefin phenolic amine (C28–C250)
Propanil, Mesityl oxide, Isophorone mixture
Propylamine
Sulfohydrocarbon, long chain (C18+) alkylamine mixture
Tetraethylenepentamine
Triethylamine
Triethylenetetramine [2]
Trimethylamine solution
Trimethylhexamethylene diamine (2,2,4- and 2,4,4-)

8. ALKANOLAMINES

2-(2-Aminoethoxy)ethanol
Aminoethyldiethanolamine, Aminoethylethanolamine solution
Aminoethylethanolamine
2-Amino-2-methyl-1-propanol
Diethanolamine
Diethylaminoethanol
Diethylethanolamine
Diisopropanolamine
Dimethylethanolamine
Ethanolamine
Propanolamine
Triethanolamine [2]
Triisopropanolamine

9. AROMATIC AMINES

Aniline
4-Chloro-2-methylphenoxyacetic acid, Dimethylamine salt solution
2,6-Diethylaniline
Dimethylamine salt of 4-Chloro-2-methylphenoxyacetic acid solution
2,6-Dimethylaniline
2-Ethyl-6-methyl-N-(1'-methyl-2-methoxyethyl)aniline
2-Methyl-6-ethyl aniline
2-Methyl-5-ethyl pyridine
Methyl pyridine
3-Methylpyridine
N-Methyl-2-pyrrolidone [2]
Pyridine
Pyridine bases
Toluenediamine
p-Toluidine

10. AMIDES

Acrylamide solution
Alkenyl(C11+)amide
N,N-Dimethylacetamide
N,N-Dimethylacetamide solution
Dimethylformamide
Formamide
Octadecenoamide

11. ORGANIC ANHYDRIDES

Acetic anhydride
Alkenylsuccinic anhydride
Maleic anhydride
Phthalic anhydride
Polyolefin anhydride
Propionic anhydride

12. ISOCYANATES

Diphenylmethane diisocyanate
Isophorone diisocyanate
Polymethylene polyphenyl isocyanate
Toluene diisocyanate
Trimethylhexamethylene diisocyanate (2,2,4- and 2,4,4-)

13. VINYL ACETATE

Vinyl acetate
Vinyl ethyl ether
Vinyl neodecanate
Vinyl toluene

14. ACRYLATES

Butyl acrylate
Butyl methacrylate
Butyl methacrylate, Decyl methacrylate, Cetyl-Eicosyl methacrylate mixture
Cetyl-Eicosyl methacrylate mixture
Decyl acrylate
Dodecyl methacrylate
Dodecyl-Pentadecyl methacrylate mixture
Ethyl acrylate
2-Ethylhexyl acrylate
Ethyl methacrylate
Methacrylic resin in Ethylene dichloride
Methyl acrylate
Methyl methacrylate
Nonyl methacrylate
Polyalkyl(C18 - C22) acrylate in Xylene
Polyalkyl methacrylate (C1–C20)

15. SUBSTITUTED ALLYLS

Acrylonitrile [2]
Allyl alcohol [2]
Allyl chloride
1,3-Dichloropropene
Dichloropropene, Dichloropropane mixtures
Methacrylonitrile

16. ALKYLENE OXIDES

Butylene oxide
Ethylene oxide, Propylene oxide mixtures
Propylene oxide

17. EPICHLOROHYDRIN

Chlorohydrins
Epichlorohydrin

18. KETONES

Acetone [2]
Acetophenone
Amyl methyl ketone
Butyl heptyl ketone
Camphor oil
Cyclohexanone
Cyclohexanone, Cyclohexanol mixtures [2]
Diisobutyl ketone
Ethyl amyl ketone
Epoxy resin
Ketone residue
Isophorone [2]
Mesityl oxide [2]
Methyl amyl ketone
Methyl butyl ketone
Methyl butyl ketone
Methyl diethanolamine
Methyl ethyl ketone [2]
Methyl heptyl ketone
Methyl isoamyl ketone
Methyl isobutyl ketone [2]
Methyl propyl ketone
Trifluralin in Xylene

19. ALDEHYDES

Acetaldehyde
Acrolein [2]
Butyraldehyde
Crotonaldehyde [2]
Decaldehyde
Ethylhexaldehyde
2-Ethyl-3-propylacrolein [2]
Formaldehyde, Methanol mixtures [2]
Formaldehyde solution [2]
Furfural
Glutaraldehyde solution
Glyoxal solutions
3-Methyl butyraldehyde
Methylolureas
Octyl aldehyde
Paraldehyde
Pentyl aldehyde
Propionaldehyde
Valeraldehyde

20. ALCOHOLS, GLYCOLS

Acrylonitrile-Styrene copolymer dispersion in Polyether polyol
Alcoholic beverages
Alcohol polyethoxylates
Alcohol polyethoxylates, secondary
Alcohols (C13+)
Amyl alcohol
Behenyl alcohol
Brake fluid base mixtures
Butyl alcohol [2]
Butylene glycol [2]
Cetyl-Stearyl alcohol
Choline chloride solutions
Cyclohexanol
Decyl alcohol [2]
Diacetone alcohol [2]
Diisobutyl carbinol
2,2-Dimethylpropane-1,3-diol
Dodecanol
Dodecyl alcohol
Ethoxylated alcohols, C11-C15
2-Ethoxyethanol
Ethyl alcohol [2]
Ethyl butanol
Ethylene chlorohydrin
Ethylene cyanohydrin
Ethylene glycol [2]
2-Ethylhexanol
Furfuryl alcohol [2]
Glycerine [2]
Glycerine, Dioxanedimethanol mixture
Glycerol monooleate
Heptanol

Hexamethylene glycol
Hexanol
Hexylene glycol
Hydroxy terminated polybutadiene
Lauryl polyglucose (50% or less)
3-Methoxy-1-butanol
Methyl alcohol [2]
Methyl amyl alcohol
Methyl butenol
Methylbutynol
2-Methyl-2-hydroxy-3-butyne
Methyl isobutyl carbinol
3-Methyl-3-methoxybutanol
Molasses
Nonyl alcohol [2]
Octanol [2]
Octyl alcohol [2]
Pentadecanol
Polyalkylene oxide polyol
Polybutadiene, hydroxyl terminated
Polyglycerol
Polyglycerine, Sodium salts solution (containing less than 3% Sodium hydroxide) [2]
Propyl alcohol [2]
Propylene glycol [2]
Rum
Sorbitol solutions
Stearyl alcohol
Tallow fatty alcohol
Tetradecanol
Tridecanol
Trimethylol propane polyethoxylate
Undecanol
Undecyl alcohol

21. PHENOLS, CRESOLS

Benzyl alcohol
Carbolic oil
Creosote [2]
Cresols
Cresylic acid
Cresylic acid dephenolized
Cresylic acid, tar
2,4-Dichlorophenol
Dodecyl phenol
o-Ethylphenol
Long chain alkylphenate/phenol sulfide mixture
Nonyl phenol
Octyl phenol
Phenol
Xylenols

22. CAPROLACTAM SOLUTIONS

Caprolactam solution

23–29. UNASSIGNED

30. OLEFINS

Amylene
Aryl polyolefin (C11–C50)
Butadiene
Butadiene, Butylene mixtures (cont. Acetylenes)
Butene
Butene oligomer
Butylene
1,5,9-Cyclododecatriene
1,3-Cyclopentadiene dimer
Cyclopentene
Decene
Dicyclopentadiene
Diisobutylene
Dipentene
Dodecene
Ethylene
Ethylene-Propylene copolymer
Ethylidene norbornene [2]
1-Heptene
Hexene
Isoprene
Latex (ammonia (1% or less) inhibited)
Methyl acetylene, Propadiene mixture
Methylcyclopentadiene dimer
2-Methyl-1-pentene
4-Methyl-1-pentene
alpha-Methyl styrene
Myrcene
Nonene
1-Octadecene
Octene
Olefin mixtures
alpha-Olefins (C6 - C18) mixtures
alpha-Olefins (C13+)
1,3-Pentadiene
Pentene
Pentene, Miscellaneous hydrocarbon mixture [2]
alpha-Pinene
beta-Pinene
Polybutene
Poly(4+)isobutylene
Polyolefin (molecular weight 300+)
Polypropylene
Poly(5+)propylene
Propylene
Propylene-butylene copolymer
Propylene dimer
Propylene tetramer
Propylene trimer
Styrene
Tetradecene
Tridecene
Triisobutylene
Tripropylene
Turpentine
Undecene

31. PARAFFINS

Alkanes (C6–C9)
n-Alkanes (C10+)
iso- & cyclo-Alkanes (C10–C11)
iso- & cyclo-Alkanes (C12+)
Butane
Cycloheptane
Cyclohexane
Cyclopentane
Decane
Dodecane
Ethane
Ethyl cyclohexane
Heptane
Hexane [2]

Methane
Methylcyclohexane
2-Methyl pentane
Nonane
Octane
Pentane
Propane
iso-Propylcyclohexane
Tridecane
Waxes:
  Paraffin

32. AROMATIC HYDROCARBONS

Alkyl(C3–C4)benzenes
Alkyl(C5–C8)benzenes
Alkyl(C9+)benzenes
Alkyl acrylate-Vinyl pyridine copolymer in Toluene
Alkylbenzene, Alkylindane, Alkylindene mixture (each C12–C17)
Benzene
Benzene hydrocarbon mixtures (having 10% Benzene or more)
Benzene, Toluene, Xylene mixtures
Butylbenzene
Butyl phenol, Formaldehyde resin in Xylene
Butyl toluene
Cumene
Cymene
Decylbenzene
Dialkyl(C10 - C14) benzenes
Diethylbenzene
Diisopropylbenzene
Diisopropyl naphthalene
Diphenyl
Dodecylbenzene
Dodecyl xylene
Ethylbenzene
Ethyl toluene
Isopropylbenzene
Methyl naphthalene
Naphthalene
1-Phenyl-1-xylyl ethane
Poly(2+)cyclic aromatics
Propylbenzene
Pseudocumene
Tetradecylbenzene
Tetrahydronaphthalene
1,2,3,5-Tetramethylbenzene
Toluene
Tridecylbenzene
Triethylbenzene
Trimethylbenzene
Undecylbenzene
Xylene

33. MISCELLANEOUS HYDROCARBON MIXTURES

Alachlor technical
Alkylbenzenesulfonic acid, sodium salt solutions
Alkyl dithiothiadiazole (C6–C24)
Asphalt blending stocks, roofers flux
Asphalt blending stocks, straight run residue
Aviation alkylates
Calcuim sulfonate, Calcium carbonate, Hydrocarbon solvent mixture
Coal tar
Coal tar pitch
Decahydronaphthalene
Diphenyl, Diphenyl ether
Distillates, flashed feed stocks
Distillates, straight run
Drilling mud (low toxicity) *(if flammable or combustible)*
Gas oil, cracked
Gasoline blending stock, alkylates
Gasoline blending stock, reformates
Gasolines:
  Automotive *(not over 4.23 grams lead per gal.)*
  Aviation *(not over 4.86 grams lead per gal.)*
  Casinghead *(natural)*
  Polymer
  Straight run
Jet Fuels:
  JP-4
  JP-5
  JP-8
Kerosene
Mineral spirits
Naphtha:
  Coal tar solvent
  Petroleum
  Solvent
  Stoddard solvent
  Varnish Makers' and Painters'
Oil, fuel:
  No. 1
  No. 1-D
  No. 2
  No. 2-D
  No. 4
  No. 5
  No. 6
Oil, misc:
  Aliphatic
  Aromatic
  Clarified
  Coal
  Crude
  Diesel
  Gas, high pour
  Heartcut distillate
  Linseed
  Lubricating
  Mineral
  Mineral seal
  Motor
  Neatsfoot
  Penetrating
  Pine
  Rosin
  Sperm
  Spindle
  Turbine
  Residual
  Road
  Transformer
Oxyalkylated alkyl phenol formaldehyde
Petrolatum
Pine oil

Sodium petroleum sulfonate
Sulfohydrocarbon (C3–C88)
Waxes:
  Petroleum
White spirit (low (15-20%) aromatic)

34. ESTERS

Alkane (C14–C17) sulfonic acid, sodium salt solution
Alkyl(C8+)amine, Alkenyl (C12+) acid ester mixture
Alkyl ester copolymer (C6–C18)
Alkyl(C7–C9) nitrates[2]
Alkyl phenol sulfide (C8–C40)
Amyl acetate
Animal and Fish oils, n.o.s.
Animal and Fish acid oils and distillates, n.o.s.
Barium long chain alkaryl sulfonate (C11–C50)
Barium long chain alkyl(C8–C14)phenate sulfide
Benzene tricarboxylic acid trioctyl ester
Benzyl acetate
Butyl acetate
Butyl benzyl phthalate
n-Butyl butyrate
Butyl formate
iso-Butyl isobutyrate
n-Butyl propionate
Calcium alkyl(C9)phenol sulfide, polyolefin phosphorosulfide mixture
Calcium long chain alkaryl sulfonate (C11–C50)
Calcium long chain alkyl phenate (C8–C40)
Calcium long chain alkyl phenate sulfide (C8–C40)
Calcium long chain alkyl salicylate (C13+)
Calcium nitrate, Magnesium nitrate, Potassium chloride solution
Cobalt naphthenate in solvent naphtha
Coconut oil, fatty acid
Cottonseed oil, fatty acid
Cyclohexyl acetate
Decyl acetate
Dialkyl(C7 - C13) phthalates
Dibutyl hydrogen phosphonate
Dibutyl phthalate
Diethylene glycol butyl ether acetate
Diethylene glycol ethyl ether acetate
Diethylene glycol methyl ether acetate
Diethylene glycol phthalate
Di-(2-ethylhexyl)adipate
Di-(2-ethylhexyl)phthalate
Diethyl phthalate
Diethyl sulfate
Diheptyl phthalate
Dihexyl phthalate
Di-n-hexyl adipate
Diisobutyl phthalate
Diisodecyl phthalate
Diisononyl adipate
Diisononyl phthalate
Diisooctyl phthalate
Dimethyl adipate
Dimethylcyclicsiloxane hydrolyzate
Dimethyl glutarate
Dimethyl hydrogen phosphite[2]
Dimethyl naphthalene sulfonic acid, sodium salt solution[2]
Dimethyl phthalate
Dimethyl polysiloxane
Dimethyl succinate
Dinonyl phthalate
Dioctyl phthalate
Dipropylene glycol dibenzoate
Ditridecyl phthalate
2-Dodecenylsuccinic acid, dipotassium salt solution
Diundecyl phthalate
2-Ethoxyethyl acetate
Ethyl acetate
Ethyl acetoacetate
Ethyl butyrate
Ethylene carbonate
Ethylene glycol acetate
Ethylene glycol butyl ether acetate
Ethylene glycol diacetate
Ethylene glycol ethyl ether acetate
Ethylene glycol methyl ether acetate
Ethyl-3-ethoxypropionate
Ethyl hexyl phthalate
Ethyl propionate
Ethyl propionate
Fatty acids (saturated, C13+)
Glycerol polyalkoxylate
Glyceryl triacetate
Glycidyl ester of C10 trialkyl acetic acid
Gylcidyl ester of tridecylacetic acid
Heptyl acetate
Hexyl acetate
Lauric acid
Lecithin *(soyabean)*
Magnesium long chain alkaryl sulfonate (C11–C50)
Magnesium long chain alkyl phenate sulfide (C8–C20)
Magnesium long chain alkyl salicylate (C11+)
3-Methoxybutyl acetate
1-Methoxy-2-propyl acetate
Methyl acetate
Methyl acetoacetate
Methyl amyl acetate
Methyl butyrate
Methyl formate
3-Methyl-3-methoxybutyl acetate
Methyl salicylate
Metolachlor
Naphthalene sulfonic acid, sodium salt solution (40% or less)
Nonyl acetate
n-Octyl acetate
Octyl decyl adipate
Oil, edible:
  Beechnut
  Castor
  Cocoa butter
  Coconut[2]
  Cod liver
  Corn
  Cotton seed
  Fish[2]
  Groundnut

Hazelnut
Lard
Lanolin
Nutmeg butter
Olive
Palm [2]
Palm kernel
Peanut
Poppy
Poppy seed
Raisin seed
Rapeseed
Rice bran
Safflower
Salad
Sesame
Soya bean
Sunflower
Sunflower seed
Tucum
Vegetable
Walnut
Oil, misc:
Animal
Coconut oil, fatty actid methyl ester
Cotton seed oil, fatty acid
Lanolin
Palm kernel oil, fatty acid methyl ester
Palm oil, methyl ester
Pilchard
Perilla
Soapstock
Soyabean (epoxidized)
Tall
Tall, fatty acid [2]
Tung
Olefin/Alkyl ester copolymer (molecular weight 2000+)
Oleic acid
Palm kernel acid oil
Palm kernel acid oil, methyl ester
Palm stearin
n-Pentyl propionate
Poly(2-8)alkylene glycol monoalkyl(C1–C6) ether acetate
Polydimethylsiloxane
Polyferric sulfate solution
Polymethylsiloxane
Poly(20)oxyethylene sorbitan monooleate
Polysiloxane
Polyolefin amide alkeneamine borate (C28–C250)
Polyolefin ester (C28–C250)
Polyolefin phosphorosulfide, barium derivative (C28–C250)
Potassium oleate
Propyl acetate
Propylene carbonate
Propylene glycol methyl ether acetate
Sodium acetate, Glycol, Water mixture (not containing Sodium hydroxide) [2]
Sodium acetate solution
Sodium benzoate solution
Sodium dimethyl naphthalene sulfonate solution [2]
Sodium long chain alkyl salicylate (C13+)
Sodium naphthalene sulfonate solution
Soyabean oil (epoxidized)
Stearic acid
Tall oil
Tallow [2]
Tallow fatty acid [2]
Tributyl phosphate
Tricresyl phosphate
Tridecanoic acid
Tridecyl acetate
Triethylene glycol di-(2-ethylbutyrate)
Triethyl phosphate
Triethyl phosphite [2]
Triisooctyl trimellitate [2]
Triisopropylated phenyl phosphates
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate
2,2,4-Trimethyl-1,3-pentanediol-1-isobutyrate
2,2,4-Trimethyl-3-pentanol-1-isobutyrate
Trimethyl phosphite [2]
Trisodium nitrilotriacetate
Trixylyl phosphate
Trixylenyl phosphate
Vegetable acid oils and distillates, n.o.s.
Vegetable oils, n.o.s.
Waxes:
Carnauba
Zinc alkaryl dithiophosphate (C7–C16)
Zinc alkyl dithiophosphate (C3–C14)

35. VINYL HALIDES

Vinyl chloride
Vinylidene chloride

36. HALOGENATED HYDROCARBONS

Benzyl chloride
Carbon tetrachloride
Chlorinated paraffins (C10 - C13)
Chlorinated paraffins (C14 - C17)
Chlorobenzene
Chlorodifluoromethane
Chloroform
Chlorotoluene
Dichlorobenzene
Dichlorodifluoromethane
1,1-Dichloroethane
1,6-Dichlorohexane
2,2'-Dichloroisopropyl ether
Dichloromethane
Dichloropropane
Ethyl chloride
Ethylene dibromide
Ethylene dichloride [2]
Methyl bromide
Methyl chloride
Monochlorodifluoromethane
n-Propyl chloride
Pentachloroethane
Perchloroethylene
1,1,2,2-Tetrachloroethane
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane [2]
1,1,2-Trichloroethane
Trichloroethylene [2]
1,2,3-Trichloropropane
1,1,2-Trichloro-1,2,2-trifluoroethane

37. NITRILES

Acetonitrile
Adiponitrile
Lactonitrile solution
Propionitrile
Tallow nitrile

38. CARBON DISULFIDE

Carbon disulfide

39. SULFOLANE

Sulfolane

40. GLYCOL ETHERS

Diethylene glycol [2]
Diethylene glycol butyl ether
Diethylene glycol dibutyl ether
Diethylene glycol diethyl ether
Diethylene glycol ethyl ether
Diethylene glycol methyl ether
Diethylene glycol n-hexyl ether
Diethylene glycol phenyl ether
Diethylene glycol propyl ether
Dipropylene glycol
Dipropylene glycol butyl ether
Dipropylene glycol methyl ether
Ethoxy triglycol
Ethylene glycol hexyl ether
Ethylene glycol methyl butyl ether
Ethylene glycol monoalkyl ethers
Ethylene glycol tert-butyl ether
Ethylene glycol butyl ether
Ethylene glycol dibutyl ether
Ethylene glycol ethyl ether
Ethylene glycol isopropyl ether
Ethylene glycol methyl ether
Ethylene glycol phenyl ether
Ethylene glycol phenyl ether, Diethylene glycol phenyl ether mixture
Ethylene glycol propyl ether
Hexaethylene glycol
Methoxy triglycol
Nonyl phenol (ethoxylated)
Nonyl phenol poly(4-12)ethoxylates
Oil, misc:
Polyalkylene glycol butyl ether
Polyalkylene glycols, Polyalkylene glycol monoalkyl ethers mixtures
Polyethylene glycols
Polyethylene glycol dimethyl ether
Poly(2-8)alkylene glycol monoalkyl(C1–C6) ether
Polyethylene glycol monoalkyl ether
Polypropylene glycol methyl ether
Polypropylene glycols
n-Propoxypropanol
Propylene glycol monoalkyl ether
Propylene glycol ethyl ether
Propylene glycol methyl ether
Propylene glycol n-butyl ether
Propylene glycol phenyl ether
Propylene glycol propyl ether
Tetraethylene glycol
Triethylene glycol
Triethylene glycol butyl ether
Triethylene glycol butyl ether mixture
Triethylene glycol ether mixture
Triethylene glycol ethyl ether
Triethylene glycol methyl ether
Tripropylene glycol
Tripropylene glycol methyl ether

41. ETHERS

Alkaryl polyether (C9–C20)
Butyl ether
2,2'-Dichloroethyl ether
Diethyl ether
Diglycidyl ether of Bisphenol A
Diglycidyl ether of Bisphenol F
Dimethyl furan
1,4-Dioxane
Diphenyl ether
Diphenyl ether, Diphenyl phenyl ether mixture
Ethyl ether
Long chain alkaryl polyether (C11–C20)
Methyl-tert-butyl ether [2]
Propyl ether
Tetrahydrofuran
1,3, 5-Trioxane
Polyether (molecular weight 2000+)

42. NITROCOMPOUNDS

o-Chloronitrobenzene
Dinitrotoluene
Nitrobenzene
Nitroethane
Nitropropane
Nitropropane, Nitroethane mixture
Nitrotoluene

43. MISCELLANEOUS WATER SOLUTIONS

Aluminum sulfate solution [2]
2-Amino-2-hydroxymethyl-1,3-propanediol solution
Ammonium bisulfite solution [2]
Ammonium nitrate, Urea solution (not containing Ammonia)
Ammonium polyphosphate solution
Ammonium sulfate solution
Ammonium thiosulfate solution
Sulfonated polyacrylate solutions [2]
Calcium bromide solution
Calcium chloride solution
Clay slurry
Corn syrup
Dextrose solution
2,4-Dichlorophenoxyacetic acid, Diethanolamine salt solution
2,4-Dichlorophenoxyacetic acid, Triisopropanolamine salt solution [2]
Diethanolamine salt of 2,4-Dichlorophenoxyacetic acid solution
Diethylenetriamine pentaacetic acid, pentasodium salt solution
Dodecyl diphenyl ether disulfonate solution
Drilling brine (containing Calcium, Potassium, or Sodium salts)
Drilling brine (containing Zinc salts)
Drilling mud (low toxicity) *(if non-flammable or non-combustible)*

Ethylenediaminetetracetic acid, tetrasodium salt solution
Ethylene-Vinyl acetate copolymer emulsion
Ferric hydroxyethylethylenediamine triacetic acid, trisodium salt solution [2]
Fish solubles *(water based fish meal extracts)*
Fructose solution
Fumaric adduct of Rosin, water dispersion
Hexamethylenediamine adipate solution
N-(Hydroxyethyl)ethylene diamine triacetic acid, trisodium salt solution
Kaolin clay slurry
Latex, liquid synthetic
Lignin liquor
Liquid Streptomyces solubles
N-Methylglucamine solution
N-Methylglucamine solution (70% or less)
Naphthenic acid, sodium salt solution
Potassium chloride solution
Potassium thiosulfate solution
Rosin soap (disproportionated) solution
Sewage sludge, treated
Sodium alkyl sulfonate solution
Sodium hydrogen sulfite solution
Sodium polyacrylate solution [2]
Sodium salt of Ferric hydroxyethylethylenediamine triacetic acid solution
Sodium silicate solution [2]
Sodium sulfide solution
Sodium sulfite solution
Sodium tartrates, Sodium succinates solution
Sulfonated polyacrylate solutions [2]
Tall oil soap (disproportionated) solution
Tetrasodium salt of EDTA solution
Triisopropanolamine salt of 2,4-Dichlorophenoxyacetic acid solution
Urea, Ammonium nitrate solution (not containing Ammonia)
Urea, Ammonium phosphate solution
Urea solution
Vegetable protein solution (hydrolysed)
Water

FOOTNOTES TO TABLE II

[1] Because of very high reactivity or unusual conditions of carriage or potential compatibility problems, this product is not assigned to a specific group in the Compatibility Chart. For additional compatibility information, contact Commandant (G–MSO), U.S. Coast Guard, 2100 Second Street, SW., Washington, DC 20593–0001. Telephone (202) 267–1577.

[2] See Appendix I—Exceptions to the Chart.

[CGD 88–100, 54 FR 40012, Sept. 29, 1989, as amended by CGD 88–100, 55 FR 17276, Apr. 24, 1990; CGD 92–100, 59 FR 17025, Apr. 11, 1994; CGD 94–902, 60 FR 34043, June 29, 1995; CGD 95–900, 60 FR 34049, 34050, June 29, 19955; CGD 96–041, 61 FR 50731, Sept. 27, 1996]

APPENDIX I TO PART 150—EXCEPTIONS TO THE CHART

(a). The binary combinations listed below have been tested as prescribed in Appendix III and found not to be dangerously reactive. These combinations are exceptions to the Compatibility Chart (Figure 1) and may be stowed in adjacent tanks.

Member of reactive group	Compatible with
Acetone (18)	Diethylenetriamine (7)
Acetone cyanohydrin (0)	Acetic acid (4)
Acrylonitrile (15)	Triethanolamine (8)
1,3-Butylene glycol (20)	Morpholine (7)
1,4-Butylene glycol (20)	Ethylamine (7) Triethanolamine (8)
gamma-Butyrolactone (0)	N-Methyl-2-pyrrolidone (9)
Caustic potash, 50% or less (5).	Isobutyl alcohol (20) Ethyl alcohol (20) Ethylene glycol (20) Isopropyl alcohol (20) Methyl alcohol (20) iso-Octyl alcohol (20)
Caustic soda, 50% or less (5)	Butyl alcohol (20) tert-Butyl alcohol, Methanol mixtures Decyl alcohol (20) iso-Decyl alcohol (20) Diacetone alcohol (20) Diethylene glycol (40) Ethyl alcohol (20) Ethyl alcohol (40%, whiskey) (20) Ethylene glycol (20) Ethylene glycol, Diethylene glycol mixture (20) Ethyl hexanol (Octyl alcohol) (20) Methyl alcohol (20) Nonyl alcohol (20) iso-Nonyl alcohol (20) Propyl alcohol (20) Propylene glycol (20) Sodium chlorate (0) iso-Tridecanol (20)
Dodecyl and Tetradecylamine mixture (7).	Tall oil, fatty acid (34)
Ethylenediamine (7)	Butyl alcohol (20) tert-Butyl alcohol (20) Butylene glycol (20) Creosote (21) Diethylene glycol (40) Ethyl alcohol (20) Ethylene glycol (20) Ethyl hexanol (20) Glycerine (20) Isononyl alcohol (20) Isophorone (18) Methyl butyl ketone (18) Methyl iso-butyl ketone (18) Methyl ethyl ketone (18) Propyl alcohol (20) Propylene glycol (20)
Oleum (0)	Hexane (31) Dichloromethane (36) Perchloroethylene (36)
1,2-Propylene glycol (20)	Diethylenetriamine (7) Polyethylene polyamines (7) Triethylenetetramine (7)

Member of reactive group	Compatible with
Sodium dichromate, 70% (0)	Methyl alcohol (20)
Sodium hydrosulfide solution (5).	iso-Propyl alcohol (20)
Sulfuric acid (2)	Coconut oil (34) Coconut oil acid (34) Palm oil (34) Tallow (34)
Sulfuric acid, 98% or less (2)	Choice white grease tallow (34)

(b). The binary combinations listed below have been determined to be dangerously reactive, based on either data obtained in the literature or on laboratory testing which has been carried out in accordance with procedures prescribed in Appendix III. These combinations are exceptions to the Compatibility Chart (Figure 1) and may not be stowed in adjacent tanks.

Acetone cyanohydrin (0) is not compatible with Groups 1-12, 16, 17 and 22.

Acrolein (19) is not compatible with Group 1, Non-Oxidizing Mineral Acids.

Acrylic acid (4) is not compatible with Group 9, Aromatic Amines.

Acrylonitrile (15) is not compatible with Group 5 (Caustics).

Alkylbenzenesulfonic acid (0) is not compatible with Groups 1-3, 5-9, 15, 16, 18, 19, 30, 34, 37, and strong oxidizers.

Allyl alcohol (15) is not compatible with Group 12, Isocyanates.

Alkyl(C7–C9) nitrates (34) is not compatible with Group 1, Non-oxidizing Mineral Acids.

Aluminum sulfate solution (43) is not compatible with Groups 5-11.

Ammonium bisulfite solution (43) is not compatible with Groups 1, 3, 4, and 5.

Benzenesulfonyl chloride (0) is not compatible with Groups 5-7, and 43.

1,4-Butylene glycol (20) is not compatible with Caustic soda solution, 50% or less (5).

gamma-Butyrolactone (0) is not compatible with Groups 1-9.

Caustic soda solution, 50% or less (5) is not compatible with 1,4-Butylene glycol (20).

Crotonaldehyde (19) is not compatible with Group 1, Non-Oxidizing Mineral Acids.

Cyclohexanone, Cyclohexanol mixture (18) is not compatible with Group 12, Isocyanates.

2,4-Dichlorophenoxyacetic acid, Triisopropanolamine salt solution (43) is not compatible with Group 3, Nitric Acid.

2,4-Dichlorophenoxyacetic acid, Dimethylamine salt solution (0) is not compatible with Groups 1-5, 11, 12, and 16.

Dimethyl hydrogen phosphite (34) is not compatible with Groups 1 and 4.

Dimethyl naphthalene sulfonic acid, sodium salt solution (34) is not compatible with Group 12, Formaldehyde, and strong oxidizing agents.

Dodecylbenzenesulfonic acid (0) is not compatible with oxidizing agents and Groups 1, 2, 3, 5, 6, 7, 8, 9, 15, 16, 18, 19, 30, 34, and 37.

Ethylenediamine (7) is not compatible with Ethylene dichloride (36).

Ethylene dichloride (36) is not compatible with Ethylenediamine (7).

Ethylidene norbornene (30) is not compatible with Groups 1-3 and 5-8.

2-Ethyl-3-propylacrolein (19) is not compatible with Group 1, Non-Oxidizing Mineral Acids.

Ferric hydroxyethylethylenediamine triacetic acid, Sodium salt solution (43) is not compatible with Group 3, Nitric acid.

Fish oil (34) is not compatible with Sulfuric acid (2).

Formaldehyde (over 50%) in Methyl alcohol (over 30%) (19) is not compatible with Group 12, Isocyanates.

Formic acid (4) is not compatible with Furfural alcohol (20).

Furfuryl alcohol (20) is not compatible with Group 1, Non-Oxidizing Mineral Acids and Formic acid (4).

2-Hydroxyethyl acrylate is not compatible with Groups 2, 3, 5-8 and 12.

Isophorone (18) is not compatible with Group 8, Alkanolamines.

Magnesium chloride solution (0) is not compatible with Groups 2, 3, 5, 6 and 12.

Mesityl oxide (18) is not compatible with Group 8, Alkanolamines.

Methacrylonitrile (15) is not compatible with Group 5 (Caustics).

Methyl tert-butyl ether (41) is not compatible with Group 1, Non-oxidizing Mineral Acids.

Naphtha, cracking fraction (33) is not compatible with strong acids, caustics or oxidizing agents.

o-Nitrophenol (0) is not compatible with Groups 2, 3, and 5-10.

Octyl nitrates (all isomers), *see* Alkyl(C7–C9) nitrates.

Oleum (0) is not compatible with Sulfuric acid (2) and 1,1,1-Trichloroethane (36).

Phthalate based polyester polyol (0) is not compatible with group 2, 3, 5, 7 and 12.

Pentene, Miscellaneous hydrocarbon mixtures (30) are not compatible with strong acids or oxidizing agents.

Polyglycerine, Sodium salts solution (20) is not compatible with Groups 1, 4, 11, 16, 17, 19, 21 and 22.

Sodium acetate, Glycol, Water mixture (1% or less Sodium hydroxide) (34) is not compatible with Group 12 (Isocyanates).

Sodium chlorate solution (50% or less) (0) is not compatible with Groups 1-3, 5, 7, 8, 10, 12, 13, 17 and 20.

Sodium dichromate solution (70% or less) (0) is not compatible with Groups 1-3, 5, 7, 8, 10, 12, 13, 17 and 20.

Sodium dimethyl naphthalene sulfonate solution (34) is not compatible with Group 12, Formaldehyde and strong oxidizing agents.

Sodium hydrogen sulfide, Sodium carbonate solution (0) is not compatible with Groups 6 (Ammonia) and 7 (Aliphatic amines).

Sodium hydrosulfide (5) is not compatible with Groups 6 (Ammonia) and 7 (Aliphatic amines).

Sodium hydrosulfide, Ammonium sulfide solution (5) is not compatible with Groups 6 (Ammonia) and 7 (Aliphatic amines).

Sodium polyacrylate solution (43) is not compatible with Group 3, Nitric Acid.

Sodium salt of Ferric hydroxyethylethylenediamine triacetic acid solution (43) is not compatible with Group 3, Nitric acid.

Sodium silicate solution (43) is not compatible with Group 3, Nitric Acid.

Sodium sulfide, hydrosulfide solution (0) is not compatible with Groups 6 (Ammonia) and 7 (Aliphatic amines).

Sodium thiocyanate (56% or less) (0) is not compatible with Groups 1-4.

Sulfonated polyacrylate solution (43) is not compatible with Group 5 (Caustics).

Sulfuric acid (2) is not compatible with Fish oil (34), or Oleum (0).

Tallow fatty acid (34) is not compatible with Group 5, Caustics.

1,1,1-Trichloroethane (36) is not compatible with Oleum (0).

Trichloroethylene (36) is not compatible with Group 5, Caustics.

Triethyl phosphite (34) is not compatible with Groups 1, and 4.

Trimethyl phosphite (34) is not compatible with Groups 1 and 4.

1,3,5-Trioxane (41) is not compatible with Group 1 (non-oxidizing mineral acids) and Group 4 (Organic acids).

[CGD 88–100, 54 FR 40012, Sept. 29, 1989 as amended by CGD 88–100, 55 FR 17277, Apr. 24, 1990; CDG 92–100, 59 FR 17026, Apr. 11, 1994; CGD 94–902, 60 FR 34043, June 29, 1995; CGD 95–900, 60 FR 34050, June 29, 1995]

APPENDIX II TO PART 150—EXPLANATION OF FIGURE 1

Definition of a hazardous reaction— As a first approximation, a mixture of two cargoes is considered hazardous when, under specified condition, the temperature rise of the mixture exceeds 25°C or a gas is evolved. It is possible for the reaction of two cargoes to produce a product that is significantly more flammable or toxic than the original cargoes even though the reaction is non-hazardous from temperature or pressure considerations, although no examples of such a reaction are known at this time.

Chart format— There are different degrees of reactivity among the various cargoes. Many of them are relatively non-reactive: For example, aromatic hydrocarbons or paraffins. Others will form hazardous combinations with many groups: For example, the inorganic acids.

The cargo groups in the compatibility chart are separated into two categories: 1 through 22 are ''Reactive Groups'' and 30 through 43 are ''Cargo Groups''. Left unassigned and available for future expansion are groups 23 through 29 and those past 43. Reactive Groups contain products which are chemically the most reactive; dangerous combinations may result between members of different Reactive Groups and between members of Reactive Groups and Cargo Groups. Products assigned to Cargo Groups, however, are much less reactive; dangerous combinations involving these can be formed only with members of certain Reactive Groups. Cargo Groups do not react hazardously with one another.

Using the Compatibility Chart— The following procedure explains how the compatibility chart should be used to find compatibility infomation:

(1) Determine the group numbers of the two cargoes by referring to the alphabetical listing of cargoes and the corresponding groups (Table I). Many cargoes are listed under their parent names; unless otherwise indicated, isomers or mixtures of isomers of a particular cargo are assigned to the same group. For example, to find the group number for Isobutyl Alcohol, look under the parent name Butyl Alcohol. Similarly, the group number for para-Xylene is found under the entry Xylene. If a cargo cannot be found in this listing, contact the Coast Guard for a group determination (see §150.140).

(2) If both group numbers are between 30 and 43 inclusive, the products are compatible and the chart need not be used.

(3) If both group numbers do not fall between 30 and 43 inclusive, locate one of the numbers on the left of the chart (Cargo Groups) and the other across the top (Reactive Groups). (Note that if a group number is between 30 and 43, it can only be found on the left side of the chart.) The box formed by the intersection of the column and row containing the two numbers will contain one of the following:

(a) Blank—The two cargoes are compatible.

(b) ''X''—The two cargoes are not compatible.

(Note that reactivity may vary among the group members. Refer to Table I or Table II to find whether the products in question are referenced by a footnote which indicates that exceptions exist and are listed in Appendix I. Unless the combination is specifically mentioned in Appendix I, it is compatible.)

[CGD 75–59, 45 FR 70263, Oct. 23, 1980, as amended by CGD 83–047, 50 FR 33046, Aug. 16, 1985]

EXAMPLES

Combination	Groups	Compatible
Butyraldehyde/Acetic Acid	19/4	Yes.
Allyl Alcohol/Toluene Diisocyanate	15/12	No.
Decene/Ethyl Benzene	30/32	Yes.
Ethanolamine/Acetone	8/18	Yes.
Ammonia/Dimethylformamide	6/10	No.

APPENDIX III TO PART 150—TESTING PROCEDURES FOR DETERMINING EXCEPTIONS TO THE CHART

EXPERIMENTAL PROCEDURE FOR EVALUATING BINARY CHEMICAL REACTIVITY

General safety precautions—Chemical reactivity tests have, by their nature, serious potential for injuring the experimenter or destroying equipment. The experimenter should 1) have knowledge of the magnitude of the reactivity to be expected, 2) use adequate facilities and protective equipment to prevent injury from splatter of materials or release of fumes, and 3) start on a small scale so that unexpected reactions can be safely contained. All tests should be performed in a well-ventilated laboratory hood provided with shields.

Testing chemicals other than liquids—The procedure outlined below was developed for chemicals which are liquids at ambient temperatures. If one or both chemicals are normally shipped at elevated temperatures, the same procedure may be followed except the chemicals are tested at their respective shipping temperatures and the oil bath in Step 3 is maintained at a level 25°C above the higher temperature. This information is then indicated on the data sheet. If one of the chemicals is a gas at ambient temperatures, consult the Coast Guard for additional instructions before proceeding with the compatibility test.

Step 1

Objective—To determine if the test chemicals react violently and present a safety hazard in further tests.

Procedure—Place 0.5ml of one (A) of the test chemicals in a 25×150mm test tube. Clamp the test tube to a stand behind a safety shield (in a hood). Carefully add from a dropper 0.5ml of the other substance (B). Shake to induce mixing. If no immediate reaction occurs, retain the mixture for at least 10 minutes to check for a delayed reaction.

Results—If a violent reaction occurs, such as sputtering, boiling of reactants or release of fumes, record the results on the Data Sheet (appendix IV) and do not proceed to Step 2. If no reaction or a minor reaction occurs, proceed to Step 2.

Step 2

Objective—To determine the heat of reaction of two chemicals on mixing under specified conditions.

Procedure—These separate mixes of the proposed binary combination will be tested. These are 2 ml : 18 ml, 10 ml : 10 ml, and 18 ml : 2 ml, respectively, to result in a final mixture of about 20 ml in each case.

A reference-junctioned thermocouple is prepared by inserting two lengths of 20 gauge or finer iron-constantan or chromelalumel duplex thermocouple wire into glass capilary sheaths. The common wire of each probe is joined, while the other wire of each is connected to a strip-chart recorder. The thermocouple probe which produces a negative pen deflection upon warming is the reference junction and is placed in a test tube of water at ambient laboratory temprature. The other probe is placed near the bottom of a Dewar flask of about 300ml capacity, such that the thermocouple will be below the surface of the test mixture. The Dewar flask is equipped with a magnetic stirrer having a stirring bar coated with an inert material such as a flourinated hydrocarbon.

Start the temperature recorder and stirrer. Deliver the test chemicals to the Dewar Flask simultaneously from separate graduated syringes. If an exothermic reaction occurs, continue the test until the maximum temperature is reached and begins to subside. If no apparent reaction occurs, continue the test for at least 30 minutes to check for a delayed reaction. Stop agitation and observe the mixture at five-minute intervals to determine if the mixture is miscible, if gases are evolved, or if other visible changes occur.

In the interest of safety, a mirror can be used for these observations. Repeat the above test for the other mixture combinations.

Results—Record the results in the appropriate places on the Data Sheet. If no reaction occurs or if the temperature rise is less than 25°C, proceed to Step 3. If the observed temperature rise exceeds 25°C or gases are evolved, do not proceed to Step 3.

Step 3

Objective—To determine if exothermic reactions occur at temperatures up to 50°C.

Procedure—If a non-hazardous reaction occurred in Step 2, the ratio of chemicals which resulted in the greatest temperature rise will be tested. Fresh chemicals will be used with a total volume for this test of about 10ml (a ratio of 1ml:9ml, 5ml:5ml, or 9ml:1ml). If no reaction was observed in Step 2, use a ratio of 5ml:5ml. Using the thermocouple prepared for Step 2, insert the reference probe into a 25×150mm test tube containing 10ml of water. Place the other probe into an empty test tube. Start the temperature recorder and add the two chemicals of the combination, one at a time, to the empty test tube. Lower the two test tubes into an oil bath maintained at 50 ± 2°C. Hold the samples in the oil bath until the maximum temperature differential is recorded, and in all cases at least 15 minutes. Observe the test mixture to determine if gases are evolved or if other visible changes occur. Follow prescribed safety precautions.

Results—Record the maximum differential temperature measured, the time required to reach this temperature, and any other observations in the proper space on the Data Sheet.

Send a copy of the Data Sheet for each binary chemical mixture tested to: Commandant (G–MSO), U.S. Coast Guard, Washington, DC 20593–0001.

[CGD 75–59, 45 FR 70263, Oct. 23, 1980, as amended by CGD 82–063b, 48 FR 4782, Feb. 3, 1983; CGD 83–047, 50 FR 33046, Aug. 16, 1985; CGD 88–070, 53 FR 34535, Sept. 7, 19885; CGD 96–041, 61 FR 50731, Sept. 27, 1996]

Appendix IV - Data sheet

CHEMICAL REACTIVITY TEST DATA

Chemicals: A _____ B _____

Synonyms: _____ _____

Formula: _____ _____

	A	B
Description of Products:		
Manufacturer		
Sample Source		
Composition (by weight %)		
Inhibitors or Stabilizers		

Deviations from Prescribed Method (including special equipment)

Step Number 1

Products miscible? _____ Gases evolved? _____

Other Observations:

Step Number 2

A/B Ratio:	2/18	10/10	18/2
Initial Temperature			
Maximum ΔT			
Time to reach Max. Temp.			
Products miscible?			
Gases evolved?			
Other Observations			

Size of Dewar Flask (inside measurements): Width _____mm Height _____mm

Step Number 3

A/B Ratio	
Oil Bath Temperature	
Maximum ΔT	
Time to reach Max. Temp.	
Gases evolved?	
Other Observations	

Date of Test: _____

Submitting Organization: _____

Test Data Approved By: _____