

SUBCHAPTER O—CERTAIN BULK DANGEROUS CARGOES

PART 150—COMPATIBILITY OF CARGOES

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

EDITORIAL NOTE: Nomenclature changes to part 150 appear by USCG-2012-0832, 77 FR 59783, Oct. 1, 2012.

§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 record-keeping 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	1625–0007
§ 153.5	1625–0007
§ 153.905	1625–0094
§ 153.910	1625–0094
§ 153.968	1625–0094
Part 154	1625–0029
§ 154.12	1625–0007

[49 FR 38121, Sept. 27, 1984, as amended by CGD 77–069, 52 FR 31626, Aug. 21, 1987; USCG–2004–18884, 69 FR 58349, Sept. 30, 2004]

§ 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]

§ 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 1 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, as amended at USCG–2013–0423, 85 FR 21674, Apr. 17, 2020]

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§ 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 1 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.

[CGD 75-59, 45 FR 70263, Oct. 23, 1980, as amended at USCG-2013-0423, 85 FR 21674, Apr. 17, 2020]

§ 150.140 Cargoes not listed in Table 1 or 2.

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 CG-ENG-5) (Telephone 202-372-1420) assigns the hazardous material to a compatibility group. (Table I lists cargoes alphabeti-

cally 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, 1995; CGD 96-041, 61 FR 50731, Sept. 27, 1996; USCG-2006-25697, 71 FR 55746, Sept. 25, 2006; USCG-2013-0423, 85 FR 21674, Apr. 17, 2020]

§ 150.150 Exceptions to the compatibility chart.

The Commandant (CG-ENG-5) 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 (CG-ENG-5) 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, 1995; 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 TO PART 150—COMPATIBILITY CHART

Figure 1 - Compatibility chart

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

TABLE 1 TO PART 150—ALPHABETICAL LIST OF CARGOES

Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Acetaldehyde	19	.....	AAD	
Acetic acid	4	2	AAC	
Acetic anhydride	11	2	ACA	
Acetochlor	10	.....	ACG	
Acetone	18	2	ACT	
Acetone cyanohydrin	0	1, 2	ACY	
Acetonitrile	37	.....	ATN	
Acetonitrile (low purity grade)	37	3	AIL	
Acetophenone	18	.....	ACP	
Acid oil mixture from soyabean, corn (maize) and sunflower oil refining, see Oil, misc.: Acid mixture from soyabean, corn (maize), and sunflower oil refining.	.....	3		AOM
Acrolein	19	2	ARL	
Acrylamide solution (50% or less)	10	3	AAM	AAO
Acrylic acid	4	2	ACR	
Acrylic acid/ethenesulphonic (alternately ethenesulphonic) acid copolymer with phosphonate groups, sodium salt solution.	30	3	APG	
Acrylonitrile	15	2	ACN	
Acrylonitrile-Styrene copolymer dispersion in Polyether polyol	20	.....	ALE	
Adiponitrile	37	.....	ADN	
Alachlor technical (90% or more)	33	3	ALH	ALI
Alcohol (C12–C13, branched and linear) poly(4–8) propoxy sulfates (alternately sulphates), sodium salt 25–30% solution.	41	3	ABL	
Alcohol (C9–C11) poly(2.5–9) ethoxylates	20	3	AET	ALY/APV/APW

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Alcohol (C6–C17) (secondary) poly(3–6) ethoxylates	20	3	AEA	AEB
Alcohol (C6–C17) (secondary) poly(7–12) ethoxylates	20	3	AEB	AEA
Alcohol (C12–C16) poly(1–6) ethoxylates	20	3	AED	AET/ALY/APW
Alcohol (C12–C16) poly(7–19) ethoxylates	20	3	APV	AET/ALY/APV
Alcohol (C12–C16) poly(20+) ethoxylates	20	3	APW	AET/ALY
Alcohol (C12–C15) poly (. . .) ethoxylate, <i>see</i> Alcohol (C12–C16) poly (. . .) ethoxylate.				
Alcohol polyethoxylates	20			AEA/AEB/AED/AET/APV/APW AEA/AEB
Alcohol polyethoxylates, secondary	20			
Alcoholic beverages, n.o.s.	20	3	ABV	
Alcohols (C12+), primary, linear	20	3	ASY	ALR/AYK/AYL
Alcohols (C8–C11), primary, linear, and essentially linear	20		ALR	AYK/AYL
Alcohols (C12–C13), primary, linear, and essentially linear	20	3	AYK	ALR/ASY/AYL
Alcohols (C14–C18), primary, linear, and essentially linear	20	3	AYL	ALR/ASY/AYK
Alcohols (C13+)	20		ALY	ASY/AYK
<i>Including:</i>				
Cetyl alcohol (Hexadecanol)	20			
Olel alcohol (Octadecanol)	20			
Pentadecanol	20			
Tallow alcohol	20			
Tetradecanol	20			
Tridecanol	20			
Alkanes (C10–C26), linear and branched (flash point >60 °C)	31	3	ABD	
Alkanes (C10–C26), linear and branched (flash point ≤ 60 °C)	31	3	ABE	
Alkanes (C6–C9)	31		ALK	
<i>Including:</i>				
Heptanes	31			
Hexanes	31			
Nonanes	31			
Octanes	31			
iso- & cyclo-Alkanes (C10–C11)	31		AKI	
iso- & cyclo-Alkanes (C12+)	31		AKJ	
n-Alkanes (C9–C11)	31	3		
n-Alkanes (C10+) (all isomers)	31		ALV	ALJ
<i>Including:</i>				
Decanes	31			
Dodecanes	31			
Heptadecanes	31			
n-Paraffins (C10–C20)	31		PFN	ALJ
Tridecanes	31			
Undecanes	31			
Alkane (C14–C17) sulfonic (alternately sulphonic) acid, sodium salt solutions, <i>see</i> Sodium alkyl (C14–C17) sulfonates (alternately sulphonates) (60–65% solution).			AKA	SAA (AKE/SSU)
Alkaryl polyethers (C9–C20)	41		AKP	
Alkenoic acid, polyhydroxy ester borated	0	1, 3	AAY	
Alkenyl (C11+) amide	10		AKM	
Alkenyl (C8+) amine, Alkenyl (C12+) acid ester mixture	34		AAA	
Alkenyl (C16–C20) succinic anhydride	11		AAH	
Alkyl acrylate-Vinyl pyridine copolymer in Toluene	32		AAP	
Alkyl amine (C17+)	7		AKY	
Alkylaryl phosphate mixtures (more than 40% Diphenyl tolyl phosphate, less than 0.02% ortho-isomers).	34		ADP	
Alkylated (C4–C9) hindered phenols	21	3	AYO	
Alkyl (C3–C4) benzenes	32		AKC	
<i>Including:</i>				
Butylbenzenes	32	3		
Cumene	32			
Propylbenzenes	32			
Alkyl (C5–C8) benzenes	32		AKD	
<i>Including:</i>				
Amylbenzenes	32			
Heptylbenzenes	32			
Hexylbenzenes	32			
Octylbenzenes	32			
Alkyl (C9+) benzenes	32		AKB	
<i>Including:</i>				
Decylbenzenes	32			
Dodecylbenzenes	32			
Nonylbenzenes	32			
Tetradecylbenzenes	32			
Tetrapropylbenzenes	32			

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
<i>Tridecylbenzenes</i>	32			
<i>Undecylbenzenes</i>	32			
Alkyl benzene distillation bottoms	0	1, 3	ABB	
Alkylbenzene mixtures (containing at least 50% of Toluene)	32	3	AZT	
Alkylbenzene, Alkylindane, Alkylindene mixture (each C12–C17)	32		AIH	
Alkyl (C11–C17) benzene sulfonic (alternately sulphonic) acid	0	1, 3	ABN	ABS/ABQ
Alkylbenzene sulfonic (alternately sulphonic) acid (less than 4%)	0	1, 2	ABQ	ABS/ABN
Alkylbenzene sulfonic (alternately sulphonic) acid, sodium salt solution	33		ABT	
Alkyl (C12+) dimethylamine	7	3	ADM	
Alkyl dithiocarbamate (C19–C35)	34	3	ADB	
Alkyl dithiadiazole (C6–C24)	33		ADT	
Alkyl ester copolymer (C4–C20)	34		AES	AEQ
Alkyl ester copolymer in mineral oil	34		AEQ	AES
Alkyl (C7–C9) nitrates	34	2	AKN	ONE
Alkyl (C7–C11) phenol poly(4–12) ethoxylate	40		APN	NPE
Alkyl (C4–C9) phenols	21		AYI	BLT/BTP/NNP/OPH
<i>Alkyl phenol sulfide</i> (alternately <i>sulphide</i>) (C8–C40), <i>see</i> Alkyl (C8–C40) phenol sulfide (alternately <i>sulphide</i>)				AKS
Alkyl (C8–C40) phenol sulfide (alternately <i>sulphide</i>)	34		AKS	
Alkyl (C9–C15) phenyl propoxylate	40		AXL	
Alkyl (C8–C9) phenylamine in aromatic solvents	9		ALP	
<i>n</i> -Alkyl phthalates, <i>see</i> individual phthalates			AYS	
<i>Alkyl polyglucoside solution</i> , <i>see</i> individual polyglucoside solutions			AGD	AGL/AGM/AGN/AGO/AGP
Alkyl (C8–C10) polyglucoside solution (65% or less)	43	3	AGL	AGD/AGM/AGN/AGO/AGP
Alkyl (C8–C10)/(C12–C14):(40% or less/60% or more) polyglucoside solution (55% or less)	43	3	AGN	AGD/AGL AGM/AGO/AGP
Alkyl (C8–C10)/(C12–C14):(50%/50%) polyglucoside solution (55% or less)	43	3	AGO	AGD/AGL/AGN/AGP
Alkyl (C8–C10)/(C12–C14):(60% or more/40% or less) polyglucoside solution (55% or less)	43	3	AGP	AGD/AGL/AGM/AGN/AGO
Alkyl (C12–C14) polyglucoside solution (55% or less)	43	3	AGM	AGD/AGL/AGN/AGO/AGP
Alkyl (C12–C16) propoxyamine ethoxylates	8	3	AXE	LPE
Alkyl (C10–C20), saturated and unsaturated phosphite	34		AKL	
Alkyl succinic anhydride	11		AUA	
Alkyl sulfonic (alternately sulphonic) acid ester of phenol	34		AKH	
Alkyl toluene	32		AYL	AUS
Alkyl (C18+) toluenes	32	3	AUS	AYL
Alkyl (C18–C28) toluenesulfonic (alternately toluenesulphonic) acid	0	1, 3	AUU	
Alkyl (C18–C28) toluenesulfonic (alternately toluenesulphonic) acid, Calcium salts, borated	34	3	AUB	
Alkyl (C18–C28) toluenesulfonic (alternately toluenesulphonic) acid, Calcium salts, high overbase	33	3	AUC	
Alkyl (C18–C28) toluenesulfonic (alternately toluenesulphonic) acid, Calcium salts, low overbase	33	3	AUL	
Allyl alcohol	15	2	ALA	
Allyl chloride	15		ALC	
<i>Aluminum</i> (alternately, <i>Aluminium</i>) chloride/ <i>Hydrochloric acid solution</i> , <i>see</i> "Aluminum (alternately, <i>Aluminium</i>) chloride/ <i>Hydrogen chloride solution</i> "		1	AHS	AHG
Aluminum (alternately <i>Aluminium</i>) chloride/ <i>Hydrogen chloride solution</i>	0	1, 3	AHG	AHS
Aluminum (alternately <i>Aluminium</i>) hydroxide/sodium hydroxide/sodium carbonate solution (40% or less)	5	3	AHN	
Aluminum sulfate (alternately <i>Aluminium sulphate</i>) solution	43	2	ASX	ALM
Amine C–6, morpholine process residue	9		AOI	
Aminoethyldiethanolamine/Aminoethylethanolamine solution	8		ADY	
2-(2-Aminoethoxy) ethanol	8		AEX	
Aminoethylethanolamine	8		AEE	
N-Aminoethylpiperazine	7		AEP	
2-Amino-2-hydroxymethyl-1,3-propanediol solution	43		AHL	
2-Amino-2-methyl-1-propanol	8		APZ	APQ/APR.
Ammonia, anhydrous	6		AMA	
<i>Ammonia, aqueous</i> (28% or less <i>Ammonia</i>), <i>see</i> Ammonium hydroxide				AMH
Ammonium bisulfite (alternately bisulphite) solution (70% or less)	43	2	ABX	ASU
Ammonium chloride solution (less than 25%)	43	3	AMS	AMC
Ammonium hydrogen phosphate solution	0	1	AMI	
Ammonium hydroxide (28% or less <i>Ammonia</i>)	6		AMH	
<i>Ammonium lignosulfonate</i> (alternately <i>lignosulphonate</i>) solution, <i>see also</i> Lignin liquor			ALG	LNL
Ammonium nitrate solution (45% or less)	0	1	AND	AMN/ANR/ANW
Ammonium nitrate solution (93% or less)	0	1	ANW	AMN/AND/ANR
<i>Ammonium nitrate/Urea solution</i> (containing <i>Ammonia</i>), <i>see</i> Urea/Ammonium nitrate solution (containing 1% or more <i>Ammonia</i>)				UAS (ANU/UAT/UAU/UAV)

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
<i>Ammonium nitrate/Urea solution (not containing Ammonia), see Urea/Ammonium nitrate solution (containing less than 1% Ammonia).</i>				UAU (ANU/UAS/UAT/UAV)
<i>Ammonium phosphate/Urea solution, see Urea/Ammonium phosphate solution.</i>	.....	.....		UAP (APP/URE)
Ammonium polyphosphate solution	43	.....	AMO	
Ammonium sulfate (alternately sulphate) solution	43	.....	ASW	AME/AMS
Ammonium sulfate (alternately sulphate) solution (20% or less)	43	.....	AME	AMS/ASW
Ammonium sulfide (alternately sulphide) solution (45% or less)	5	3	ASS	ASF
Ammonium thiocyanate/Ammonium thiosulfate (alternately thiosulphate) solution.	0	1	ACV	ACS
Ammonium thiosulfate (alternately thiosulphate) solution (60% or less)	43	3	ATV	ATF
Amyl acetate (all isomers)	34	3	AEC	IAT/AML/AAS/AYA
Amyl acid phosphate	34	.....	AIA	
Amyl alcohol, primary	20	3	APM	AAI/AAL/AAN/APM/IAA
n-Amyl alcohol	20	3	AAN	AAI/AAL/APM/ASE/IAA
sec-Amyl alcohol	20	3	ASE	AAI/AAL/AAN/APM/IAA
tert-Amyl alcohol	20	3	AAL	AAI/APM/ASE/IAA
tert-Amyl methyl ether	41	.....	AYE	
<i>Amyl methyl ketone, see Methyl amyl ketone</i> .....	.....	.....	AMJ	MAK (AMK)
<i>Amylene, see Pentene (all isomers)</i> .....	.....	.....	AMW	PTX (AMX/AMZ/PTE)
<i>tert-Amylenes, see Pentene (all isomers)</i> .....	.....	.....	AMZ	PTX (AMW)
Aniline	9	.....	ANL	
Animal and Fish oils, n.o.s.	34	.....	AFN	
<i>Including:</i>				
<i>Cod liver oil</i>	34			
<i>Lanolin</i>	34			
<i>Neatsfoot oil</i>	34			
<i>Pilchard oil</i>	34			
<i>Sperm oil</i>	34			
Animal and Fish acid oils and distillates, n.o.s.	34	.....	AFA	
<i>Including:</i>				
<i>Animal acid oil</i>	34			
<i>Fish acid oil</i>	34			
<i>Lard acid oil</i>	34			
<i>Mixed acid oil</i>	34			
<i>Mixed general acid oil</i>	34			
<i>Mixed hard acid oil</i>	34			
<i>Mixed soft acid oil</i>	34			
<i>Anthracene oil (Coal tar fraction), see Coal tar</i> .....	.....	.....	AHO	COR
Apple juice	43	.....	APJ	
Argon, liquefied	0	1	ARG	
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	
Asphalt emulsion	33	.....	ASQ	
Asphalt, Kerosene, and other components	33	.....	AKO	
Aviation alkylates (C8 paraffins and isoparaffins BPT 95–120 °C)	33	3	AVA	GAK/GAV
Barium long-chain (C11–C50) alkaryl sulfonate (alternately sulphonate)	34	.....	BCA	
Barium long-chain alkyl (C8–C14) phenate sulfide (alternately sulphide)	34	.....	BCH	
Behenyl alcohol	20	.....	BHY	
Benzene	32	2	BNZ	BHA/BHB/PYG.
Benzene and mixtures having 10% Benzene or more	32	.....	BHB	BHA/BNZ/PYG.
Benzene hydrocarbon mixtures (containing Acetylenes) (having 10% Benzene or more).	32	.....	BHA	BHB/BNZ/PYG
Benzene/Toluene/Xylene mixtures (having 10% Benzene or more)	32	.....	BTX	BHB/BNZ/PYG/TOL/XLX/XLM/XLO/XLP
Benzenesulfonyl (alternately Benzenesulphonyl) chloride	0	1, 2	BSC	
Benzenetricarboxylic acid, trioctyl ester	34	.....	BCE	
Benzyl acetate	34	.....	BZE	
Benzyl alcohol	21	.....	BAL	
Benzyl chloride	36	.....	BCL	
Bio-fuel blends of Diesel/gas oil and Alkanes (C10–C26), linear and branched with a flash point >60 °C (>25% but <99% by volume).	33	3	BIF	BIG/BIH/BIJ/BIK
Bio-fuel blends of Diesel/gas oil and Alkanes (C10–C26), linear and branched with a flash point ≤ 60 °C (>25% but <99% by volume).	33	3	BIG	BIF/BIH/BIJ/BIK
Bio-fuel blends of Diesel/gas oil and FAME (>25% but <99% by volume) ..	34	3	BIH	BIF/BIG/BIJ/BIK
Bio-fuel blends of Diesel/gas oil and vegetable oil (>25% but <99% by volume).	34	3	BIJ	BIF/BIG/BIH/BIJ/BIK
Bio-fuel blends of Gasoline and Ethyl alcohol (>25% but <99% by volume)	20	2, 3	BIJ	BIF/BIG/BIH/BIJ/BIK

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Bis (2-ethylhexyl) terephthalate	34		DHH	
Boronated Calcium sulfonate (alternately sulphonate)	34	.....	BCU	
Brake fluid base mix: Poly(2–8)alkylene (C2–C3) glycols/Polyalkylene (C2–C10) glycols monoalkyl (C1–C4) ethers and their borate esters.	20	3	BFY	
Brominated Epoxy Resin in Acetone	16	.....	BER	
Bromochloromethane	36	.....	BCM	
Butadiene (all isomers)	30	.....	BDI	
Butadiene/Butylene mixtures (containing Acetylenes)	30	.....	BBM	BBX/BDI/BTN/IBL.
Butane (all isomers)	31	.....	BMX	IBT/BUT.
Butane/Propane mixture	31	.....	BUP	LPG
1,4-Butanediol, <i>see</i> Butylene glycol .....	.....	.....	BDO	BUG
2-Butanone, <i>see</i> Methyl ethyl ketone .....	.....	2	.....	MEK
Butene oligomer	30	.....	BOL	
<i>Butene, see</i> Butylenes (all isomers) .....	.....	.....	.....	BUT/IBL
2-Butoxyethanol (58%)/Hyperbranched polyesteramide (42%) (mixture)	20	.....	.....	
Butyl acetate (all isomers)	34	3	BAX	BCN/BTA/BYA/IBA
Butyl acrylate (all isomers)	14	3	BAR	BAI/BTC
Butyl alcohol (all isomers)	20	2, 3	BAY	BAN/BAS/BAT/IAL
<i>Butyl alcohol (iso-, n-, sec-, tert-), see</i> Butyl alcohol (all isomers) .....	.....	2	.....	BAN/BAS/BAT/BAY/ IAL
Butylamine (all isomers)	7	3	BTY	BAM/BTL/BUA/IAM
<i>Butylbenzene (all isomers), see</i> Alkyl (C3–C4) benzenes .....	.....	3	BBE	AKC
Butyl benzyl phthalate	34	.....	BPH	
Butyl butyrate (all isomers)	34	3	BBA	BIB/BUB
Butylene glycol	20	2	BUG	BDO
1,2-Butylene oxide	16	.....	BTO	
Butylenes (all isomers)	30	.....	BTN	IBL
n-Butyl ether	41	3	BTE	
n*-Butyl ether	41	.....	BTE	
<i>iso-Butyl formate, see</i> Isobutyl formate .....	.....	3	BFI	BFN/BFO
n-Butyl formate	34	.....	BFN	BFI/BFO.
Butyl heptyl ketone	18	.....	BHK	
Butyl methacrylate	14	.....	BMH	BMH/BMN.
<i>Butyl methacrylate, Decyl methacrylate, Cetyl-Eicosyl methacrylate mixture, see</i> Butyl/Decyl/Cetyl/Eicosyl methacrylate mixture. ....	.....	3	.....	DER (BMH/BMI/BMN/ CEM)
Butyl/Decyl/Cetyl/Eicosyl methacrylate mixture	14	3	DER	BMH/BMI/BMN/CEM
<i>Butyl methyl ketone, see</i> Methyl butyl ketone .....	.....	2	.....	MBJ (MBK/MIK)
Butyl phenol, Formaldehyde resin in Xylene	32	.....	.....	
n-Butyl propionate	34	.....	BPN	
Butyl stearate	34	.....	BST	
Butyl toluene	32	.....	BUE	
Butyraldehyde (all isomers)	19	3	BAE	BAD/BTR
Butyric acid	4	.....	BRA	IBR.
gamma-Butyrolactone	0	1, 2	BLA	
C9 Resinfeed (DSM)	32	2	CNR	
Calcium alkaryl sulfonate (alternately sulphonate) (C11–C50), <i>see</i> Calcium long-chain alkaryl sulfonate (alternately sulphonate) (C11–C50). ....	.....	3	CAE	CAY
Calcium alkyl (C9) phenol sulfide (alternately sulphide), polyolefin phosphorosulfide (alternately phosphorosulphide) mixture.	34	.....	CPX.	
Calcium alkyl (C10–C28) salicylate	34	3	CAJ.	
Calcium bromide solution, <i>see</i> Drilling brines .....	.....	.....	CBI	DRB
Calcium alkyl salicylate, <i>see</i> Calcium long-chain alkyl salicylate (C13 +), Calcium long-chain alkyl (C18–C28) salicylate, or Calcium alkyl (C10–C28) salicylate.	34	.....	.....	CAJ/CAK/CAZ.
Calcium bromide solution, <i>see</i> Drilling brines .....	.....	.....	CBI	DRB
Calcium bromide/Zinc bromide solution, <i>see</i> Drilling brine (containing Zinc salts). ....	.....	.....	.....	DZB
Calcium carbonate slurry	34	.....	CSR	
Calcium chloride solution, <i>see</i> Drilling brines .....	.....	.....	CCS	CLC
Calcium hydroxide slurry	5	.....	COH	CAH.
Calcium hypochlorite solution (15% or less)	5	3	CHU	CHY/CHZ
Calcium hypochlorite solution (more than 15%)	5	3	CHZ	CHU/CHY
Calcium lignosulfonate (alternately lignosulphonate) solution, <i>see</i> also Lignin liquor. ....	.....	.....	CLL	LNL
Calcium long-chain alkaryl sulfonate (alternately sulphonate) (C11–C50) ...	34	.....	CAY	
Calcium long-chain alkyl (C8–C40) phenate, <i>see</i> Calcium long-chain alkyl (C5–C10) phenate or Calcium long-chain alkyl (C11–C40) phenate. ....	.....	.....	CAQ	CAU/CAV (CAN/ CAW)
Calcium long-chain alkyl (C5–C10) phenate	34	3	CAU	CAN/CAQ/CAV/CAW
Calcium long-chain alkyl (C5–C20) phenate	34	.....	CAV	CAN/CAQ/CAU/CAW
Calcium long-chain alkyl (C11–C40) phenate	34	3	CAW	CAN/CAQ/CAU/CAV
Calcium long-chain alkyl phenate sulfide (alternately sulphide) (C8–C40) ..	34	.....	CPI	
Calcium long-chain alkyl phenolic amine (C8–C40)	9		CPQ	
Calcium long-chain alkyl (C18–C28) salicylate	34	3	CAJ	

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Calcium long-chain alkyl salicylate (C13+)	34		CAK	CAJ/CAZ
Calcium nitrate solutions (50% or less)	34	3	CNU	CNT
Calcium nitrate/Magnesium nitrate/Potassium chloride solution	34	.....	CLM	CNT/CNU/MGN/MGO/ PCS/PCU/PSD.
Calcium salts of fatty acids	34	.....	CFF	
Calcium stearate	34	.....	CSE	
Calcium sulfonate (alternately sulphonate)/Calcium carbonate/Hydro-carbon solvent mixture.	33	.....	CSH	
<i>Camelina oil, see Oil, misc.: Camelina</i> .....	.....	3	CEL	
Camphor oil (light)	18	.....	CPO	
<i>Canola oil, see Oil, edible: Rapeseed (low erucic acid containing less than 4% free fatty acids).</i> .....	.....	.....		ORO (ORP)
<i>Caprolactam solution, see epsilon-Caprolactam (molten or aqueous solu-tions).</i> .....	.....	.....	CLS	
epsilon-Caprolactam (molten or aqueous solutions)	22	3	CLU	CLS
Caramel solutions	43	.....	CML	
Carbolic oil	21	.....	CBO	
Carbon dioxide (high purity)	0	1	CDH	CDO/CDQ
Carbon dioxide (reclaimed quality)	0	1	CDQ	CDH/CDO
Carbon dioxide, liquefied	0	1	CDO	CDH/CDQ
Carbon disulfide (alternately disulphide)	38	.....	CBB	
Carbon tetrachloride	36	2	CBT	CBU OCN
<i>Cashew nut shell oil (untreated), see Oil, misc.: Cashew nut shell (un-treated).</i> .....	.....	.....		OCA (VEO).
<i>Castor oil, see Oil, edible: Castor</i>	34	.....		
Catoxid feedstock	36	2	CXF	
Caustic potash solution	5	2	CPS	
Caustic soda solution	5	2	CSS	
Cesium formate solution	43	3	CSM	
<i>Cetyl alcohol (Hexadecanol), see Alcohols (C13+)</i> .....	.....	.....		ALY (ASY/AYL)
<i>Cetyl alcohol, see Alcohols (C13 +)</i>	20	.....		ALY (ASY/AYL).
Cetyl/Eicosyl methacrylate mixture	14	1	CEM	
<i>Cetyl/Stearyl alcohol, see Alcohols (C13+)</i> .....	.....	.....		ALY (ASY/AYL)
Chlorinated paraffins (C10-C13)	36	.....	CLH	CLG/CLJ/CLQ
Chlorinated paraffins (C14-C17) (with 50% Chlorine or more, and less than 1% C13 or shorter chains).	36	3	CLJ	CLG/CLH/CLQ
Chlorinated paraffins (C14-C17) (with 52% Chlorine)	36	.....	CLQ	CLG/CLH/CLJ.
Chlorinated paraffins (C18+) with any level of chlorine	36	.....	CLG	CLH/CLJ
Chlorine	0	1	CLX	
Chloroacetic acid (80% or less)	4	3	CHM	CHL/MCA
Chlorobenzene	36	2	CRB	
<i>Chlorodifluoromethane, see Monochlorodifluoromethane</i> .....	.....	.....	MCF	
2-Chloro-4-ethylamino-6-isopropylamino-5-triazine solution	0	1	CET	
1-(4-Chlorophenyl)-4,4-dimethyl pentan-3-one	18	2	CDP	
2- or 3-Chloropropionic acid	4	.....	CPM	CLA/CLP
Chloroform	36	.....	CRF	
Chlorohydrins (crude)	17	3	CHD	
4-Chloro-2-methylphenoxyacetic acid, dimethylamine salt solution	9	.....	CDM	
o-Chloronitrobenzene	42	.....	CNO	CNP
Chlorosulfonic (alternately Chlorosulphonic) acid	0	1	CSA	
m-Chlorotoluene	36	3	CTM	CHI/CRN/CTO
o-Chlorotoluene	36	3	CTO	CHI/CRN/CTM
p-Chlorotoluene	36	3	CRN	CHI/CTM/CTO
Chlorotoluenes (mixed isomers)	36	3	CHI	CRN/CTM/CTO
Choline chloride solutions	20	.....	CCO	
Citric acid (70% or less)	4	3	CIS	CIT
Clay slurry	43	.....	CLY	
Coal slurry	43	.....	COG	COA.
Coal tar	33	.....	COR	OCT.
Coal tar crude bases	33	.....	CTB	
<i>Coal tar distillate, see Naphtha: Coal tar solvent</i> .....	.....	.....	CDL	NCT (CTU)
<i>Coal tar naphtha solvent, see Naphtha: Coal tar solvent</i> .....	.....	.....		NCT (CDL/CTU)
Coal tar pitch (molten)	33	3	CTP	
Coal tar, high temperature	33	.....	CHH	
Cobalt naphthenate in solvent naphtha	34	.....	CNS	
<i>Cocoa butter, see Oil, edible: Cocoa butter</i> .....	.....	.....		OCB (VEO)
<i>Coconut oil, see Oil, edible: Coconut</i> .....	.....	2		OCC (VEO)
<i>Coconut oil, fatty acid, see Oil, misc.: Coconut fatty acid</i> .....	.....	2		CFA
<i>Coconut oil, fatty acid methyl ester, see Oil, misc.: Coconut fatty acid methyl ester.</i> .....	.....	3		OCM
Copper salt of long-chain (C17 +) alkanolic acid	34	.....	CUS	CFT.
Copper salt of long-chain (C3-C16) fatty acid	34		CFT	CUS.
<i>Corn oil, see Oil, edible: Corn</i>				OCO (VEO)

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Corn syrup	43		CSY	
Cottonseed oil, <i>see</i> Oil, edible: Cottonseed .....	.....	.....		OCS (VEO)
Cottonseed oil, fatty acid, <i>see</i> Oil, misc.: Cottonseed oil, fatty acid .....	.....	.....	CFY	
Creosote	21	2	CCW	CCT/CWD
Creosote (coal tar)	21	2, 3	CCT	CCW
Creosote (wood tar)	21	2, 3	CWD	CCT/CCW
Cresols (all isomers)	21	3	CRS	CFO/CFP/CRL/CRO/ CSC/CSO
<i>Cresols with 5% or more Phenol, see</i> Phenol .....	.....	.....	CFP	PHN (CFO/CRL/CRO/ CRS/CSO)
<i>Cresols with less than 5% Phenol, see</i> Cresols (all isomers) .....	.....	.....	CFO	CRS (CFP/CRL/CRO/ CSO)
<i>Cresylate spent caustic, see</i> Cresylic acid, sodium salt solution .....	.....	2	CSC	CYD
Cresylic acid	21	.....	CRY	
Cresylic acid, dephenolized	21	.....	CAD	CRY/CYN
Cresylic acid tar	21	.....	CRX	
Cresylic acid with 5% or more phenol	21	.....	CYN	CAD/CRY
Cresylic acid, sodium salt solution	5	2	CYD	CSC
Crotonaldehyde	19	2	CTA	
<i>Crude Isononylaldehyde, see</i> Isononylaldehyde (crude) .....	.....	.....		INC
Crude Isopropanol	20	.....		IPB (IPA/PAL)
<i>Crude Piperazine, see</i> Piperazine (crude) .....	.....	.....		PZC (PPZ/PIZ)
<i>Cumene, see</i> Alkyl(C3–C4) benzenes .....	.....	.....	CUM	AKD (PBY/PBZ)
1,5,9-Cyclododecatriene	30	.....	CYT	
Cycloheptane	31	.....	CYE	
Cyclohexane	31	.....	CHX	
Cyclohexanol	20	.....	CHN	
Cyclohexanone	18	2	CCH	
Cyclohexanone/Cyclohexanol mixtures	18	2	CYX	
Cyclohexyl acetate	34	.....	CYC	
Cyclopentadiene/Styrene/Benzene mixture	30	.....	CSB	
1,3-Cyclopentadiene dimer (molten)	30	3	CPD	DPT/DPV
Cyclopentane	31	.....	CYP	
Cyclopentene	30	.....	CPE	
p-Cymene	32	.....	CMP	
Decahydronaphthalene	33	.....	DHN	
Decaldehyde	19	.....	DAY	IDA/DAL
<i>iso-Decaldehyde, see</i> Isodecaldehyde .....	.....	.....		
n-Decaldehyde	19	.....		
<i>Decane (all isomers), see</i> n-Alkanes (C10+) (all isomers) .....	.....	.....	DCC	ALV (ALJ)
Decanoic acid	4	.....	DCO	NEA
Decene	30	.....	DCE	
Decyl acetate	34	.....	DYA	
Decyl acrylate	14	.....	DAT	IAI/DAR
Decyl alcohol (all isomers)	20	2, 3	DAX	ISA/DAN
Decyl/Dodecyl/Tetradecyl alcohol mixture	20	3	DYO	DAN/DAX/DDN/ISA
<i>Decylbenzene, see</i> Alkyl (C9+) benzenes .....	.....	.....	DBZ	AKB
Decyloxytetrahydrothiophene dioxide	0	1	DHT	
Detergent alkylate	32	.....	DKY	AKB/DBZ/DBB/TDB/ TRB/UDB.
<i>Dextrose solution, see</i> Glucose solution .....	.....	.....	DTS	GLU
Diacetone alcohol	20	2	DAA	
<i>Dialkyl (C10–C14) benzenes, see</i> Alkyl (C9+) benzenes .....	.....	.....	DAB	AKB
Dialkyl(C8–C9) diphenylamines	9	.....	DAQ	
Dialkyl (C7–C13) phthalates	34	.....	DAH	
<i>Including:</i>				
<i>Di-(2-ethylhexyl) phthalate</i>	34	.....		
<i>Diheptyl phthalate</i>	34	.....		
<i>Dihexyl phthalate</i>	34	.....		
<i>Diisooctyl phthalate</i>	34	.....		
<i>Diisodecyl phthalate</i>	34	.....		
<i>Diisononyl phthalate</i>	34	.....		
<i>Dinonyl phthalate</i>	34	.....		
<i>Diocetyl phthalate</i>	34	.....		
<i>Ditridecyl phthalate</i>	34	.....		
<i>Diundecyl phthalate</i>	34	.....		
<i>Dialkyl (C9–C10) phthalates, see</i> Dialkyl (C7–C13) phthalates .....	.....	.....	DLK	DLH (DAP/DHL/DHP/ DID/DIE/DIF/DIN/ DIO/DIT/DOP/DPA/ DTP/DUP)
Dialkyl thiophosphates sodium salts solution	34	3	DYH	
Dibromomethane	36		DBH	
<i>Dibutyl carbinol, see</i> Nonyl alcohol (all isomers)				NNS (DBC/NNI/NNN)

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Dibutyl hydrogen phosphonate	34		DHD	
Dibutyl phthalate	34	.....	DPA	DIT
Dibutyl terephthalate	34	3	DYE	
Dibutylamine	7	.....	DBA	
Dibutylphenols	21	.....	DBT	
Di-tert-butylphenol	21	.....	DBF	DBT/DBV/DBW
2,4-Di-tert-butylphenol	21	.....	DBV	DBF/DBT/DBW
2,6-Di-tert-butylphenol	21	3	DBW	DBF/DBT/DBV
Dichlorobenzene (all isomers)	36	3	DBX	DBM/DBO/DBP
3,4-Dichloro-1-butene	36	.....	DCD	DCB.
Dichlorodifluoromethane	36	.....	DCF	
1,1-Dichloroethane	36	.....	DCH	
Dichloroethyl ether	41	3	DYR	DEE
1,6-Dichlorohexane	36	.....	DHX	
2,2'-Dichloroisopropyl ether	41	.....	DCI	
Dichloromethane	36	2	DCM	
2,4-Dichlorophenol	21	.....	DCP	
2,4-Dichlorophenoxyacetic acid/Diethanolamine salt solution	43	.....	DDE	
2,4-Dichlorophenoxyacetic acid/Dimethylamine salt solution (70% or less)	0	1, 2, 3	DDA	DAD/DSX
2,4-Dichlorophenoxyacetic acid/Trisopropanolamine salt solution	43	2	DTI	
1,1-Dichloropropane	36	.....	DPB	DPC/DPL/DPP/DPX
1,2-Dichloropropane	36	2, 3	DPP	DPB/DPC/DPL/DPX
1,3-Dichloropropane	36	.....	DPC	DPB/DPL/DPP/DPX
Dichloropropene (all isomers)	15	.....	DCW	DPF/DPU.
1,3-Dichloropropene	15	.....	DCW	DCW/DPF.
Dichloropropene/Dichloropropane mixtures	15	.....	DMX	DCW/DPB/DPC/DPL/DPF/DPU/DPX.
2,2-Dichloropropionic acid	4	.....	DCN	
Dicyclopentadiene, Resin Grade, 81–89%	30	3	DPV	CPD/DPT
<i>Dicyclopentadiene, see 1,3-Cyclopentadiene dimer (molten)</i> .....	.....	.....	DPT	CPD (DPV)
Diethanolamine	8	2	DEA	
<i>Diethanolamine salt of 2,4-Dichlorophenoxyacetic acid solution, see 2,4-Dichlorophenoxyacetic acid, Diethanolamine salt solution.</i> .....	.....	.....	DZZ	DDE
Diethylamine	7	.....	DEN	
Diethylaminoethanol	8	.....	DAE	
2,6-Diethylaniline	9	.....	DMN	DIY.
Diethylbenzene	32	.....	DEB	
Diethylene glycol	40	2	DEG	
<i>Diethylene glycol butyl ether, see Poly(2–8)alkylene glycol monoalkyl (C1–C6) ether.</i> .....	.....	.....	DME	PAG
<i>Diethylene glycol butyl ether acetate, see Poly(2–8)alkylene glycol monoalkyl (C1–C6) ether acetate.</i> .....	.....	.....	DEM	PAF
Diethylene glycol dibenzoate	34	.....	DGZ	
Diethylene glycol dibutyl ether	40	.....	DIG	
Diethylene glycol diethyl ether	40	.....	DGS	
<i>Diethylene glycol ethyl ether, see Poly(2–8)alkylene glycol monoalkyl (C1–C6) ether.</i> .....	.....	.....	DGE	PAG
<i>Diethylene glycol ethyl ether acetate, see Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether acetate.</i> .....	.....	.....	DGA	PAF
<i>Diethylene glycol n-hexyl ether, see Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether.</i> .....	.....	.....	DHE	PAG
<i>Diethylene glycol methyl ether, see Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether.</i> .....	.....	.....	DGM	PAG
<i>Diethylene glycol methyl ether acetate, see Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether acetate.</i> .....	.....	.....	DGR	PAF
Diethylene glycol phenyl ether	40	.....	DGP	
Diethylene glycol phthalate	34	.....	DGL	
<i>Diethylene glycol propyl ether, see Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether.</i> .....	.....	.....	DGO	PAG
Diethylenetriamine	7	2	DET	
Diethylenetriaminepentaacetic acid, pentasodium salt solution	43	.....	DYS	
<i>Diethylethanolamine, see Diethylaminoethanol</i> .....	.....	.....		DAE
Diethyl ether	8	.....	EET	
<i>Diethyl hexanol, see Decyl alcohol (all isomers)</i> .....	.....	.....		DAX
Di-(2-ethylhexyl) adipate	34	.....	DEH	
Di-(2-ethylhexyl) phosphoric acid	1	.....	DEP	
<i>Di-(2-ethylhexyl) phthalate, see Dialkyl (C7–C13) phthalate</i> .....	.....	.....	DIE	DAH
Di-(2-ethylhexyl) terephthalate	34	.....	DHH	
Diethyl phthalate	34	.....	DPH	
Diethyl sulfate (alternately sulphate)	34	.....	DSU	
Diglycidyl ether of Bisphenol A	16	.....	BDE	
Diglycidyl ether of Bisphenol F	16		DGF	
<i>Diheptyl phthalate, see Dialkyl (C7–C13) phthalate</i>			DHP	DAH

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Di-n-hexyl adipate	34		DHA	
<i>Dihexyl phthalate, see</i> Dialkyl (C7–C13) phthalate			DHL	
<i>Diisobutyl carbinol, see</i> Nonyl alcohol (all isomers) .....	.....	.....	DBC	NNS
Diisobutyl ketone	18	.....	DIK	
Diisobutyl phthalate	34	.....	DIT	DPA
Diisobutylamine	7	.....	DBU	
Diisobutylene	30	.....	DBL	
<i>Diisodecyl phthalate, see</i> Dialkyl (C7–C13) phthalates .....	.....	.....	DID	DAH
1,4-Dihydro-9,10-dihydroxy anthracene, disodium salt solution	5	.....	DDH	
Diisononyl adipate	34	.....	DNY	
<i>Diisononyl phthalate, see</i> Dialkyl (C7–C13) phthalates .....	.....	2	DIN	DAH
<i>Diisooctyl phthalate, see</i> Dialkyl (C7–C13) phthalate .....	.....	.....	DIO	DAH/(DIE/DOP)
Diisopropanolamine	8	.....	DIP	
Diisopropylamine	7	.....	DIA	DNA.
Diisopropylbenzene (all isomers)	32	.....	DIX	
Diisopropyl-naphthalene	32	.....	DII	
1,4-Dihydro-9,10-dihydroxy anthracene, disodium salt solution	5	.....	DDH	
N,N-Dimethylacetamide	10	.....	DAC	DLS
N,N-Dimethylacetamide solution (40% or less)	10	3	DLS	DAL.
Dimethyl adipate	34	.....	DLA	
Dimethylamine	7	.....	DMA	DMC/DMG/DMY. CDM
<i>Dimethylamine salt of 4-Chloro-2-methylphenoxyacetic acid solution, see</i> 4-Chloro-2-methylphenoxyacetic acid, Dimethylamine salt solution.	.....	.....		
<i>Dimethylamine salt of 2,4-Dichlorophenoxyacetic acid solution, see</i> 2,4- Dichlorophenoxyacetic acid, Dimethylamine salt solution (70% or less).	.....	.....	DAD	DDA (DSX)
Dimethylamine solution (45% or less)	7	3	DMG	DMA/DMC/DMY
Dimethylamine solution (greater than 45% but not greater than 55%)	7	3	DMY	DMA/DMC/DMG
Dimethylamine solution (greater than 55% but not greater than 65%)	7	3	DMC	DMA/DMG/DMY
2,6-Dimethylaniline	9	.....	DMM	DDL
<i>Dimethylbenzene, see</i> Xylenes .....	.....	2		XLX/XLM/XLO/XLP
Dimethylcyclosiloxane hydrolyzate	34	.....	DXZ	
N,N-Dimethylcyclohexylamine	7	.....	DXN	
Dimethyl disulfide (alternately disulphide)	0	1, 2, 3	DSK	
<i>Dimethyldodecylamine, see</i> N,N-Dimethyldodecylamine	7	.....		DDY.
N,N-Dimethyldodecylamine	7	.....	DDY	
Dimethylethanolamine	8	.....	DMB	
Dimethyl ether	41	.....	DIM	
Dimethylformamide	10	2	DMF	
Dimethyl furan	41	.....	DFU	
Dimethyl glutarate	34	.....	DGT	
Dimethyl hydrogen phosphite	34	2	DPI	
Dimethyl naphthalene sulfonic (alternately sulphonic) acid, sodium salt solution.	34	2	DNS	
Dimethyl octanoic acid	4	.....	DMO	
Dimethyl phthalate	34	.....	DTL	
<i>Dimethylpolysiloxane, see</i> Polydimethylsiloxane .....	.....	.....	DMP	
2,2-Dimethylpropane-1,3-diol (molten or solution)	20	3	DDI	
Dimethyl succinate	34	.....	DSE	
Dinitrotoluene (molten)	42	3	DNM	DNL/DNU/DTT
<i>Dinonyl phthalate, see</i> Dialkyl (C7–C13) phthalates .....	.....	.....	DIF	DAH
<i>Diocetyl phthalate, see</i> Dialkyl (C7–C13) phthalates .....	.....	.....	DOP	DAH (DIE/DIO)
1,4-Dioxane	41	.....	DOX	
Dipentene	30	.....	DPN	
Diphenyl	32	.....	DIL	
Diphenylamine (molten)	9	.....	DAG	DAM.
Diphenylamine, reaction product with 2,2,4-trimethylpentene	9	.....	DAK	
Diphenylamines, alkylated	9	.....	DAJ	
Diphenyl/Diphenyl ether mixtures	33	.....	DDO	
Diphenyl ether	41	.....	DPE	
<i>Diphenyl ether/Biphenyl ether mixture, see</i> Diphenyl/Diphenyl ether mixture.	.....	.....		DDO
Diphenyl ether/Diphenyl phenyl ether mixture	41	.....	DOB	
Diphenylmethane diisocyanate	12	2	DPM	
<i>Diphenyl oxide, see</i> Diphenyl ether .....	.....	.....		DPE
Diphenylol propane-Epichlorohydrin resins	0	1	DPR	
Di-n-propylamine	7	.....	DNA	DIA
Dipropylene glycol	40	.....	DPG	
<i>Dipropylene glycol butyl ether, see</i> Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether.	.....	.....	DBG	PAG
Dipropylene glycol dibenzoate	34	.....	DGY	
<i>Dipropylene glycol methyl ether, see</i> Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether.			DPY	PAG
Distillates, flashed feed stocks	33		DFF	

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Distillates, straight run	33		DSR	
Di-tert-butyl phenol	21	.....	DBF	DBT/DBV/DBW.
2,4-Di-tert-butyl phenol	21	.....	DBV	DBF/DBT/DBW.
2,6-Di-tert-butyl phenol	21	.....	DBW	DBF/DBT/DBV.
Dithiocarbamate ester (C7–C35)	34	.....	DHO	
Ditridecyl adipate	34	.....	DTY	
<i>Ditridecyl phthalate, see</i> Dialkyl (C7–C13) phthalate .....	.....	.....	DTP	DAH
<i>Diundecyl phthalate, see</i> Dialkyl (C7–C13) phthalates .....	.....	.....	DUP	DAH
<i>Dodecane (all isomers, see</i> n-Alkanes (C10+) (all isomers) .....	.....	.....	DOF	ALV (ALJ/DOC)
tert-Dodecanethiol	20	2	DDL	LRM
Dodecene (all isomers)	30	3	DOZ	DDC/DOD
<i>Dodecanol (all isomers, see</i> Decyl alcohol (all isomers) .....	.....	2	DDN	LAL
2-Dodecenylsuccinic acid, dipotassium salt solution	34	.....	DSP	
Decyl alcohol (all isomers)	20	2	DDN	ASK/ASY/LAL
Dodecylamine/Tetradecylamine mixture	7	2	DTA	
<i>Dodecylbenzene, see</i> Alkyl (C9+) benzenes .....	.....	.....	DDB	AKB
Dodecylbenzenesulfonic (alternately Dodecylbenzenesulphonic) acid	0	1, 2	DSA	
Dodecylmethylamine/Tetradecylmethylamine mixture	7	.....	DOT	
Dodecyl diphenyl ether disulfonate (alternately disulphonate) solution	43	.....	DTA	
Dodecyl hydroxypropyl sulfide (alternately sulphide)	0	1	DOH	
Dodecyl methacrylate	14	.....	DDM	
Dodecyl/Octadecyl methacrylate mixture	14	.....	DOM	DDM.
Dodecyl/Pentadecyl methacrylate mixture	14	.....	DDP	
Dodecyl phenol	21	.....	DOL	
Dodecyl xylene	32	.....	DXY	
Drilling brines (containing Calcium, Potassium or Sodium salts)	43	.....	DRL	DRB/DRS.
Drilling brines (containing Zinc salts)	43	.....	DZB	DRB.
Drilling brines, including: Calcium bromide solution, Calcium chloride solution and Sodium chloride solution.	43	3		DRS/DRL
Drilling mud (low toxicity) (<i>if flammable or combustible</i>)	33	.....	DRO	DRM/DRN/DRP.
Drilling mud (low toxicity) (<i>if non-flammable or non-combustible</i>)	43	.....	DRP	DRM/DRN/DRO.
Epichlorohydrin	17	.....	EPC	
Epoxy resin	16	.....	EPN	
<i>ETBE, see</i> Ethyl tert-butyl ether .....	.....	.....		EBE
Ethane	31	.....	ETH	
Ethanolamine	8	.....	MEA	
<i>2-Ethoxyethanol, see</i> Ethylene glycol monoalkyl ethers .....	.....	.....	EEO	EGC (EGE)
2-Ethoxyethyl acetate	34	2	EEA	EGA.
Ethoxylated alkyloxy alkyl amine	8	.....	ELM	
<i>Ethoxylated alcohols, C11–C15, see</i> alcohol polyethoxylates .....	.....	.....		AEA/AEB/AED/AET/ APV/APW/APX
Ethoxylated long-chain (C16+) alkyloxyalkylamine	8	.....	ELA	
Ethoxylated tallow alkyl amine	7	.....	TAY	TAG/TAR
Ethoxylated tallow alkyl amine, glycol mixture	7	.....	TAG	TAR/TAY
Ethoxylated tallow amine (> 95%)	7	3	TAR	TAG/TAY
<i>Ethoxy triglycol, see</i> Poly(2–8)alkylene glycol monoalkyl (C1–C6) ether .....	.....	.....	ETG	PAG (ETR/TGE)
Ethoxy triglycol (crude)	40	.....	ETR	
Ethyl acetate	34	2	ETA	
Ethyl acetoacetate	34	.....	EAA	
Ethyl acrylate	14	2	EAC	
Ethyl alcohol	20	2	EAL	
Ethylamine	7	2	EAM	EAN/EAO.
Ethylamine solution (72% or less)	7	3	EAN	EAM/EAO
Ethyl amyl ketone	18	.....	EAK	ELK.
Ethylbenzene	32	.....	ETB	
Ethyl butanol	20	.....	EBT	
N-Ethylbutylamine	7	.....	EBA	
Ethyl tert-butyl ether	41	2	EBE	
Ethyl butyrate	34	.....	EBR	
Ethyl chloride	36	.....	ECL	
Ethyl cyclohexane	31	.....	ECY	
N-Ethylcyclohexylamine	7	.....	ECC	
2-Ethyl-2-(2,4-dichlorophenoxy) acetate	34	.....	EDY	
2-Ethyl-2-(2,4-dichlorophenoxy) propionate	34	.....	EDP	
S-Ethyl dipropylthiocarbamate	34	3	ECB	
Ethylene	30	.....	ETL	
Ethyleneamine EA 1302	7	2	EMX	
Ethylene carbonate	34	.....	ECR	
Ethylene chlorohydrin	20	.....	ECH	
Ethylene cyanohydrin	20	2	ETC	
Ethylenediamine	7	2	EDA	EMX.
Ethylenediaminetetraacetic acid/tetrasodium salt solution	43		EDS	
Ethylene dibromide	36		EDB	

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Ethylene dichloride	36	2	EDC	
Ethylene glycol	20	2	EGL	EAG.
Ethylene glycol acetate	34	.....	EGO	
<i>Ethylene glycol butyl ether, see Ethylene glycol monoalkyl ethers</i> .....	.....	.....	EGM	EGC
<i>Ethylene glycol tert-butyl ether, see Ethylene glycol monoalkyl ethers</i> .....	.....	.....	EGG	EGC
Ethylene glycol butyl ether acetate	34	.....	EMA	
Ethylene glycol diacetate	34	.....	EGY	
Ethylene glycol dibutyl ether	40	.....	EGB	
<i>Ethylene glycol ethyl ether, see Ethyl glycol monoalkyl ethers</i> .....	.....	.....	EGE	EGC/EEO
<i>Ethylene glycol ethyl ether acetate, see 2-Ethoxyethyl acetate</i> .....	.....	2	EGA	EEA
<i>Ethylene glycol hexyl ether, see Ethylene glycol monoalkyl ethers</i> .....	.....	.....	EGH	EGC
<i>Ethylene glycol isobutyl ether, see Ethylene glycol monoalkyl ethers</i> .....	.....	.....	.....	EGC (EGG/EGM)
<i>Ethylene glycol isopropyl ether, see Ethylene glycol monoalkyl ethers</i> .....	.....	.....	EGI	EGC
<i>Ethylene glycol methyl butyl ether, see Ethylene glycol monoalkyl ethers</i> ..	.....	.....	EMB	EGC
<i>Ethylene glycol methyl ether, see Ethylene glycol monoalkyl ethers</i> .....	.....	.....	EME	EGC
Ethylene glycol methyl ether acetate	34	.....	EGT	
Ethylene glycol monoalkyl ethers	40	2	EGC	
Including:				
<i>Ethylene glycol butyl ether</i>	40	.....	.....	
<i>Ethylene glycol tert-butyl ether</i>	40	.....	.....	
<i>Ethylene glycol ethyl ether</i>	40	.....	.....	
<i>Ethylene glycol hexyl ether</i>	40	.....	.....	
<i>Ethylene glycol isobutyl ether</i>	40	.....	.....	
<i>Ethylene glycol isopropyl ether</i>	40	.....	.....	
<i>Ethylene glycol methyl ether</i>	40	.....	.....	
<i>Ethylene glycol methyl butyl ether</i>	40	.....	.....	
<i>Ethylene glycol propyl ether</i>	40	.....	.....	
Ethylene glycol phenyl ether	40	.....	EPE	
Ethylene glycol phenyl ether/Diethylene glycol phenyl ether mixture	40	.....	EDX	
<i>Ethylene glycol propyl ether, see Ethylene glycol monoalkyl ethers</i> .....	.....	.....	EGP	EGC/EGI/EGN
<i>Ethylene glycol n-propyl ether, see Ethylene glycol monoalkyl ethers</i> .....	.....	.....	EGN	EGC (EGI/EGP)
Ethylene oxide	0	1	EOX	
Ethylene oxide/Propylene oxide mixture	16	.....	EPF	EPM.
Ethylene oxide/Propylene oxide mixture with an Ethylene oxide content not more than 30% by mass.	16	3	EPM	EPF
Ethylene-Propylene copolymer (in liquid mixtures)	31	.....	EPY	
Ethylene-Vinyl acetate copolymer (emulsion)	43	.....	ECV	
<i>Ethyl ether, see Diethyl ether</i> .....	.....	.....	.....	EET
Ethyl-3-ethoxypropionate	34	.....	EEP	
<i>2-Ethylhexaldehyde, see Octyl aldehydes</i> .....	.....	.....	EHA	OAL (OLX)
<i>2-Ethylhexanoic acid, see Octanoic acid (all isomers)</i> .....	.....	.....	EHO	OAY (OAA)
<i>2-Ethylhexanol, see Octanol</i> .....	.....	.....	EHX	OCA (OTA)
2-Ethylhexyl acrylate	14	.....	EAI	
2-Ethylhexylamine	7	.....	EHM	
Ethyl hexyl phthalate	34	.....	EHE	
Ethyl hexyl tallate	34	.....	EHT	
2-Ethyl-2-(hydroxymethyl) propane-1,3-diol (C8–C10) ester	34	.....	EHD	
Ethyl lactate	34	.....	ELT	
Ethylidene norbornene	30	2	ENB	
Ethyl methacrylate	14	.....	ETM	
N-Ethylmethylallylamine	7	.....	EML	
Ethyl propionate	34	.....	EPR	
2-Ethyl-3-propylacrolein	19	2	EPA	
2-Ethyl-6-methyl-N-(1'-methyl-2-methoxyethyl)aniline	9	.....	EEM.	
o-Ethyl phenol	21	.....	EPL	
Ethyl toluene	32	.....	ETE	
Fatty acid methyl esters	34	3	FME	
Fatty acids (C8–C10)	34	3	FDS	
Fatty acids (C12+)	34	3	FDT	FAB/FAD/FAI/FDI
Fatty acids (saturated, C13+)	34	.....	FAB	FAD
<i>Fatty acids (saturated, C14+), see Fatty acids (saturated, C13+)</i> .....	.....	.....	FAD	FAB
Fatty acids (C16+)	34	3	FDI	
Fatty acids, essentially linear (C6–C18) 2-ethylhexyl ester	34	2, 3	FAE	
Ferric chloride solution	1	.....	FCS	FCL.
Ferric hydroxyethylethylenediaminetriacetic acid, trisodium salt solution	43	2	FHX	STA.
Ferric nitrate/Nitric acid solution	3	2	FNN	
<i>Fish oil, see Oil, edible: Fish</i> .....	.....	2	.....	OFS (AFN)
Fish solubles (water based fish meal extracts)	43	.....	FSO	
Fluorosilicic acid (20–30%) in water solution	1	3	FSK	FSJ/FSL/HFS
Fluorosilicic acid (30% or less)	1	.....	FSJ	FSK/FSL/HFS.
Formaldehyde (50% or more), Methanol mixtures	19	2	MTM	
Formaldehyde solutions (37%–50%)	19	2	FMS	FMG/FMR.
Formaldehyde solutions (45% or less)	19	2, 3	FMR	FMG/FMS

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Formamide	10		FAM	
Formic acid	4	2	FMA	FMB.
Formic acid (85% or less)	4	2	FMB	FMA
Formic acid (over 85%)	4	2, 3	FMD	
Formic acid mixture (containing up to 18% Propionic acid and up to 25% Sodium formate).	4	2, 3	FMC	FMA/FMB
Fructose solution	43	.....	FTS	FRT.
Fumaric adduct of Rosin, water dispersion	43	.....	FAR	
<i>Fuming sulfuric</i> (alternately <i>sulphuric</i>) <i>acid</i> , see <i>Oleum</i> .....	.....	2		
Furfural	19	.....	FFA	
Furfuryl alcohol	20	2	FAL	
<i>Gas oil, cracked</i> , see <i>Oil, misc.: Gas, cracked</i> .....	.....	.....		GOC
Gasoline blending stock, alkylates	33	.....	GAK	
Gasoline blending stock, reformates	33	.....	GRF	
Gasolines:				
Automotive (containing not more than 4.23 grams lead per gal.) ..	33	.....	GAT	
Aviation (containing not more than 4.86 grams lead per gal.)	33	.....	GAV	AVA
Casinghead (<i>natural</i>)	33	.....	GCS	
Polymer	33	.....	GPL	
Straight run	33	.....	GSR	
<i>Gasolines: Pyrolysis (containing Benzene)</i> , see <i>Pyrolysis gasoline</i> (containing Benzene). .....	.....	.....	GPY	PYG
Glucitol/Glycerol blend propoxylated (containing less than 10% amines)	40	3	GGA	
Glucose solution	43	.....	GLS	DTS.
Glutaraldehyde solutions (50% or less)	19	.....	GTA	
Glycerine	20	2	GCR	
Glycerine (83%)/Dioxanedimethanol (17%) mixture	20	.....	GDN	GDM.
<i>Glycerol</i> , see <i>Glycerine</i> .....	.....	2		GCR
Glycerol ethoxylated	40	.....	GXA	
Glycerol monooleate	20	.....	GMO	
Glycerol polyalkoxylate	40	.....	GPA	
Glycerol propoxylated	40	3	GXP	
Glycerol, propoxylated and ethoxylated	40	3	GXE	
Glycerol/Sucrose blend propoxylated and ethoxylated	40	3	GSB	
Glyceryl triacetate	34	.....	GCT	
Glycidyl ester of C10 trialkyl acetic acid	34	.....	GLU	GLT
<i>Glycidyl ester of tertiary carboxylic acid</i> , see <i>Glycidyl ester of C10 trialkyl acetic acid</i>. .....	.....	.....	GLT	GLU
<i>Glycidyl ester of tridecyl acetic acid</i> , see <i>Glycidyl ester of C10 trialkyl acetic acid</i>. .....	.....	.....	GLT	GLU
<i>Glycidyl ester of Versatic acid</i> , see <i>Glycidyl ester of C10 trialkyl acetic acid</i>. .....	.....	.....	GLT	GLU
Glycine, sodium salt solution	7	.....	GSS	
<i>Glycol diacetate</i> , see <i>Ethylene glycol diacetate</i> .....	.....	.....		EGY
Glycol mixture, crude	20	.....	GMC	
<i>Glycol triacetate</i> , see <i>Glyceryl triacetate</i> .....	.....	.....		GCT
Glycolic acid solution (70% or less)	4	3	GLC	
Glyoxal solution (40% or less)	19	3	GOS	
Glyoxylic acid solution (50% or less)	4	3	GAC	
Glyphosate solution (not containing surfactant)	7	.....	GIO	RUP.
<i>Grape Seed Oil</i> , see <i>Oil, edible: Grape seed</i> .....	.....	.....		
<i>Groundnut oil</i> , see <i>Oil, edible: Groundnut</i> .....	.....	.....		OGN (VEO)
<i>Hazelnut oil</i> , see <i>Oil, edible: Hazelnut</i> .....	.....	.....		OHN (VEO)
<i>Heptadecane (all isomers)</i> , see <i>n-Alkanes (C10+)</i> (all isomers) .....	.....	.....		ALV (ALJ)
<i>Heptane (all isomers)</i> , see <i>Alkanes (C6–C9)</i> .....	.....	.....	HMx	ALK(HPI/HPT)
n-Heptanoic acid	4	.....	HEN	HEP.
Heptanol (all isomers)	20	3	HTX	HTN
Heptene (all isomers)	30	2, 3	HPX	THE
Heptyl acetate	34	.....	HPE	
<i>Heptylbenzenes</i> , see <i>Alkyl (C5–C8) benzenes</i> .....	.....	.....		AKD
<i>Herbicide (C15–H22–NO2–Cl)</i> , see <i>Metolachlor</i> .....	.....	.....		MCO
<i>Hexadecanol (Cetyl alcohol)</i> , see <i>Alcohols (C13+)</i> .....	.....	.....		ALY (ASY/AYL)
1-Hexadecylnaphthalene/1,4-bis(Hexadecyl)naphthalene mixture	32	.....	HNH	HNI.
1-n-Hexadecylnaphthalene (90%)/1,4-di-n-(Hexadecyl)naphthalene (10%)	32	.....	HNI	HNH.
<i>Hexaethylene glycol</i> , see <i>Polyethylene glycol</i> .....	.....	.....	HMG	PEG
Hexamethylene diisocyanate	12	.....	HMS	HDI
Hexamethylene glycol	20	.....	HMG	HXG
Hexamethylenediamine (molten)	7	3	HME	HMD/HMC
Hexamethylenediamine adipate (50% in water)	43	.....	HAM	HAN
Hexamethylenediamine adipate solution	43	.....	HAN	HAM
Hexamethylenediamine solution	7		HMC	HMD/HME
Hexamethylenimine	7		HMI	
Hexamethylenetetramine solutions	7		HTS	HMT

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
<i>Hexane (all isomers), see Alkanes (C6–C9)</i>		2	HXS	ALK (IHA/HXA)
1,6-Hexanediol, distillation overheads	4	2, 3	HDO	
Hexanoic acid	4	.....	HXO	
Hexanol	20	.....	HXM	HEW/HEZ/HXN.
Hexene (all isomers)	30	2, 3	HEX	HXE/HXT/HXU/HXV/ MPN/MTN
Hexyl acetate	34	.....	HAE	
<i>Hexylbenzenes, see Alkyl (C5–C8) benzenes</i> .....	.....	.....	.....	AKD
<i>Hexylene glycol, see Hexamethylene glycol</i> .....	.....	.....	HXG	HMG
<i>Hog grease, see Lard</i> .....	.....	.....	.....	LRD
Hydrochloric acid	1	.....	HCL	
<i>Hydrofluorosilicic acid (25% or less), see Fluorosilicic acid (30% or less)</i> ..	.....	.....	.....	FSJ(FSK/FSL/HFS)
bis(Hydrogenated tallow alkyl)methyl amines	7	.....	HTA	
Hydrogen peroxide solutions (over 8% but not more than 60% by mass) ..	0	1, 3	HPN	HPO/HPS
Hydrogen peroxide solutions (over 60% but not more than 70% by mass)	0	1, 3	HPS	HPN/HPO
Hydrogenated starch hydrolysate	0	1, 3	HSN	
2-Hydroxyethyl acrylate	14	2	HAI	
N-(Hydroxyethyl)ethylenediamine triacetic acid, trisodium salt solution	43	.....	HET	
N,N-bis(2-Hydroxyethyl) oleamide	10	.....	HOO	
2-Hydroxy-4-(methylthio)butanoic acid	4	.....	HBA	
<i>Hydroxyl terminated polybutadiene, see Polybutadiene, hydroxyl terminated.</i>	.....	.....	.....	PHT
alpha-Hydro-omega-hydroxytetradeca(oxytetramethylene)	40	.....	HTO	PYS/PYT
<i>Illipe oil, see Oil, edible: Illipe</i> .....	.....	.....	.....	ILO (VEO)
Isoamyl alcohol	20	3	IAA	AAI/AAL/AAN/APM/ ASE
Isobutyl alcohol	20	2, 3	IAL	BAN/BAS/BAT/BAY
Isobutyl formate	34	3	BFI	BFN/BFO
Isobutyl methacrylate	14	3	BMI	BMH/BMN
Isodecaldehyde	19	.....	.....	
Isononyldehyde (crude)	19	.....	INC	
Isophorone	18	2	IPH	
Isophoronediamine	7	.....	IPJ	
Isophorone diisocyanate	12	.....	IPD	
Isoprene (all isomers)	30	.....	IPR	
Isoprene (part refined)	30	.....	IPS	IPR/ISC.
Isoprene concentrate (Shell)	30	.....	ISC	
Isopropanolamine	8	3	MPA	IPF/PAX/PLA
Isopropanolamine solution	8	3	PAI	MPA/PAY/PLA/PRG
Isopropyl acetate	34	3	IAC	PAT
Isopropyl alcohol	20	2, 3	IPA	IPB/PAL
Isopropylamine	7	3	IPP	IPO/IPQ/PRA
Isopropylamine (70% or less) solution	7	3	IPQ	IPO/IPP/PRA
<i>Isopropylbenzene, see Alkyl (C3–C4) benzenes</i> .....	.....	.....	.....	AKC(CUM/PBY/PBZ)
Isopropylcyclohexane	31	3	IPX	
Isopropyl ether	41	3	IPE	PRL/PRN
<i>Jatropha oil, see Oil, misc.: Jatropha</i> .....	.....	.....	.....	JTO
Jet fuels:	.....	.....	JPO	JPT/JPF/JPV
JP-4	33	.....	JPF	
JP-5	33	.....	JPV	
JP-8	33	.....	JPE	
Kaolin clay solution	43	.....	KLC	KLS.
Kaolin slurry	43	.....	KLS	KLC.
Kerosene	33	.....	KRS	
Ketone residue	18	.....	KTR	
Kraft black liquor	5	.....	KBL	KPL.
Kraft pulping liquors (free alkali content 3% or more) (Black, Green, or White).	5	.....	KPL	KBL
Lactic acid	0	1, 2	LTA	
Lactonitrile solution (80% or less)	37	3	LNI	
Lard	34	.....	LRD	OLD.
Latex, ammonia (1% or less)-inhibited	30	3	LTX	
Latex: Carboxylated Styrene-Butadiene copolymer; Styrene-Butadiene rubber.	43	3	LCC	LCB/LSB
Latex, liquid synthetic	43	.....	LLS	LCB/LCC/LSB.
Lauric acid	34	.....	LRA	
Lauric acid methyl ester/Myristic acid methyl ester mixture	34	.....	LMM	
<i>Lauryl polyglucose, see Alkyl (C12–C14) polyglucoside solution (55% or less).</i>	.....	.....	.....	AGM/LAP
<i>Lauryl polyglucose (50% or less), see Alkyl (C12–C14) polyglucoside solution (55% or less).</i>			LAP	AMG
Lecithin	34		LEC	

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Lignin liquor	43		LNL	ALG/CLL/LGA/LGM/ LSL/SHC/SHP/ SHO/SLP. LGA/LNL/LSL LNL or SLG
Ligninsulfonic (alternately Ligninsulphonic) acid, magnesium salt solution ..	43	3	LGM	
<i>Ligninsulfonic</i> (alternately <i>Ligninsulphonic</i>) acid, sodium salt solution, see Lignin liquor or Sodium lignosulfonate (alternately lignosulphonate) solution.	.....	.....	LGA	
<i>d-Limonene</i> , see Dipentene .....	.....	.....		DPN
Linear alkyl (C12-C16) propoxyamine ethoxylate	8	.....	LPE	
<i>Linseed oil</i> , see Oil, misc.: Linseed .....	.....	.....		OLS
<i>Liquefied Natural Gas</i> , see Methane .....	.....	.....	LNG	MTH
Liquid chemical wastes	0	1, 3	LCW	
Liquid Streptomyces solubles	43	.....		
Long-chain alkaryl polyether (C11-C20)	41	.....	LCP	
Long-chain alkaryl sulfonic (alternately sulphonic) acid (C16-C60)	0	1	LCS	
Long-chain alkyl amine	7	.....	LAA	
Long-chain alkylphenate/Phenol sulfide (alternately sulphide) mixture	21	.....	LPS	
Long-chain alkyl (C13+) salicylic acid	4	.....	LAS	
Long-chain polyetheramine in alkyl (C2-C4)benzenes	7	.....	LCE	
L-Lysine solution (60% or less)	43	3	LYS	
Magnesium chloride solution	0	1, 2	MGL	
Magnesium hydroxide slurry	5	.....	MHS	
Magnesium long-chain alkaryl sulfonate (alternately sulphonate) (C11-C50).	34	.....	MAS	MSE
Magnesium long-chain alkyl phenate sulfide (alternately sulphide) (C8-C20).	34	.....	MPS	
Magnesium long-chain alkyl salicylate (C11+)	34	.....	MLS	
Magnesium nitrate solution (66.7%)	43	.....	MGP	MGN/MGO.
<i>Magnesium nonyl phenol sulfide</i> (alternately <i>sulphide</i>), see Magnesium long-chain alkyl phenate sulfide (alternately sulphide) (C8-C20).	.....	.....		MPS
<i>Magnesium sulfonate</i> (alternately <i>sulphonate</i>), see Magnesium long-chain alkaryl sulfonate (alternately sulphonate) (C11-C50).	.....	.....	MSE	MAS
Maleic anhydride	11	.....	MLA	
Maleic anhydride/sodium allylsulphonate copolymer solution	11	.....		PHN (CFO/CRL/CRO/ CRS/CSO)
Maltitol solution	0	1, 3	MTI	
<i>Mango kernel oil</i> , see Oil, edible: Mango kernel .....	.....	.....		MKO (VEO)
Mercaptobenzothiazol, sodium salt solution	5	.....	SMB	MBT
2-Mercaptobenzothiazol (in liquid mixture)	5	.....	BTM	SMD
Mesityl oxide	18	2	MSO	
Metam sodium solution	7	.....	MSS	SMD.
Methacrylic acid	4	.....	MAD	
Methacrylic acid—Alkoxy poly(alkylene oxide) methacrylate copolymer, sodium salt aqueous solution (45% or less).	20	3	MAQ	
Methacrylic resin in ethylene dichloride	14	.....	MRD	
Methacrylonitrile	15	2	MET	
Methane	31	.....	MTH	LNG.
3-Methoxy-1-butanol	20	.....	MTX	
3-Methoxybutyl acetate	34	.....	MOA	
N-(2-Methoxy-1-methyl ethyl)-2-ethyl-6-methyl chloroacetanilide, see Metolachlor.	34	.....		MCO.
1-Methoxy-2-propyl acetate	34	.....	MXP	
<i>Methoxy triglycol</i> , see Poly(2-8)alkylene glycol monoalkyl (C1-C6) ether ..	.....	.....	MTG	PAG (TGY)
Methyl acetate	34	.....	MTT	
Methyl acetoacetate	34	.....	MAE	
Methyl acetylene/Propadiene mixture	30	.....	MAP	
Methyl acrylate	14	.....	MAM	
Methyl alcohol	20	2	MAL	
Methylamine solutions (42% or less)	7	3	MSZ	
Methyl amyl acetate	34	.....	MAC	
Methyl amyl alcohol	20	.....	MAA	MIC
Methyl amyl ketone	18	.....	MAK	
N-Methylaniline	9	3	MAN	
alpha-Methylbenzyl alcohol with Acetophenone (15% or less)	20	3	MBA	
Methyl bromide	36	.....	MTB	
<i>Methyl butanol</i> , see the Amyl alcohols .....	.....	.....		AAI/AAL/AAN/APM/ ASE/IAA PTX (AMW/AMZ/PTE)
<i>Methyl butenes</i> , see Pentene (all isomers) .....	.....	.....		
Methyl butenol	20	.....	MBL	
Methyl tert-butyl ether	41	2	MBE	
Methyl butyl ketone	18	2	MBB	MBK/MIK.
Methyl 3-(3,5 di-tert-butyl-4-hydroxyphenyl) propionate crude melt	20		MYP	
Methylbutynol	20		MBY	MHB.

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
3-Methyl butyraldehyde	19		MBR	
Methyl butyrate	34	.....	MBU	
Methyl chloride	36	.....	MTC	
Methylcyclohexane	31	.....	MCY	
Methylcyclohexanemethanol (crude)	20	.....	MYH	
Methylcyclopentadiene dimer	30	.....	MCK	
Methylcyclopentadienyl manganese tricarbonyl	0	1, 3	MCT	MCW
Methylcyclopentadienyl manganese tricarbonyl (60–70%) in mineral oil	0	1	MCW	MCT.
Methyl diethanolamine	8	.....	MDE	MAB
Methyl ethyl ketone	18	2	MEK	
2-Methyl-6-ethyl aniline	9	.....	MEN	
Methyl formate	34	.....	MFM	
N-Methylglucamine solution (70% or less)	43	3	MGC	
2-Methylglutaronitrile	37	.....	MLN	MGN
2-Methylglutaronitrile with 2-Ethylsuccinonitrile (12% or less)	37	3	MGE	MLN
Methyl heptyl ketone	18	.....	MHK	
2-Methyl-2-hydroxy-3-butyne	20	.....	MHB	MBY
<i>Methyl isoamyl ketone, see Methyl amyl ketone</i> .....	.....	.....	MAJ	MAK
<i>Methyl isobutyl carbinol, see Methyl amyl alcohol</i> .....	.....	.....	MIC	MAA
Methyl isobutyl ketone	18	.....	MIK	MBB/MBK
Methyl methacrylate	14	.....	MMM	
Methylene bridged isobutylene phenols	21	.....	MBP	
<i>Methylene chloride, see Dichloromethane</i> .....	.....	.....		DCM
3-Methyl-3-methoxybutanol	20	.....	MXB	
2-Methyl-5-ethyl pyridine	9	.....	MEP	
3-Methyl-3-methoxybutyl acetate	34	.....	MMB	
Methyl naphthalene (molten)	32	3	MNA	
Methylolurea	19	.....	MUS	
<i>2-Methyl pentane, see Hexane (all isomers)</i> .....	.....	.....		HXS (ALK/HXA/IHA/ NHX)
2-Methyl-1,5-pentanediamine	7	.....	MPM	
<i>2-Methyl-1-pentene, see Hexene (all isomers)</i> .....	.....	.....	MPN	HEX (HXE/HXT/HXU/ HXV/MTN)
<i>4-Methyl-1-pentene, see Hexene (all isomers)</i> .....	.....	.....	MTN	HEX (HXE/HXT/HXU/ HXV/MPN)
<i>Methyl tert-pentyl ether, see tert-Amyl methyl ether</i> .....	.....	.....		AYE
2-Methyl-1,3-propanediol	20	.....	MDL	
Methyl propyl ketone	18	.....	MKE	
2-Methyl-5-ethylpyridine	9	.....	MEP	
<i>Methylpyridine, see the Methylpyridines</i> .....	.....	.....	MPQ	MPE/MPF/MPR
2-Methylpyridine	9	3	MPR	MPE/MPF/MPQ
3-Methylpyridine	9	3	MPE	MPF/MPQ/MPR
4-Methylpyridine	9	3	MPF	MPE/MPQ/MPR
N-Methyl-2-pyrrolidone	9	2	MPY	
Methyl salicylate	34	.....	MES	
alpha-Methylstyrene	30	.....	MSR	
3-(Methylthio)propionaldehyde	19	.....	MTP	
Metolachlor	34	.....	MCO	
Microsilica slurry	43	.....	MOS	
Milk	43	.....	MLK	
Mineral spirits	33	.....	MNS	
Mixed C4 Cargoes	30	.....	MIX	
Molasses	20	.....	MOL	MON.
Molasses residue (from fermentation)	0	1	MON	MOL.
Molybdenum polysulfide (alternately polysulphide) long-chain alkyl dithiocarbamate complex	0	1, 3	MOP	
Monochlorodifluoromethane	36	.....	MCF	
<i>Monoethanolamine, see Ethanolamine</i> .....	.....	.....	MEA	
<i>Monoethylamine, see Ethylamine</i> .....	.....	.....		EAM (EAN/EAO)
<i>Monoisopropanolamine, see Isopropanolamine</i> .....	.....	.....		MPA (PLA/PLX)
<i>Monoethylamine, see Ethylamine</i> .....	.....	.....		EAM (EAN/EAO)
Morpholine	7	2	MPL	
Motor fuel anti-knock compound (containing lead alkyls)	0	1	MFA	
<i>MTBE, see Methyl tert-butyl ether</i> .....	.....	.....		MBE
Myrcene	30	.....	MRE	
Naphtha:				
Aromatic	33	.....	NAR	
Coal tar solvent	33	.....	NCT	
Heavy	33	.....	NAG	
Paraffinic	33		NPF	
Petroleum	33		PTN	
Solvent	33		NSV	
Stoddard solvent	33		NSS	

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Varnish Makers' and Painters'	33		NVM	
Naphthalene (molten)	32	3	NTM	
Naphthalene still residue	32	2	NSR	
Naphthalene sulfonic (alternately sulphonic) acid, sodium salt solution	34	.....	NSB	NSA
Naphthalene sulfonic (alternately sulphonic) acid-Formaldehyde copolymer, sodium salt solution	0	1	NFS	
Naphthenic acid	4	.....	NTI	
Naphthenic acid, sodium salt solution	43	.....	NTS	
Neodecanoic acid	4	.....	NEA	DCO/NAT.
Nitrating acid (mixture of Sulfuric (alternately Sulphuric) and Nitric acids) ..	0	1	NIA	
Nitric acid (70% and over)	3	2, 3	NCE	NAC/NCD
Nitric acid (less than 70%)	3	2	NCD	NAC/NCE.
Nitric Acid, fuming, see Nitric acid (70% and over) .....	.....	1, 2, 3	.....	NCE
Nitric Acid, red fuming, see Nitric acid (70% and over) .....	.....	1, 2, 3	.....	NCE
Nitrioltriacetic acid, trisodium salt solution	34	3	NCA	
Nitrobenzene	42	.....	NTB	
<i>o</i> -Nitrochlorobenzene, see <i>o</i> -Chloronitrobenzene .....	.....	.....	.....	CNO (CNP)
Nitroethane	42	.....	NTE	
Nitroethane (80%)/Nitropropane (20%)	42	2, 3	NNL	NNM/NNO/NPM/NPN/ NPP/NTE
Nitroethane/1-Nitropropane (each 15% or more) mixture	42	2	NNO	NNL/NNM/NPM/NPN/ NPP/NTE.
Nitrogen	0	1	NXX	
Nitrophenol (mixed isomers)	42	.....	NPX	NIP/NPH
<i>o</i> -Nitrophenol (molten)	0	1, 2	NTP	NIP/NPH/NPX
Nitropropane (60%)/Nitroethane (40%) mixture	42	.....	NNM	NNL/NNO/NPM/NPN/ NPP/NTE
1-or 2-Nitropropane	42	.....	NPM	NPN/NPP
<i>o</i> - or <i>p</i> -Nitrotoluenes	42	3	NIT	NIE/NTR/NTT
<i>Nonane (all isomers), see Alkanes (C6–C9) .....</i>	.....	.....	NAX	ALK (NAN)
Nonanoic acid (all isomers)	4	.....	NNA	NAI/NIN.
Nonanoic/Tridecanoic acid mixture	4	.....	NAT	NAI/NIN/NNA.
<i>Non-edible industrial grade palm oil, see Oil, misc.: Palm, non-edible industrial grade.</i>	.....	.....	.....	OPB
Nonene (all isomers)	30	2	NOO	NNE/NON/OAM/OFX/ OFY
Nonyl acetate	34	.....	NAE	
Nonyl alcohol (all isomers)	20	2	NNS	ALR/DBC/NNI/NNN
<i>Nonylbenzene, see Alkyl (C9+) benzenes .....</i>	.....	.....	.....	AKB
Non-noxious Liquid Substance, NF, (1) n.o.s. ("trade name" contains "principal components") Cat X.	0	1	NOL	
Nonyl methacrylate monomer	14	.....	NMA	
Nonyl phenol	21	.....	NNP	
<i>Nonyl phenol poly(4+)ethoxylate, see Alkyl (C7–C11) phenol poly(4–12) ethoxylate.</i>	.....	.....	NPE	APN
<i>Nonyl phenol sulfide (alternately sulphide) (90% or less) solution, see Alkyl (C8–C40) phenol sulfide (alternately sulphide).</i>	.....	.....	.....	AKS (NPS)
Nonylphenol (48–62%)/Phenol (42–48%)/Dinonylphenol (1–10%) mixture	21	.....	NYL	
Noxious Liquid Substance, NF, (1) n.o.s. ("trade name" contains "principal components") Cat X.	0	1	.....	
Noxious Liquid Substance, F, (2) n.o.s. ("trade name" contains "principal components") Cat X.	0	1	.....	
Noxious Liquid Substance, NF, (3) n.o.s. ("trade name" contains "principal components") Cat X.	0	1	.....	
Noxious Liquid Substance, F, (4) n.o.s. ("trade name" contains "principal components") Cat X.	0	1	.....	
Noxious Liquid Substance, NF, (5) n.o.s. ("trade name" contains "principal components") Cat Y.	0	1	.....	
Noxious Liquid Substance, F, (6) n.o.s. ("trade name" contains "principal components") Cat Y.	0	1	.....	
Noxious Liquid Substance, NF, (7) n.o.s. ("trade name" contains "principal components") Cat Y.	0	1	.....	
Noxious Liquid Substance, F, (8) n.o.s. ("trade name" contains "principal components") Cat Y.	0	1	.....	
Noxious Liquid Substance, NF, (9) n.o.s. ("trade name" contains "principal components") Cat Z.	0	1	.....	
Noxious Liquid Substance, F, (10) n.o.s. ("trade name" contains "principal components") Cat Z.	0	1	.....	
Noxious Liquid Substance, (11) n.o.s. ("trade name" contains "principal components") Cat Z.	0	1	.....	
Non-noxious Liquid Substance, (12) n.o.s. ("trade name" contains "principal components") Cat OS.	0	1	NOL	
<i>Nutmeg butter oil, see Oil, edible: Nutmeg butter</i>				ONB (VEO)
<i>1-Octadecene, see the olefin or alpha-olefin entries</i>				OAM/OFZ

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
<i>1-Octadecanol, see Stearyl alcohol</i>				SYL (ALY/ASY)
<i>Octadecenoamide solution</i>	10	.....	ODD	.....
<i>Octadecanol (oleyl alcohol), see Alcohols (C13+)</i> .....	.....	.....	.....	ALY (AYL/ASY/OYL)
<i>Octamethylcyclotetrasiloxane</i>	34	3	OSA	.....
<i>Octane (all isomers), see Alkanes (C6–C9)</i> .....	.....	.....	OAX	ALK (IOO/OAN)
<i>Octanoic acid (all isomers)</i>	4	.....	OAY	OAA/EHO
<i>Octanol (all isomers)</i>	20	2	OCX	EHX/OPA/OTA
<i>Octene (all isomers)</i>	30	2	OTX	OAM/OFC/OFY/OFW/OTE
<i>n-Octyl acetate</i>	34	.....	OAF	OAE
<i>Octyl alcohol, see Octanol (all isomers)</i> .....	.....	2	.....	OCX (EHX/IOA/OTA)
<i>Octyl aldehydes</i>	19	.....	OAL	EHA/IOC//OLX
<i>Octylbenzenes, see Alkyl (C5–C8) benzenes</i> .....	.....	.....	.....	AKD
<i>Octyl decyl adipate</i>	34	.....	ODA	.....
<i>n-Octyl mercaptan</i>	0	.....	OME	.....
<i>Octyl nitrates (all isomers), see Alkyl (C7–C9) nitrates</i> .....	.....	2	ONE	AKN
<i>Octyl phenol</i>	21	.....	OPH	.....
<i>Octyl phthalate, see Dioctyl phthalate</i> .....	.....	.....	.....	DAH (DIE/DIO/DLK/DOP)
Oil, edible:				
Beechnut	34	.....	OBN	VEO
Castor	34	.....	OCA	VEO
Cocoa butter	34	.....	OCB	VEO
Coconut	34	2	OCC	VEO
Cod liver	34	.....	OCL	AFN
Corn	34	.....	OCO	VEO
Cottonseed	34	.....	OCS	VEO
Fish	34	2	OFS	AFN
Grape seed	34	.....	.....	.....
Groundnut	34	.....	OGN	VEO
Hazelnut	34	.....	OHN	VEO
Illipe	34	.....	ILO	VEO
Lard	34	.....	OLD	AFN
Maize, see Oil, edible: Corn .....	.....	.....	.....	OCO (VEO)
Mango kernel	34	3	MKO	.....
Nutmeg butter	34	.....	ONB	VEO
Olive	34	.....	OOL	VEO
Palm	34	2, 3	OPM	VEO
Palm kernel	34	.....	OPO	VEO
Palm kernel olein	34	.....	PKO	VEO
Palm kernel stearin	34	.....	PKS	VEO
Palm mid fraction	34	.....	PFM	VEO
Palm olein	34	.....	PON	VEO
Palm stearin	34	.....	PMS	VEO
Peanut	34	.....	OPN	VEO
Poppy	34	.....	OPY	VEO
Poppy seed	34	.....	OPS	VEO
Raisin seed	34	.....	ORA	VEO
Rapeseed	34	.....	ORP	VEO
Rapeseed (low erucic acid containing less than 4% free fatty acids)	34	3	ORO	ORP/VEO
Rice bran	34	.....	ORB	VEO
Safflower	34	.....	OSF	VEO
Salad	34	.....	OSL	VEO
Sesame	34	.....	OSS	VEO
Shea butter	34	.....	OSH	VEO
Soyabean	34	2	OSB	VEO
Sunflower, see Oil, edible: Sunflower seed .....	.....	.....	.....	OSN (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.:				
Acid mixture from soyabean, corn (maize) and sunflower oil refining.	34		AOM	

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Aliphatic	33		OML	AFN
Animal	34	.....	OMA	
Aromatic	33	.....	OMR	
Camelina	34	.....	OCI	
Cashew nut shell (untreated)	34	.....	OCN	
Clarified	33	.....	OCF	
Coal	33	.....	OMC	
Coconut fatty acid	34	2	CFA	
Coconut, fatty acid methyl ester	34	.....	OCM	
Cotton seed oil, fatty acid	34	.....	CFY	
Crude	33	.....	OFA	
Diesel	33	.....	ODS	
Disulfide (alternately Disulphide)	0	1	ODI	
Gas, cracked	33	.....	GOC	
Gas, high pour	33	.....	OGP	
Gas, low pour	33	.....	OGL	
Gas, low sulfur (alternately sulphur)	33	.....	OGS	
Heartcut distillate	33	.....	OHD	
Jatropha	34	3	JTO	
Lanolin	34		OLL	AFN
Linseed	33	.....	OLS	
Lubricating	33	2	OLB	
Mineral	33	.....	OMN	
Mineral seal	33	.....	OMS	
Motor	33	.....	OMT	
Neatsfoot	33	.....	ONF	
Oiticica	34	.....	OOI	
Palm acid	34	.....	PLM	
Palm fatty acid distillate	34	.....	PFD	
Palm oil, fatty acid methyl ester	34	.....	OPE	
Palm kernel acid	34	.....	OPK	
Palm kernel fatty acid distillate	34	.....	PNG	
Palm, non-edible industrial grade	34	.....	OPB	
Penetrating	33	.....	OPT	
Perilla	34	.....	OPR	
Pilchard	34		OPL	AFN PNL
Pine	33	.....	OPI	
Rapeseed fatty acid methyl esters	34	3	ORP	
Residual	33	.....	ORL	
Resin, distilled	30	3	ORR	
Road	33	.....	ORD	
Rosin	33	.....	ORN	
Seal	34	.....	OSE	
Soapstock	34	.....	OIS	
Soyabean (epoxidized)	34	.....	OSC/EVO	
Soyabean fatty acid methyl ester	34	.....	OST	
Spindle	33	.....	OSD	
Tail	34	.....	OTL	
Tail, crude	34	2	OTI	
Tail, distilled	34	2	OTJ	
Tail, fatty acid	34	2	OTT	
Tail fatty acid (resin acids less than 20%)	34	2	OTK	
Tall pitch	34		OTP	OTT
Transformer	33	.....	OTF	
Tung	34	.....	OTG	
Turbine	33	.....	OTB	
Vacuum gas oil	33	.....	OVC	
<i>Oleamide solution, see Octadecenoamide solution</i> .....	.....	.....	.....	
Olefin-Alkyl ester copolymer (molecular weight 2000+)	30	.....	OCP	
Olefin mixture (C7–C9) C8 rich, stabilized	30	3	OFC	
Olefin mixtures (C5–C7)	30	3	OFY	
Olefin mixtures (C5–C15)	30	3	OFY	
Olefins (C13+, all isomers)	30	.....	OFZ	
alpha-Olefins (C6–C18) mixtures	30	.....	OAM	
Oleic acid	4	.....	OLA	
Oleum	0	1, 2	OLM	
<i>Oleyl alcohol, see Alcohols (C13+)</i> .....	.....	.....	OYL	
Oleylamine	7	.....	OLY	
<i>Olive oil, see Oil, edible: Olive</i>			OOL (VEO)	
Orange juice (concentrated)	0	1, 3	OJC	

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Orange juice (not concentrated)	0	1, 3	OJN	OJC
Organomolybdenum amide	10	.....	OGA	.....
<i>ORIMULSION</i> , see Asphalt emulsion .....	.....	.....	.....	ASQ
Oxyalkylated alkyl phenol formaldehyde	33	.....	OPF	.....
Oxygenated aliphatic hydrocarbon mixture	0	1, 3	OAH	.....
<i>Palm acid oil</i> , see Oil, misc.: Palm acid .....	.....	3	.....	PLM
<i>Palm fatty acid distillate</i> , see Oil, misc.: Palm fatty acid distillate .....	.....	3	.....	PFD
<i>Palm kernel acid oil</i> , see Oil, misc.: Palm kernel acid .....	.....	.....	.....	PNO
<i>Palm kernel acid oil, methyl ester</i> , see Oil, misc.: Palm kernel acid, methyl ester. ....	.....	.....	.....	PNF
<i>Palm kernel oil</i> , see Oil, edible: Palm kernel .....	.....	.....	.....	OPO (VEO)
<i>Palm kernel oil fatty acid distillate</i> , see Oil, misc.: Palm kernel fatty acid distillate. ....	.....	.....	.....	PNG
<i>Palm kernel olein</i> , see Oil, edible: Palm kernel olein .....	.....	3	.....	PKO (VEO)
<i>Palm kernel stearin</i> , see Oil, edible: Palm kernel stearin .....	.....	3	.....	PKS (VEO)
<i>Palm mid fraction</i> , see Oil, edible: Palm mid fraction .....	.....	3	.....	PFM (VEO)
<i>Palm oil</i> , see Oil, edible: Palm .....	.....	2, 3	OPM	VEO/OPE
<i>Palm oil fatty acid methyl ester</i> , see Oil, misc.: Palm fatty acid methyl ester. ....	.....	3	.....	OPE
<i>Palm olein</i> , see Oil, edible: Palm olein .....	.....	3	.....	PON (VEO)
<i>Palm stearin</i> , see Oil, edible: Palm stearin .....	.....	.....	.....	PMS (VEO)
Parachlorobenzotrifluoride	32	.....	PBF	.....
<i>Paraffin wax</i> , see Waxes: Paraffin .....	.....	3	.....	WPF
<i>n-Paraffins (C10–C20)</i> , see n-Alkanes (C10+) all isomers .....	.....	.....	PFN	ALJ
Paraldehyde	19	.....	PDH	.....
Paraldehyde-Ammonia reaction product	9	.....	PRB	.....
<i>Peanut</i> , see Oil, edible: Peanut .....	.....	.....	.....	OPN (VEO)
Pentachloroethane	36	.....	PCE	.....
Pentacos (oxypropane-2,3-diyl)s	20	.....	POY	.....
<i>Pentadecanol</i> , see Alcohols (C13+) .....	.....	.....	PDC	ALY
1,3-Pentadiene	30	.....	PDE	PDN.
1,3-Pentadiene (greater than 50%), Cyclopentene and isomers, mixtures ..	30	3	PMM	.....
<i>Pentaethylene glycol</i> , see Polyethylene glycols .....	.....	.....	.....	PEG
<i>Pentaethylene glycol methyl ether</i> , see Poly(2–8)alkylene glycol monoalkyl (C1–C6) ether. ....	.....	.....	.....	PAG
Pentaethylenhexamine	7	.....	PEN	.....
Pentaethylenhexamine/Tetraethylenepentamine mixture	7	.....	PEP	.....
Pentane (all isomers)	31	.....	PTY	IPT/PTA.
Pentanoic acid	4	.....	POC.	.....
<i>n</i> -Pentanoic acid (64%)/2-Methyl butyric acid (36%) mixture	4	.....	POJ	POC
<i>Pentasodium salt of Diethylenetriaminepentaacetic acid solution</i> , see Diethylenetriaminepentaacetic acid, pentasodium salt solution. ....	.....	.....	.....	DYS
Pentene (all isomers)	30	.....	PTX	PTE.
Pentyl aldehyde	19	.....	PYL	.....
<i>n</i> -Pentyl propionate	34	.....	PPE	.....
Perchloroethylene	36	2	PER	TTE.
Petrolatum	33	.....	PTL	.....
Phenol	21	2	PHN	PNS.
Phenol solutions (2% or less)	43	.....	PNS	PHN.
1-Phenyl-1-xylyl ethane	32	.....	PXE	.....
Phosphate esters	34	.....	PZE	.....
Phosphate esters, alkyl (C12–C14) amine	7	.....	PEA	.....
Phosphoric acid	1	2	PAC	.....
Phosphorus, yellow or white	0	1	PPW	PPB/PPR.
Phosphosulfurized (alternately Phosphosulphurized) bicycle terpene	0	1	PBT	.....
Phthalate based polyester polyol	0	1, 2	PBE	.....
Phthalic anhydride (molten)	11	.....	PAN	.....
<i>PIB</i> , see Poly(4+)isobutylene (molecular weight > 224). ....	.....	.....	.....	.....
alpha-Pinene	30	.....	PIO	PIB/PIN.
beta-Pinene	30	.....	PIP	PIN/PIO.
<i>Pine oil</i> , see Oil, misc.: Pine .....	.....	.....	PNL	OPI
Piperazine (70% or less)	7	3	PIZ	PPB/PPZ
Piperazine (crude)	7	.....	PZC	PPZ/PIZ
Piperazine, 68% solution	7	.....	.....	.....
Polyacrylic acid solution (40% or less)	43	.....	PYA	.....
Polyalkenyl succinic anhydride amine	7	.....	PSN	.....
Polyalkyl acrylate	14	.....	PAY	.....
Polyalkyl (C18–C22) acrylate in Xylene	14	.....	PIX	.....
Polyalkylalkenaminesuccinimide, molybdenum oxysulfide (alternately oxysulphide).	0	3	PSO	.....
Polyalkylene glycols/Polyalkylene glycol monoalkyl ethers mixtures	40	.....	PPX	.....
<i>Polyalkylene glycol butyl ether</i> , see Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether.			PGB	PAG

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Poly(2–8)alkylene glycol monoalkyl (C1–C6) ether	40	2	PAG	
<i>Including:</i>				
<i>Diethylene glycol butyl ether</i>	40			
<i>Diethylene glycol ethyl ether</i>	40			
<i>Diethylene glycol n-hexyl ether</i>	40			
<i>Diethylene glycol methyl ether</i>	40			
<i>Diethylene glycol propyl ether</i>	40			
<i>Dipropylene glycol butyl ether</i>	40			
<i>Dipropylene glycol methyl ether</i>	40			
<i>Polyalkylene glycol butyl ether</i>	40			
<i>Polyethylene glycol monoalkyl ether</i>	40			
<i>Polypropylene glycol methyl ether</i>	40			
<i>Tetraethylene glycol methyl ether</i>	40			
<i>Triethylene glycol butyl ether</i>	40			
<i>Triethylene glycol ethyl ether</i>	40			
<i>Triethylene glycol methyl ether</i>	40			
<i>Tripropylene glycol methyl ether</i>	40			
Poly(2–8)alkylene glycol monoalkyl (C1–C6) ether acetate	34		PAF	
<i>Including:</i>				
<i>Diethylene glycol butyl ether acetate</i>	34			
<i>Diethylene glycol ethyl ether acetate</i>	34			
<i>Diethylene glycol methyl ether acetate</i>	34			
Polyalkylene oxide polyol	20		PAO	
Polyalkylene glycols/Polyalkylene glycol monoalkyl ethers mixtures	40		PPX	
Polyalkylene oxide polyol	20		PAO	
Polyalkyl (C10–C20) methacrylate	14		PMT	PYY.
Polyalkyl methacrylate in mineral oil	14		PYY	PMT.
Polyalkyl(C10–C18) methacrylate/Ethylene-propylene copolymer mixture ..	14		PEM	
Polyalpha olefins	31		PYO	
Polyaluminum (alternately Polyaluminium) chloride solution	1		PLS	
Polybutadiene, hydroxyl terminated	20		PHT	
Polybutene	33		PLB	
Polybutenyl succinimide	10		PBS	
<i>Polycarboxylic ester (C9+), see Ditridecyl adipate</i>				DTY
Poly(2+)cyclic aromatics	32		PCA	
<i>Polydimethylsiloxane, see Dimethylpolysiloxane</i>				DMP
Polyether, borated	41		PED	
Polyether (molecular weight 1350+)	41		PYR	
Polyether polyols	41		PEO	
Polyethylene glycol	40		PEG	
Polyethylene glycol dimethyl ether	40		PEF	
Poly(ethylene glycol) methylbutenyl ether (molecular weight >1000)	40		PBN	
<i>Polyethylene glycol monoalkyl ether, see Poly(2–8)alkylene glycol monoalkyl (C1–C6) ether.</i>			PEE	PAG
Polyethylene polyamines	7	2	PEB	PEY.
Polyethylene polyamines (more than 50% C5–C20 Paraffin oil)	7	2, 3	PEY	PEB
Polyferric sulfate (alternately sulphate) solution	34		PSS	
Polyglycerine/Sodium salts solution (containing less than 3% Sodium hydroxide).	20	2	PGT	PGS.
Polyglycerol	20		PGL	
Poly(iminoethylene)-graft-N-poly(ethyleneoxy) solution (90% or less)	7	3	PIG	PIM
Polyisobutenamine in aliphatic (C10–C14) solvent	7	2	PIB	PIA
(Polyisobutene) amino products in aliphatic hydrocarbons	7	3		
Polyisobutenyl anhydride adduct	11		PBA	
Polyisobutenyl succinimide	10		PIS	
Poly(4+)isobutylene (molecular weight > 224)	30	3	PIL	
Polyisobutylene (molecular weight ≤ 224)	30	3	PIL	
Polyisobutylene succinic anhydride	11		PYS	
Polymerized esters	34		PYM	
Polymethylene polyphenyl isocyanate	12	2	PPI	
Polymethylsiloxane	34		PMX	
Polyolefin (molecular weight 300+)	33		PMW	PLF
Polyolefin amide alkeneamine (C17+)	33		POH	POD
<i>Polyolefin amide alkeneamine (C28+), see Polyolefin amide alkenamine (C17+).</i>			POD	POH
Polyolefin amide alkeneamine borate (C28–C250)	33		PAB	
Polyolefin amide alkeneamine in mineral oil	33		PLK	
Polyolefin amide alkeneamine/Molybdenum oxysulfide (alternately oxysulphide) mixture.	7		PMO	
Polyolefin amide alkeneamine polyol	20		PAP	
Polyolefin amine (C17+)	7		POG	
Polyolefinamine (C28–C250)	33		POM	
Polyolefinamine in alkyl(C2–C4) benzenes	32		POF	POR.

Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Polyolefinamine in aromatic solvent	32	3	POR	POF
Polyolefin aminoester salts (molecular weight 2000+)	34	.....	PAE	
Polyolefin anhydride	11	.....	PAR	
Polyolefin ester (C28-C250)	34	.....	POS	
Polyolefin in mineral oil	30	.....	PLF	PMW.
Polyolefin phenolic amine (C28-C250)	9	.....	PPH	
Polyolefin phosphorosulfide (alternately phosphorosulphide), barium derivative (C28-C250)	34	.....	PPS	
Poly (oxyalkylene) alkenyl ether (molecular weight > 1000)	41	3	PXY	
Polyoxybutylene alcohol	41	.....	PXA	
Poly(20)oxyethylene sorbitan monooleate	34	.....	PSM	
Polyoxypropylenediamine (molecular weight 2000)	7	.....	PYD	
Poly(5+) propylene	30	.....	PLQ	PLP
Polypropylene glycol	40	2	PGC	
<i>Polypropylene glycol methyl ether, see Poly(2–8)alkylene glycol monoalkyl (C1–C6) ether.</i> .....	.....	.....	PGM	PAG
Polysiloxane	34	.....	PSX	
Polysiloxane/White spirit, low (15–20%) aromatic	34	.....	PWS	
<i>Poly(tetramethylene ether) glycols (molecular weight 950–1050), see alpha-hydro-omega-Hydroxytetradeca(oxytetramethylene).</i> .....	.....	.....	PYU	HTO
Polytetramethylene ether glycol	40	.....	PYT	HTO/PYU/PYS
<i>Poppy seed, see Oil, edible: Poppy seed</i> .....	.....	.....		OPS (VEO)
<i>Poppy, see Oil, edible: Poppy</i> .....	.....	.....		OPY (VEO)
Potassium chloride solution	43	.....	PCU	PCD/PSD.
Potassium chloride solution (10% or more)	43	.....	PCS	PCD/PCU.
Potassium chloride solution (less than 26%)	43	.....	PSD	CLM/DRL/PCS/PCU.
Potassium formate solutions	34	.....	PFR	
<i>Potassium hydroxide solution, see Caustic potash solution</i> .....	.....	2		CPS/PTH
Potassium oleate	34	.....	POE	
Potassium polysulfide (alternately polysulphide)/Potassium thiosulfide (alternately thiosulphide) solution (41% or less)	0	1	PYP	PSF/PTF
Potassium salt of polyolefin acid	34	.....	PSP	
Potassium thiosulfate (alternately thiosulphate) (50% or less)	43	.....	PTF	
Propane	31	.....	PRP	LPG.
<i>iso-Propanolamine, see Isopropanolamine</i> .....	.....	.....		MPA (PAX/PLA)
n-Propanolamine	8	.....	PLA	MPA/PAX.
2-Propene-1-aminium, N,N-dimethyl-N–2-propenyl-, chloride, homopolymer solution.	0	1, 3	PLN	
Propionaldehyde	19	.....	PAD	
beta-Propiolactone	18	3	PLT	
Propionic acid	4	.....	PNA	
Propionic anhydride	11	.....	PAH	
Propionitrile	37	.....	PCN	
<i>n-Propoxypropanol, see Propylene glycol monoalkyl ether</i> .....	.....	.....	PXP	PGE
n-Propyl acetate	34	.....	PAT	IAC.
n-Propyl alcohol	20	2	PAL	IPA.
n-Propyl chloride	36	.....	PRC	
Propyl ether	41	.....		IPE/PRE
n-Propylamine	7	.....	PRA	IPO/IPP/IPQ
<i>iso-Propylamine solution, see Isopropylamine (70% or less) solution</i> .....	.....	.....		IPQ (IPO/IPP/PRA)
<i>Propylbenzenes (all isomers), see Alkyl (C3–C4) benzenes</i> .....	.....	.....	PBY	AKC (CUM/PBZ)
<i>iso-Propyl cyclohexane, see Isopropylcyclohexane</i> .....	.....	.....		IPX
Propylene	30	.....	PPL	
Propylene-Butylene copolymer	30	.....	PBP	
Propylene carbonate	34	.....	PLC	
Propylene dimer	30	.....	PDR	
Propylene glycol	20	2	PPG	
<i>Propylene glycol n-butyl ether, see Propylene glycol monoalkyl ether</i> .....	.....	.....	PGD	PGE
<i>Propylene glycol ethyl ether, see Propylene glycol monoalkyl ether</i> .....	.....	.....	PGY	PGE
<i>Propylene glycol methyl ether, see Propylene glycol monoalkyl ether</i> .....	.....	2	PME	PGE
Propylene glycol methyl ether acetate	34	2	PGN	
Propylene glycol monoalkyl ether	40	.....	PGE	
<i>Including:</i> .....	.....	.....		
<i>n-Propoxypropanol</i>	40	.....		
<i>Propylene glycol n-butyl ether</i>	40	.....		
<i>Propylene glycol ethyl ether</i>	40	.....		
<i>Propylene glycol methyl ether</i>	40	.....		
<i>Propylene glycol propyl ether</i>	40	.....		
Propylene glycol phenyl ether	40	.....	PGP	
<i>Propylene glycol propyl ether, see Propylene glycol monoalkyl ether</i> .....	.....	.....		PGE
Propylene oxide	16		POX	
Propylene tetramer	30		PTT	
Propylene trimer	30		PTR	

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Propylene/Propane/MAPP gas mixture	30	2	PPM	
<i>Pseudocumene</i> , see Trimethylbenzene (all isomers)				TMB/TMD/TME/TRE
Pyridine	9		PRD	
<i>Pyridine bases</i> , see Paraldehyde-Ammonia reaction product				PRB
Pyrolysis gasoline (containing Benzene)	32	3	PYG	GPY
<i>Rapeseed oil</i> (low erucic acid containing less than 4% free fatty acids), see Oil, edible: Rapeseed (low erucic acid containing less than 4% free fatty acids)		3		ORO (VEO)
<i>Rapeseed oil fatty acid methyl esters</i> , see Oil, misc.: Rapeseed fatty acid methyl esters		3		RSO
<i>Rapeseed oil</i> , see Oil, edible: Rapeseed				ORO (VEO)
Refrigerant gases	0	1	RFG	
<i>Resin oil</i> , distilled, see Oil, misc.: Resin, distilled		3		ORR (ORS)
<i>Rice bran oil</i> , see Oil, edible: Rice bran				ORB
Rosin soap (disproportionated) solution	43		RSP	
<i>Rosin</i> , see Oil, misc.: Rosin				ORN
<i>Rum</i> , see Alcoholic beverages, n.o.s.				ABV
<i>Safflower oil</i> , see Oil, edible: Safflower				OSF (VEO)
Sewage sludge	43		SWS	
<i>Shea butter</i> , see Oil, edible: Shea butter		3		OSH (VEO)
Silica slurry	43		SLC	
Siloxanes	34		SLX	
Sludge, treated	43		SWA	
Sodium acetate solutions	34		SAN	
Sodium acetate, Glycol, Water mixture (containing 1% or less Sodium hydroxide) (if non-flammable or non-combustible)	5	2	SAY	SAO/SAP/SAQ/SAY
Sodium acetate, Glycol, Water mixture (containing Sodium hydroxide)	5		SAQ	SAO/SAP/SAW/SAY
Sodium acetate, Glycol, Water mixture (not containing Sodium hydroxide)	34	2	SAW	SAO/SAP/SAQ/SAY
Sodium alkyl (C14–C17) sulfonates (alternately sulphonates) (60–65% solution)	34		SSU	AKA/AKE
Sodium aluminate solution	5		SAV	SAU.
Sodium aluminate solution (45% or less)	5		SAU	SAV.
Sodium aluminosilicate slurry	34		SLR	
Sodium benzoate	34		SBN	SBM
Sodium bicarbonate solution (less than 10%)	34	3	SBC	
Sodium borohydride (15% or less)/Sodium hydroxide solution	5		SBX	CSS/SBH/SBI/SHD.
Sodium bromide solution (less than 50%)	43	3	SBL	SBR
Sodium carbonate solution	5		SCE	
Sodium chlorate solution (50% or less)	0	1, 2	SDD	SDC.
Sodium cyanide solution	5		SCO	SCN/SCS.
Sodium dichromate solution (70% or less)	0	1, 2	SDL	SCR.
<i>Sodium dimethyl naphthalene sulfonate solution</i> , see Dimethyl naphthalene sulfonic (alternately sulphonic) acid, sodium salt solution				DNS
Sodium hydrogen sulfide (alternately sulphide) (6% or less)/Sodium carbonate (3% or less) solution	0	1, 2, 3	SSS	SCE/SHW
Sodium hydrogen sulfite (alternately sulphite) solution (45% or less)	43		SHY	SHX
Sodium hydrosulfide (alternately hydrosulphide)/Ammonium sulfide (alternately sulphide) solution	5	2	SSA	ASF/ASS
Sodium hydrosulfide (alternately hydrosulphide) solution (45% or less)	5	2	SHR	
<i>Sodium hydroxide solution</i> , see Caustic soda solution		2		CSS (SHD)
Sodium hypochlorite solution (15% or less)	5		SHP	SHC/SHQ.
Sodium hypochlorite solution (20% or less)	5		SHQ	SHC/SHP.
Sodium lignosulfonate (alternately lignosulphonate) solution	43		SLG	LNL
Sodium long-chain alkyl salicylate (C13+)	34		SLS	
<i>Sodium-2-mercaptobenzothiazol solution</i> , see Mercaptobenzothiazol, sodium salt solution				SMB
Sodium methoxide (25% in methanol)	0	1	SMO	
Sodium methylate 21–30% in methanol	0	1, 2, 3	SMT	SMS
<i>Sodium naphthalene sulfonate</i> (alternately <i>sulphonate</i>) solution, see Naphthalene sulfonic (alternately sulphonic) acid (40% or less), sodium salt solution (40% or less)			SNS	NSA (NSB)
<i>Sodium naphthenate solution</i> , see Naphthenic acid, sodium salt solution				NTS
Sodium nitrite solution	5		SNI	SNT.
<i>Sodium N-methyl dithio carbamate solution</i> , see Metam sodium solution			MSS	SMD
Sodium petroleum sulfonate (alternately sulphonate)	34		SPS	
Sodium poly(4+)acrylate solution	43	2	SOP	SOO
Sodium polyacrylate solution	43	2	SOO	SOP
<i>Sodium salt of Ferric hydroxyethylethylenediaminetriacetic acid solution</i> , see Ferric hydroxyethylethylenediaminetriacetic acid, trisodium salt solution			STA	FHX
Sodium silicate solution	43	2	SSN	SSC.
Sodium sulfate (alternately sulphate) solution	34	3	SST	SSO
Sodium sulfide (alternately sulphide) solution (15% or less)	43		SDR	SDS

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Sodium sulfide (alternately sulphide)/Hydrosulfide (alternately Hydrosulphide) solution (H ₂ S 15 ppm or less).	0	1, 2	SSH	SDS/SHR/SSI/SSJ
Sodium sulfide (alternately sulphide)/Hydrosulfide (alternately Hydrosulphide) solution (H ₂ S greater than 15 ppm but less than 200 ppm).	0	1, 2	SSI	SDS/SHR/SSH/SSJ
Sodium sulfide (alternately sulphide)/Hydrosulfide (alternately Hydrosulphide) solution (H ₂ S greater than 200 ppm).	0	1, 2	SSJ	SDS/SHR/SSH/SSI
Sodium sulfite (alternately sulphite) solution (25% or less)	43	.....	SUP	SSF/SUS
[ADD]				
Sodium tartrate/Sodium succinates solution	43	.....	STM	
Sodium thiocyanate solution (56% or less)	0	1, 2	STS	SCY.
Sorbitol solution	20	.....	SBU	SBT. OST
Soyabean fatty acid methyl ester, <i>see</i> Oil, misc.: Soyabean fatty acid methyl ester.	.....	.....	.....	.....
Soyabean oil (epoxidized)	34	.....	.....	OSC/EVO
Soyabean oil, <i>see</i> Oil, edible: Soyabean .....	.....	2	.....	OSB (VEO)
Stearic acid, <i>see</i> Fatty acids (saturated, C13+) .....	.....	.....	SRA	FAD (FAB/FAE/FDI/ FDT) ALY/ASY. NSS
Stearyl alcohol	20	.....	SYL	
Stoddard solvent, <i>see</i> Naphtha: Stoddard solvent .....	.....	.....	.....	
Styrene monomer	30	.....	STY	
Sulfohydrocarbon (alternately Sulphohydrocarbon) (C3–C88)	33	.....	SFO	
Sulfohydrocarbon (alternately Sulphohydrocarbon), long-chain (C18+) alkylamine mixture.	7	.....	SFX	
Sulfolane (alternately Sulpholane)	39	.....	SFL	
Sulfonated (alternately Sulphonated) polyacrylate solutions	43	2	SPA	
Sulfur (alternately Sulphur) (molten)	0	1, 2	SXX	
Sulfur (alternately Sulphur) dioxide	0	1	SFD	
Sulfuric (alternately Sulphuric) acid	2	2	SFA	SAC
Sulfuric (alternately Sulphuric) acid, spent	2	2	SAC	SFA
Sulfurized (alternately Sulphurized) fat (C14–C20)	33	.....	SFT	
Sulfurized (alternately Sulphurized) polyolefinamide	10	.....	SPY	
Sulfurized (alternately Sulphurized) polyolefinamide alkene (C28–C250) amine.	33	.....	SPO	
Sunflower seed oil, <i>see</i> Oil, edible: Sunflowerseed	34	.....	.....	OSN (VEO)
Sym-trichlorobenzene, <i>see</i> 1,2,4-Trichlorobenzene.	.....	.....	.....	
Tall oil, <i>see</i> Oil, misc.: Tall .....	.....	.....	.....	OTL (OTI/OTJ)
Tall oil, crude, <i>see</i> Oil, misc.: Tall, crude .....	.....	2, 3	.....	OTI (OTJ/OTL)
Tall oil, distilled, <i>see</i> Oil, misc.: Tall, distilled .....	.....	3	.....	OTJ (OTI/OTL)
Tall oil, fatty acid, <i>see</i> Oil, misc.: Tall fatty acid .....	.....	2	.....	OTT
Tall oil fatty acid (resin acids less than 20%), <i>see</i> Oil, misc.: Tall oil fatty acid (resin less than 20%).	.....	2	.....	OTK (OTT)
Tall oil fatty acid, barium salt	0	1, 2	TOB	
Tall oil pitch, <i>see</i> Oil, misc.: Tall pitch .....	.....	3	.....	OTP (OTI/OTJ/OTL)
Tall oil soap (crude)	34	.....	TOR	TOS
Tall oil soap (disproportionated) solution	43	.....	TOS	
Tallow	34	2	TLO	
Tallow alcohol, <i>see</i> Alcohols (C13+) .....	.....	2	TFA	ALY (ASY)
Tallow alkyl nitrile	37	.....	TAN	
Tallow fatty acid	34	2	TFD	
Tallow fatty alcohol, <i>see</i> Alcohols (C13+) .....	.....	2	TFA	ALY AYE BTP
TAME, <i>see</i> tert-Amyl methyl ether .....	.....	.....	.....	
Tertiary butylphenols	21	.....	BLT	
Tetrachloroethane	36	.....	TEC	
1,1,2,2-Tetrachloroethane, <i>see</i> Tetrachloroethane	36	.....	TEC	TEE
Tetradecanol, <i>see</i> Alcohols (C13+) .....	.....	.....	TTN	ALY
Tetradecene, <i>see</i> olefins or alpha-olefin entries .....	.....	.....	.....	OAM/OFY/OFW/OFZ/ TDD AKB
Tetradecylbenzene, <i>see</i> Alkyl (C9+) benzenes .....	.....	.....	TDB	
Tetraethyl silicate monomer/oligomer (20% in ethanol)	0	1, 3	TSM	
Tetraethylene glycol	40	.....	TTG	
Tetraethylene glycol methyl ether, <i>see</i> Poly(2–8)alkylene glycol monoalkyl (C1–C6) ether.	.....	.....	.....	PAG
Tetraethylenepentamine	7	2	TTP	
Tetrahydrofuran	41	.....	THF	
Tetrahydronaphthalene	32	.....	THN	
Tetramethylbenzene (all isomers)	32	.....	TTC	TTB.
1,2,3,5-Tetramethylbenzene, <i>see</i> Tetramethylbenzene (all isomers) .....	.....	.....	TTB	TTC
Tetrapropylbenzene, <i>see</i> Alkyl(C9+)benzenes .....	.....	.....	.....	AKB
Tetrasodium salt of ethylenediaminetetraacetic acid solution, <i>see</i> Ethylenediaminetetraacetic acid, tetrasodium salt solution.				EDS
Titanium dioxide slurry	43		TDS	
Titanium tetrachloride	2		TTT	

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Toluene	32	2	TOL	
Toluene diisocyanate	12	2		TDI
Toluenediamine	9		TDA	
o-Toluidine	9	2	TLI	TOD/TOI
<i>Triarylphosphate, see</i> Triisopropylated phenyl phosphates			TRA	TPL
Tributyl phosphate	34		TBP	
1,2,3-Trichlorobenzene (molten)	36	3	TBZ	TCB
1,2,4-Trichlorobenzene	36		TCB	TBZ.
<i>1,2,3-Trichlorobenzol, see</i> 1,2,3-Trichlorobenzene (molten)			TBZ	TCB
1,1,1-Trichloroethane	36	2	TCE	TCM.
1,1,2-Trichloroethane	36		TCM	TCE.
Trichloroethylene	36	2	TCL	
1,1,2-Trichloro-1,2,2-trifluoroethane	36		TTF	
Tricresyl phosphate (containing 1% or more ortho-isomer)	34	3	TCO	TCP/TCQ
Tricresyl phosphate (containing less than 1% ortho-isomer)	34	3	TCP	TCO/TCQ
1,2,3-Trichloropropane	36	2	TCN	
<i>Tridecane (all isomers), see</i> n-Alkanes (C10+) (all isomers)			TRD	ALV (ALJ)
Tridecanoic acid	34		TDO	
<i>Tridecanol, see</i> Alcohols (C13+)			TDN	ALY (ASK/ASY/AYK/ LAL)
<i>Tridecene, see</i> Olefins (C13+ all isomers)			TRD	OAM/OFY/OFW/OFZ/ TDC
Tridecyl acetate	34		TAE	
<i>Tridecylbenzene, see</i> Alkyl (C9+) benzenes			TRB	AKB
Triethanolamine	8	2	TEA	
Triethylamine	7		TEN	
Triethylbenzene	32		TEB	
Triethylene glycol	40		TEG	
<i>Triethylene glycol butyl ether, see</i> Poly(2–8)alkylene glycol monoalkyl (C1–C6) ether.			TBE	PAG
Triethylene glycol butyl ether mixture	40		TBD	
Triethylene glycol di-(2-ethylbutyrate)	34		TGD	
Triethylene glycol dibenzoate	34		TGB	
Triethylene glycol ether mixture	40		TYM	
<i>Triethylene glycol ethyl ether, see</i> Poly(2–8)alkylene glycol monoalkyl (C1–C6) ether.			TGE	PAG
<i>Triethylene glycol methyl ether, see</i> Poly(2–8)alkylene glycol monoalkyl (C1–C6) ether.			TGY	PAG
Triethylenetetramine	7	2	TET	
Triethyl phosphate	34		TPS	
Triethyl phosphite	34	2	TPI	
Triisobutylene	30		TIB	
Triisooctyl trimellitate	34		TIS	
Triisopropanolamine	8		TIP	
<i>Triisopropanolamine salt of 2,4-Dichlorophenoxyacetic acid solution, see</i> 2,4-Dichlorophenoxyacetic acid, Triisopropanolamine salt solution.				DTI
Triisopropylated phenyl phosphates	34		TPL	
Trimethylacetic acid	4		TAA	
Trimethylamine solution (30% or less)	7		TMT	TMA.
Trimethylbenzene (all isomers)	32		TRE	TMB/TMD/TME.
<i>Trimethyl nonanol, see</i> Dodecyl alcohol				DDN (ASK/ASY/LAL)
Trimethylol propane polyethoxylated	20		TPR	
Trimethyl phosphite	34	2	TPP	
Trimethylhexamethylene diisocyanate (2,2,4- and 2,4,4-)	12		THI	
Trimethylhexamethylenediamine (2,2,4- and 2,4,4-)	7		THA	
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		TMR	
1,3,5-Trioxane	41	2	TRO	
Triphenylborane (10% or less)/Caustic soda solution	5		TPB	
<i>Tripropylene, see</i> Propylene trimer				PTR
Tripropylene glycol	40		TGC	
<i>Tripropylene glycol methyl ether, see</i> Poly(2–8)alkylene glycol monoalkyl(C1–C6) ether.			TGM	PAG
<i>Trisodium nitrilotriacetate solution, see</i> Nitrilotriacetic acid, trisodium salt solution.			TSO	NCA (TSN)
Trisodium phosphate solution	5		TSP	
<i>Trisodium salt of N-(Hydroxyethyl)ethylenediaminetriacetic acid solution, see</i> N-(Hydroxyethyl)ethylenediaminetriacetic acid, trisodium salt solution.				HET
Trixylyl phosphate	34			TRP
<i>Trixylenyl phosphate, see</i> Trixylyl phosphate				TRP
<i>Tung oil, see</i> Oil, misc.: Tung				OTG

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
Turpentine	30		TPT	
<i>Turpentine substitute, see</i> White spirit (low (15–20%) aromatic) .....	.....	.....		WSL (WSP)
<i>Undecane (all isomers), see</i> Alkanes (C10+) (all isomers) .....	.....	.....	UDN	ALV (ALJ)
Undecanoic acid	4	.....	UDA	
<i>Undecanol, see</i> Undecyl alcohol .....	.....	.....		UND (ALR)
Undecene	30	.....	UDD	UDC.
1-Undecene	30	.....	UDC	UDD.
Undecyl alcohol	20	.....	UND	ALR.
<i>Undecylbenzene, see</i> Alkyl (C9+) benzenes .....	.....	.....	UDB	AKB
Urea solution	43	.....	USL	URE
Urea, Ammonium mono- and di-hydrogen phosphate/Potassium chloride solution.	0	1	UPX	
Urea/Ammonium nitrate solution (containing less than 1% free Ammonia)	43	2	UAU	ANU/UAS/UAT/UAU
Urea/Ammonium nitrate solution (containing 1% or more free Ammonia) ...	6	.....	UAT	ANU/UAS
Urea/Ammonium phosphate solution	43	.....	UAP.	
Vacuum gas oil, <i>see</i> oil misc.: Vacuum gas oil	33	.....	OVC	
Valeraldehyde (all isomers)	19	.....	VAK	IVA/VAL
Vanillin black liquor (free alkali content 3% or more)	5	.....	VBL	
Vegetable acid oils, n.o.s.	34	.....	VAD	
<i>Including:</i>				
<i>Corn acid oil</i>	34			
<i>Cottonseed acid oil</i>	34			
<i>Dark mixed acid oil</i>	34			
<i>Groundnut acid oil</i>	34			
<i>Mixed acid oil</i>	34			
<i>Mixed general acid oil</i>	34			
<i>Mixed hard acid oil</i>	34			
<i>Mixed soft acid oil</i>	34			
<i>Rapeseed acid oil</i>	34			
<i>Safflower acid oil</i>	34			
<i>Soya acid oil</i>	34			
<i>Sunflower seed acid oil</i>	34			
Vegetable fatty acid distillates, n.o.s.	34	3	VFD	
<i>Including:</i>				
<i>Palm kernel fatty acid distillate</i>	34			
<i>Palm oil fatty acid distillate</i>	34			
<i>Tall fatty acid distillate</i>	34			
<i>Tall oil fatty acid distillate</i>	34			
Vegetable oils, n.o.s.	34	.....	VEO	
<i>Including:</i>				
<i>Beechnut oil</i>	34			
<i>Camelina oil</i>	34			
<i>Cashew nut shell</i>	34			
<i>Castor oil</i>	34			
<i>Cocoa butter</i>	34			
<i>Coconut oil</i>	34	2		
<i>Corn oil</i>	34			
<i>Cottonseed oil</i>	34			
<i>Croton oil</i>	34			
<i>Grape seed oil</i>	34			
<i>Groundnut acid oil</i>	34			
<i>Hazelnut oil</i>	34			
<i>Illipe oil</i>	34			
<i>Jatropha oil</i>	34	.....	JTO	
<i>Linseed oil</i>	34			
<i>Mango kernel oil</i>	34			
<i>Nutmeg butter</i>	34			
<i>Oiticica oil</i>	34			
<i>Olive oil</i>	34			
<i>Palm kernel oil</i>	34			
<i>Palm kernel olein</i>	34			
<i>Palm kernel stearin</i>	34			
<i>Palm mid fraction</i>	34			
<i>Palm, non-edible industrial grade</i>	34			
<i>Palm oil</i>	34	2, 3		
<i>Palm olein</i>	34			
<i>Palm stearin</i>	34			
<i>Peanut oil</i>	34			
<i>Peel oil (oranges and lemons)</i>	34			
<i>Perilla oil</i>	34			
<i>Pine oil</i>	34			
<i>Poppy seed oil</i>	34			
<i>Poppy oil</i>	34			

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Chemical name	Group No.	Foot-note	CHRIS Code	Related CHRIS Codes
<i>Raisin seed oil</i>	34			
<i>Rapeseed oil</i>	34			
<i>Rapeseed (low erucic acid containing less than 4% free fatty acids).</i>	34	3		
<i>Resin oil, distilled</i>	30	3		
<i>Rice bran oil</i>	34			
<i>Rosin oil</i>	34			
<i>Safflower oil</i>	34			
<i>Salad oil</i>	34			
<i>Sesame oil</i>	34			
<i>Shea butter</i>	34			
<i>Soyabean oil</i>	34	2		
<i>Sunflower seed oil</i>	34			
<i>Tall</i>	34			
<i>Tall, crude</i>	34			
<i>Tall, distilled</i>	34			
<i>Tall, pitch</i>	34			
<i>Tucum oil</i>	34			
<i>Tung oil</i>	34			
<i>Walnut oil</i>	34			
Vegetable protein solution (hydrolyzed)	43		VPS	
Vinyl acetate	13	2	VAM	
Vinyl chloride	35		VCM	
Vinyl ethyl ether	13		VEE	
Vinylidene chloride	35		VCI	
Vinyl neodecanoate	13	2	VND	
Vinyltoluene	13		VNT	
Water	43		WTR	
Waxes			WAX	
<i>Including:</i>				
<i>Candelilla</i>	34		WCD	
<i>Carnauba</i>	34		WCA	
<i>Paraffin</i>	31		WPF	
<i>Petroleum</i>	33		WPT	
<i>White spirit, see White spirit (low (15–20%) aromatic)</i>			WSP	WSL
<i>White spirit (low (15–20%) aromatic)</i>	33		WSL	WSP.
<i>Wine, see Alcoholic beverages</i>			ABV	
Wood lignin with Sodium acetate/oxalate	0	1, 3	WOL	
Xylenes	32	2	XLX	XML/XLO/XLP
Xylenes/Ethylbenzene (10% or more) mixture	32		XEB	
Xylenols	21		XYL	
Zinc alkaryl dithiophosphate (C7-C16)	34		ZAD	
Zinc alkenyl carboxamide	10		ZAA	WSL
Zinc alkyl dithiophosphate (C3-C14)	34		ZAP	
<i>Zinc bromide/Calcium bromide solution, see Drilling brine (containing Zinc salts).</i>				DZB

Notes:

1. Because of very high reactivity, unusual conditions of carriage, or potential compatibility problems, this commodity is not assigned to a specific group in Figure 1 to 46 CFR part 150 (Compatibility Chart).
2. See Appendix I to 46 CFR part 150 (Exceptions to the Chart).
3. Entry was added from the March 2012 Annex to the 2007 edition of the IBC Code (MEPC 63/23/Add.1), the December 2012 IMO Marine Environmental Protection Committee Circular (MEPC.2/Circ.18), or the December 2013 IMO Marine Environmental Protection Committee Circular (MEPC.2/Circ.19).
4. *Italicized* words are not part of the cargo name but may be used in addition to the cargo name.

[78 FR 50162, Aug. 16, 2013, as amended at USCG–2013–0423, 85 FR 21674, Apr. 17, 2020; 85 FR 27309, May 8, 2020; 86 FR 42739, Aug. 5, 2021]

TABLE 2 TO PART 150—GROUPING OF CARGOES

Group	Cargo
0. Unassigned Cargoes	Acetone cyanohydrin. Alkenoic acid, polyhydroxy ester borated. Alkylbenzene distillation bottoms. Alkyl (C8–C10)/(C12–C14) : (60% or more/40% or less) Alkyl (C11–C17) benzene sulfonic (alternately sulphonic) acid. Alkylbenzene sulfonic (alternately sulphonic) acid (less than 4%) ¹ . Alkyl (C18–C28) toluenesulfonic (alternately toluenesulphonic) acid. Aluminum (alternately Aluminium) chloride/Hydrogen chloride solution. Ammonium hydrogen phosphate solution. Ammonium nitrate solution (45% or less). Ammonium nitrate solution (93% or less).

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Group	Cargo
	Ammonium thiocyanate/Ammonium thiosulfate (alternately thiosulphate) solution. Argon, liquefied. Benzenesulfonyl (alternately Benzenesulphonyl) chloride.¹ gamma-Butyrolactone.¹ Carbon dioxide (high purity). Carbon dioxide (reclaimed quality). Carbon dioxide, liquefied. Chlorine. 2-Chloro-4-ethylamino-6-isopropylamino-5-triazine solution. Chlorosulfonic (alternately Chlorosulphonic) acid. Decyloxytetrahydro-thiophene dioxide. 2,4-Dichlorophenoxyacetic acid, Dimethylamine salt solution (70% or less).¹ Dimethyl disulfide (alternately disulphide). Diphenylol propane-Epichlorohydrin resins. Disulfide (alternately Disulphide). Dodecyl hydroxypropyl sulfide (alternately sulphide).¹ Dodecylbenzenesulfonic (alternately Dodecylbenzenesulphonic) acid.¹ Ethylene oxide. Hydrogen peroxide solutions (over 60% but not more than 70% by mass). Hydrogen peroxide solutions (over 8% but not more than 60% by mass). Hydrogenated starch hydrolysate. Lactic acid.¹ Liquid chemical wastes. Long-chain alkaryl sulfonic (alternately sulphonic) acid (C16–C60).¹ Magnesium chloride solution.¹ Maltitol solution. Methylcyclopentadienyl manganese tricarbonyl. Methylcyclopentadienyl manganese tricarbonyl (60–70%) in mineral oil. Molasses residue (from fermentation). Molybdenum polysulfide (alternately polysulphide) long-chain alkyl dithiocarbamide complex. Motor fuel anti-knock compound (containing lead alkyls). Naphthalene sulfonic (alternately sulphonic) acid-formaldehyde copolymer, sodium salt solution. Nitrating acid (mixture of Sulfuric (alternately Sulphuric) and Nitric acids). Nitric acid (70% and over).¹ Nitric acid fuming. Nitric acid red fuming. Nitrogen. o-Nitrophenol (molten).¹ Noxious Liquid Substance, NF, (1) n.o.s. ("trade name" contains "principal components") Cat X. Noxious Liquid Substance, F, (2) n.o.s. ("trade name" contains "principal components") Cat X. Noxious Liquid Substance, NF, (3) n.o.s. ("trade name" contains "principal components") Cat X. Noxious Liquid Substance, F, (4) n.o.s. ("trade name" contains "principal components") Cat X. Noxious Liquid Substance, NF, (5) n.o.s. ("trade name" contains "principal components") Cat Y. Noxious Liquid Substance, F, (6) n.o.s. ("trade name" contains "principal components") Cat Y. Noxious Liquid Substance, NF, (7) n.o.s. ("trade name" contains "principal components") Cat Y. Noxious Liquid Substance, F, (8) n.o.s. ("trade name" contains "principal components") Cat Y. Noxious Liquid Substance, NF, (9) n.o.s. ("trade name" contains "principal components") Cat Z. Noxious Liquid Substance, F, (10) n.o.s. ("trade name" contains "principal components") Cat Z. Noxious Liquid Substance, (11) n.o.s. ("trade name" contains "principal components") Cat Z. Non-noxious Liquid Substance, (12) n.o.s. ("trade name" contains "principal components") Cat OS. n-Octyl Mercaptan. Oleum¹. Orange juice (concentrated). Orange juice (not concentrated). Oxygenated aliphatic hydrocarbon mixture. Phosphorus, yellow or white. Phosphosulfurized (alternately Phosphosulphurized) bicycle terpene. Phthalate-based polyester polyol.¹ Polyalkalkenaminesuccinimide, molybdenum oxysulfide. Potassium polysulfide (alternately polysulphide), Potassium thiosulfide (alternately thiosulphide) solution (41% or less). 2-Propene-1-aminium, N,N-dimethyl-N-2-propenyl-, chloride, homopolymer solution. Refrigerant gases. Sodium chlorate solution (50% or less).¹ Sodium dichromate solution (70% or less).¹ Sodium hydrogen sulfide (alternately sulphide) (6% or less)/Sodium carbonate (3% or less) solution.¹

Group	Cargo
1. Non-Oxidizing Mineral Acids	Sodium methoxide (25% in methanol). Sodium methylate (21–30% in methanol). Sodium sulfide (alternately sulphide)/Hydrosulfide (alternately Hydrosulphide) solution (H₂S 15 ppm or less). Sodium sulfide (alternately sulphide), Hydrosulfide (alternately Hydrosulphide) solution (H₂S greater than 15 ppm but less than 200 ppm).¹ Sodium sulfide (alternately sulphide)/Hydrosulfide (alternately Hydrosulphide) solution (H₂S greater than 200 ppm). Sodium thiocyanate solution (56% or less).¹ Sulfur (alternately Sulphur) (molten). Sulfur (alternately Sulphur) dioxide. Tall oil fatty acid, barium salt.¹ Tetraethyl silicate monomer/oligomer (20% in ethanol). Urea, Ammonium mono- and di-hydrogen phosphate/Potassium chloride solution. Wood lignin with Sodium acetate/oxalate. Di-(2-ethylhexyl) phosphoric acid. Ferric chloride solution Fluorosilicic acid (20–30%) in water solution Fluorosilicic acid (30% or less) Hydrochloric acid Hydrofluorosilicic acid (25% or less). Phosphoric acid Polyaluminum (alternately Polyaluminium) chloride solution. Sulfuric (alternately Sulphuric) acid.¹
2. Sulfuric (Alternately Sulphuric) Acids.	
3. Nitric Acids	Sulfuric (alternately sulphuric) acid, spent. Titanium tetrachloride Ferric nitrate/Nitric acid solution. Nitric acid (70% or less).
4. Organic Acids	Acetic acid.¹ Acetic acid.¹ Butyric acid. Chloroacetic acid (80% or less). 2- or 3-Chloropropionic acid. Citric acid (70% or less). Decanoic acid. 2,2-Dichloropropionic acid. Dimethyl octanoic acid. Formic acid.¹ Formic acid (85% or less). Formic acid (over 85%). Formic acid mixture (containing up to 18% Propionic acid and up to 25% Sodium formate). Glycolic acid (70% or less). Glyoxylic acid solution (50% or less). n-Heptanoic acid. 1,6-Hexanediol, distillation overheads. Hexanoic acid 2-Hydroxy-4-(methylthio)butanoic acid Jatropha oil Long-chain alkyl (C13+) salicylic acid. Methacrylic acid. Naphthenic acid. Neodecanoic acid. Nonanoic acid (all isomers). Nonanoic/Tridecanoic acid mixture. Octanoic acid (all isomers). Oleic acid. Pentanoic acid. n-Pentanoic acid (64%)/2-Methyl butyric acid (36%) mixture. Propionic acid. Trimethylacetic acid Undecanoic acid
5. Caustics	Aluminum (alternately Aluminium) hydroxide/sodium hydroxide/sodium carbonate solution (40% or less). Ammonium sulfide (alternately sulphide) solution (45% or less). Calcium hydroxide slurry. Calcium hypochlorite solution (15% or less). Calcium hypochlorite solution (more than 15%). Caustic potash solution.¹ Caustic soda solution.¹ Cresylic acid, sodium salt solution. 1,4-Dihydro-9,10-dihydroxy anthracene, disodium salt solution. Kraft black liquor. Kraft pulping liquors (free alkali content 3% or more) (Black, Green, or White).

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Group	Cargo
	Magnesium hydroxide slurry. Mercaptobenzothiazol, sodium salt solution. 2-Mercaptobenzothiazol (in liquid mixture). Potassium hydroxide solution.¹ Sodium acetate, Glycol, Water mixture (containing 1% or less Sodium hydroxide) (if non-flammable or non-combustible). Sodium acetate, Glycol, Water mixture (containing Sodium hydroxide). Sodium aluminate solution Sodium aluminate solution (45% or less). Sodium borohydride (15% or less)/Sodium hydroxide solution. Sodium carbonate solutions. Sodium cyanide solution Sodium hydrosulfide (alternately hydrosulphide) solution (45% or less).¹ Sodium hydrosulfide (alternately hydrosulphide)/Ammonium sulfide (alternately sulphide) solution.¹ Sodium hypochlorite solution (15% or less). Sodium hypochlorite solution (20% or less). Sodium 2-mercaptobenzothiazol solution Sodium nitrite solution Triphenylborane (10% or less)/Caustic soda solution. Trisodium phosphate solution Vanillin black liquor (free alkali content 3% or more).
6. Ammonia	Ammonia, anhydrous Ammonium hydroxide (28% or less Ammonia) Urea/Ammonium nitrate solution (containing 1% or more Ammonia).
7. Aliphatic Amines	Alkyl amine (C17+). Alkyl (C12+) dimethylamine. N-Aminoethylpiperazine Butylamine (all isomers). Crude piperazine. Cyclohexylamine Dibutylamine Diethylamine.¹ Diethylenetriamine.¹ Diisobutylamine Diisopropylamine Dimethylamine Dimethylamine solution (45% or less) Dimethylamine solution (greater than 45% but not greater than 55%) Dimethylamine solution (greater than 55% but not greater than 65%) N,N-Dimethylcyclohexylamine N,N-Dimethyldodecylamine Di-n-propylamine. Dodecylamine/Tetradecylamine mixture. Dodecyldimethylamine/Tetradecyldimethylamine mixture. Ethoxylated tallow alkyl amine. Ethoxylated tallow alkyl amine, glycol mixture. Ethoxylated tallow amine (>95%). Ethylamine.¹ Ethylamine solution (72% or less). N-Ethylbutylamine. N-Ethylcyclohexylamine. Ethyleneamine EA 1302.¹ Ethylenediamine.¹ 2-Ethylhexylamine. N-Ethylmethylallylamine. Glycine, sodium salt solution. Glyphosate solution (not containing surfactant). Hexamethylenediamine (molten). Hexamethylenediamine solution. Hexamethylenimine. Hexamethylenetetramine solutions. bis-(Hydrogenated tallow alkyl) methyl amines. Isophoronediamine. Isopropylamine Isopropylamine (70% or less) solution. Long-chain alkyl amine. Long-chain polyetheramine in alkyl (C2–C4) benzenes. Metam sodium solution Methylamine solutions (42% or less). 2-Methyl-1,5-pentanediamine. Monoethylamine. Morpholine.¹ Oleylamine

Group	Cargo
	Pentaethylenhexamine Pentaethylenhexamine/Tetraethylenepentamine mixture. Phosphate esters, alkyl (C12–C14) amine. Piperazine (70% or less). Piperazine (crude). Piperazine, 68% solution. Polyalkenyl succinic anhydride amine. Polyethylene polyamines. ¹ Polyethylene polyamines (more than 50% C5–C20 Paraffin oil). Poly(iminoethylene)-graft-N-poly (ethyleneoxy) solution (90% or less) (Polyisobutene) amino products in aliphatic hydrocarbons. Polyisobutenamine in aliphatic (C10-C14) solvent Polyolefin amide alkeneamine/Molybdenum oxysulfide (alternately oxysulphide) mixture. Polyolefin amine (C17+). Polyoxypropylenediamine (molecular weight 2000). n-Propylamine. iso-Propylamine solution. Poly olefin amine Sodium N-methyl dithio carbamate solution. Sulfohydrocarbon (alternately Sulphohydrocarbon), long-chain (C18+) alkylamine mixture. Tetraethylenepentamine. ¹ Triethylamine Triethylenetetramine. ¹ Trimethylamine solution (30% or less). Trimethylhexamethylenediamine (2,2,4- and 2,4,4-). Alkyl (C12–C16) propoxyamine ethoxylates. 2-(2-Aminoethoxy)ethanol Aminoethyldiethanolamine/Aminoethylethanolamine solution. Aminoethylethanolamine 2-Amino-2-methyl-1-propanol Diethanolamine Diethylaminoethanol. Diisopropanolamine. Dimethylethanolamine. ¹ Ethanolamine Ethoxylated alkyloxy alkyl amine Ethoxylated long-chain (C16+) alkyloxyalkanamine. Isopropanolamine Isopropanolamine solution. Linear alkyl (C12–C16) propoxyamine ethoxylates. Methyl diethanolamine Monoethanolamine. Monoisopropanolamine. n-Propanolamine. Triethanolamine. Triisopropanolamine. Alkyl (C8-C9) phenylamine in aromatic solvents Amine C-6, morpholine process residue Aniline Calcium long chain alkyl phenolic amine (C8-C40) 4-Chloro-2-methylphenoxyacetic acid, Dimethylamine salt solution Dialkyl (C8-C9) diphenylamines 2,6-Diethylaniline. 2,6-Dimethylaniline. Diphenylamine (molten). Diphenylamine, reaction product with 2,2,4-trimethylpentene Diphenylamines, alkylated 2-Ethyl-6-methyl-N-(1'-methyl-2-methoxyethyl)aniline N-Methylaniline 2-Methyl-6-ethyl aniline 2-Methyl-5-ethylpyridine. Methylpyridine. 2-Methylpyridine 3-Methylpyridine. 4-Methylpyridine. N-Methyl-2-pyrrolidone. ¹ Paraldehyde-Ammonia reaction product Polyolefin phenolic amine (C28-C250) Pyridine Pyridine bases Toluenediamine o-Toluidine. Acetochlor Acrylamide solution (50% or less)
8. Alkanolamines	
9. Aromatic Amines	
10. Amides	

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Group	Cargo
11. Organic Anhydrides	Alkenyl (C11+) amide. N,N-Dimethylacetamide N,N-Dimethylacetamide solution N,N-Dimethylacetamide solution (40% or less) Dimethylformamide Formamide N,N-bis(2-Hydroxyethyl) oleamide. Octadecenoamide solution. Oleamide solution. Organomolybdenum amide. Polybutenyl succinimide Polyisobutenyl succinimide. Sulfurized (alternately Sulphurized) polyolefinamide. Zinc alkenyl carboxamide Acetic anhydride. Alkenyl (C16–C20) succinic anhydride. Alkyl succinic anhydride. Maleic anhydride. Maleic anhydride/sodium allylsulphonate copolymer solution. Phthalic anhydride (molten). Polyisobutenyl anhydride adduct Polyisobutylene succinic anhydride Polyolefin anhydride Propionic anhydride
12. Isocyanates	Diphenylmethane diisocyanate Hexamethylene diisocyanate Isophorone diisocyanate Polymethylene polyphenyl isocyanate Toluene diisocyanate Trimethylhexamethylene diisocyanate (2,2,4- and 2,4,4-)
13. Vinyl Acetates	Vinyl acetate Vinyl ethyl ether Vinyl neodecanate Vinyltoluene.
14. Acrylates	Butyl acrylate (all isomers). Butyl methacrylate. Butyl/Decyl/Cetyl/Eicosyl methacrylate mixture. Cetyl/Eicosyl methacrylate mixture. Decyl acrylate Dodecyl methacrylate Dodecyl/Octadecyl methacrylate mixture. Dodecyl/Pentadecyl methacrylate mixture. Ethyl acrylate 2-Ethylhexyl acrylate Ethyl methacrylate 2-Hydroxyethyl acrylate. ¹ Isobutyl methacrylate Methacrylic resin in ethylene dichloride. Methyl acrylate Methyl methacrylate. Nonyl methacrylate monomer. Polyalkyl acrylate. Polyalkyl(C18–C22) acrylate in Xylene. Polyalkyl (C10–C20) methacrylate. Polyalkyl methacrylate in mineral oil. Polyalkyl (C10–C18) methacrylate/Ethylene-propylene copolymer mixture.
15. Substituted Allyls	Acrylonitrile. ¹ Allyl alcohol. ¹ Allyl chloride. Dichloropropene (all isomers). 1,3-Dichloropropene. Dichloropropene/Dichloropropane mixtures. Methacrylonitrile
16. Alkylen Oxides	Brominated Epoxy Resin in Acetone. 1,2-Butylene oxide. Diglycidyl ether of Bisphenol A. Diglycidyl ether of Bisphenol F. Epoxy resin. Ethylene oxide/Propylene oxide mixture. Ethylene oxide/Propylene oxide mixture with an Ethylene oxide content not more than 30% by mass.
17. Epichlorohydrins	Propylene oxide Chlorohydrins. Chlorohydrins (crude).

Group	Cargo
18. Ketones	Epichlorohydrin Acetone.¹ Acetophenone. Butyl heptyl ketone. Camphor oil (light). 1-(4-Chlorophenyl)-4,4-dimethyl pentan-3-one.¹ Cyclohexanone Cyclohexanone/Cyclohexanol mixtures. Diisobutyl ketone Ethyl amyl ketone. Isophorone. Ketone residue. Mesityl oxide.¹ Methyl amyl ketone. Methyl butyl ketone. Methyl ethyl ketone.¹ Methyl heptyl ketone. Methyl isoamyl ketone. Methyl isobutyl ketone.¹ Methyl propyl ketone. beta-Propiolactone
19. Aldehydes	Acetaldehyde Acrolein.¹ Butyraldehyde (all isomers) Crotonaldehyde.¹ Crude isononylaldehyde. Decaldehyde. n-Decaldehyde. 2-Ethyl-3-propylacrolein.¹ Formaldehyde (50% or more)/Methanol mixtures.¹ Formaldehyde solutions (37%–50%).¹ Formaldehyde solutions (45% or less).¹ Furfural. Glutaraldehyde solutions (50% or less). Glyoxal solution (40% or less). Isodecaldehyde. Isononylaldehyde (crude). 3-Methyl butyraldehyde. Methylolureas 3-(Methylthio)propionaldehyde Octyl aldehyde Paraldehyde Pentyl aldehyde Propionaldehyde. Valeraldehyde (all isomers).
20. Alcohols, Glycols	Acrylonitrile-Styrene copolymer dispersion in Polyether polyol. Alcoholic beverages Alcohol (C9–C11) poly (2.5–9) ethoxylates. Alcohol (C6–C17) (secondary) poly (3–6) ethoxylates. Alcohol (C6–C17) (secondary) poly (7–12) ethoxylates. Alcohol (C12–C16) poly (1–6) ethoxylates. Alcohol (C12–C16) poly (7–19) ethoxylates. Alcohol (C12–C16) poly (20+) ethoxylates. Alcohol polyethoxylates Alcohol polyethoxylates, secondary. Alcoholic beverages, n.o.s. Alcohols (C12+), primary, linear. Alcohols (C8–C11), primary, linear and essentially linear. Alcohols (C12–C13), primary, linear and essentially linear. Alcohols (C14–C18), primary, linear and essentially linear. Alcohols (C13+): Cetyl Alcohol (Hexadecanol). Oleyl Alcohol (Octadecanol). Pentadecanol. Tallow alcohol. Tetradecanol. Tridecanol. Amyl alcohol, primary. n-Amyl alcohol. sec-Amyl alcohol. tert-Amyl alcohol. Behenyl alcohol Bio-fuel blends of Gasoline and Ethyl alcohol (>25% but <99% by volume). Brake fluid base mix: Poly(2–8)alkylene (C2–C3) glycols/Polyalkylene (C2–C10) glycols monoalkyl (C1–C4) ethers and their borate esters.

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Group	Cargo
	2-Butoxyethanol (58%)/Hyperbranched polyesteramide (42%) (mixture). Butyl alcohol (all isomers). ¹ n-Butyl alcohol Butylene glycol. Choline chloride solutions. Crude Isopropanol. Cyclohexanol. Decyl alcohol (all isomers). ¹ Decyl/Dodecyl/Tetradecyl alcohol mixture. Diacetone alcohol. ¹ 2,2-Dimethylpropane-1,3-diol (molten or solution). tert-Dodecanethiol. ¹ Dodecyl alcohol (all isomers). Ethoxylated alcohols, C11–C15 Ethyl alcohol. ¹ Ethyl butanol Ethylene chlorohydrin Ethylene cyanohydrin Ethylene glycol. ¹ Furfuryl alcohol. ¹ Glycerine. ¹ Glycerine (83%)/Dioxanedimethanol (17%) mixture. Glycerol. Glycerol monooleate. Glycol mixture, crude. Heptanol (all isomers). Hexadecanol (Cetyl alcohol). Hexamethylene glycol. Hexanol Hexylene glycol. Isoamyl alcohol. Isobutyl alcohol. Isopropyl alcohol. Methacrylic acid—Alkylxypoly (alkylene oxide) methacrylate copolymer, sodium salt aqueous solution (45% or less). 3-Methoxy-1-butanol. Methyl alcohol. ¹ Methyl amyl alcohol alpha-Methylbenzyl alcohol with Acetophenone (15% or less). Methyl butanol. Methyl butenol. Methyl 3- (3,5 di-tert-butyl-4-hydroxyphenyl) propionate crude melt. Methylbutynol. Methylcyclohexanemethanol (crude). 2-Methyl-2-hydroxy-3-butyne. Methyl isobutyl carbinol 3-Methyl-3-methoxybutanol 2-Methyl-1,3-propanediol Molasses. Nonyl alcohol (all isomers). ¹ 1-Octadecanol. Octadecenol (oleyl alcohol). Octanol (all isomers). ¹ Octyl alcohol. ¹ Pentacosal(oxypropane-2,3-diyl)s. Polyalkylene oxide polyol. Polybutadiene, hydroxyl terminated. Polyglycerine/Sodium salts solution (containing less than 3% Sodium hydroxide). ¹ Polyglycerol. Polyolefin amide alkeneamine polyol. n-Propyl alcohol. ¹ Propylene glycol. ¹ Sorbitol solution. Stearyl alcohol. Tallow alcohol. Tallow fatty alcohol (C13+). Trimethyl nonanol. Trimethylol propane polyethoxylated. Undecanol Undecyl alcohol Wine. Alkyl (C4–C9) phenols. Alkylated (C4–C9) hindered phenols. Benzyl alcohol
21. Phenols, Cresols	

Group	Cargo
	Carbolic oil Creosote. ¹ Creosote (coal tar). Creosote (wood tar). Cresols (all isomers). Cresols with 5% or more phenol. Cresols with less than 5% phenol. Cresylic acid. Cresylic acid dephenolized Cresylic acid tar. Cresylic acid with 5% or more phenol. Dibutylphenols 2,4-Dichlorophenols. Di-tert-butylphenol. 2,4-Di-tert-butylphenol. 2,6-Di-tert-butylphenol. 2,4-Dichlorophenol. Dodecyl phenol. o-Ethyl phenol. Long-chain alkylphenate/Phenol sulfide (alternately sulphide) mixture. Methylene bridged isobutylenated phenols. Nonylphenol. Nonylphenol (48–62%)/Phenol (42–48%)/Dinonylphenol (1–10%) mixture. Octyl phenol Phenol Tertiary butylphenols. Xylenols epsilon-Caprolactam (molten or aqueous solutions)
22. Caprolactam Solutions	
23-29. Unassigned.	
30. Olefins	Acrylic acid/ethenesulfonic (alternately ethenesulphonic) acid copolymer with phosphonate groups, sodium salt solution. Aryl polyolefin (C11–C50). Butadiene (all isomers). Butadiene/Butylene mixtures (containing Acetylenes). Butene oligomer. Butylenes (all isomers). 1,5,9-Cyclododecatriene. Cyclopentadiene/Styrene/Benzene mixture. 1,3-Cyclopentadiene dimer (molten). Cyclopentene. Decene. Dicyclopentadiene, Resin Grade, 81–89%. Diisobutylene Dipentene Dodecene (all isomers). Ethylene. Ethylidene norbornene. ¹ Heptene (all isomers). Hexene (all isomers). Isoprene (all isomers). Isoprene (part refined). Isoprene concentrate (Shell). Latex ammonia (1% or less)-inhibited. d-Limonene. Methyl acetylene/Propadiene mixture. Methyl butenes. Methylcyclopentadiene dimer. 2-Methyl-1-pentene. 4-Methyl-1-pentene. alpha-Methylstyrene. Mixed C4 Cargoes. Myrcene. Nonene (all isomers). 1-Octadecene. Octene (all isomers). Olefin-Alkyl ester copolymer (molecular weight 2000+). Olefin mixture (C7–C9) C8 rich, stabilized. Olefin mixtures (C5–C7) Olefin mixtures (C5–C15) Olefins (C13+, all isomers). alpha-Olefins (C6–C18) mixtures. 1,3-Pentadiene. 1,3-Pentadiene (greater than 50%), Cyclopentene and isomers, mixtures. Pentene (all isomers).

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Group	Cargo
	Pentene alpha-Pinene beta-Pinene. Piperylene concentrate. Poly(4+)isobutylene (molecular weight >224). Polyisobutylene (molecular weight ≤224). Polyolefin in mineral oil. Poly(5+)propylene. Propylene. Propylene-butylene copolymer Propylene dimer. Propylene tetramer. Propylene trimer. Propylene/Propane/MAPP gas mixture. Styrene monomer. Tetradecene Tridecene Triisobutylene Tripropylene Turpentine Undecene. 1-Undecene. Alkanes (C10–C26) linear and branched (flash point >60 °C). Alkanes (C10–C26) linear and branched (flash point ≤60 °C). Alkanes (C6–C9). n-Alkanes (C9–C11). n-Alkanes (C10+) (all isomers). iso- & cyclo-Alkanes (C10–C11). iso- & cyclo-Alkanes (C12+). Butane (all isomers). Butane/Propane mixture. Cycloheptane Cyclohexane Cyclopentane. Ethane. Ethyl cyclohexane Ethylene-Propylene copolymer (in liquid mixtures). Heptadecane (all isomers). Isopropylcyclohexane. Methane. Methylcyclohexane 2-Methyl pentane. Nonane (all isomers). Octane (all isomers). Paraffin wax. Pentane (all isomers). Polyalpha olefins. Propane. Waxes: Paraffin. Alkyl acrylate-Vinyl pyridine copolymer in Toluene.
31. Paraffins	
	Alkyl (C3–C4) benzenes: Butylbenzenes. Cumene. Propylbenzenes. Alkyl (C5–C8) benzenes: Amylbenzenes. Heptylbenzenes. Hexylbenzenes. Octylbenzenes. Alkyl (C9+) benzenes: Decylbenzenes. Dodecylbenzenes. Nonylbenzenes. Tetradecylbenzenes. Tetrapropylbenzenes. Tridecylbenzenes. Undecylbenzenes. Alkylbenzene mixtures (containing at least 50% of Toluene). Alkylbenzene, Alkylindane, Alkylindene mixture (each C12–C17). Alkyl toluene. Alkyl (C18+) toluenes. Benzene. Benzene and mixtures having 10% Benzene or more.
32. Aromatic Hydrocarbons Mixures.	

Group	Cargo
33. Miscellaneous Hydrocarbon Mixtures.	Benzene hydrocarbon mixtures (containing Acetylenes) (having 10% Benzene or more). Benzene/Toluene/Xylene mixtures (having 10% Benzene or more). Butyl phenol, Formaldehyde resin in Xylene Butyl toluene. C9 Resinfeed (DSM).¹ p-Cymene. Detergent alkylate. Diethylbenzene. Diisopropylbenzene (all isomers) Diisopropylnaphthalene. Diphenyl. Dodecyl xylene. Ethylbenzene Ethyl toluene. 1-Hexadecylnaphthalene/1,4-bis (Hexadecyl) naphthalene mixture. 1,n-Hexadecylnaphthalene (90%)/1,4-Di-n-(Hexadecyl) naphthalene (10%). Hexylbenzenes. Methyl naphthalene (molten). Naphthalene (molten). Naphthalene still residue. Parachlorobenzotrifluoride. 1-Phenyl-1-xylyl ethane. Poly(2+) cyclic aromatics. Polyolefinamine in alkyl (C2–C4) benzenes. Polyolefinamine in aromatic solvent. Pyrolysis gasoline (containing Benzene). Tetrahydronaphthalene. Tetramethylbenzene (all isomers). C9 Resinfeed (DSM) ² 1,2,3,5-Tetramethylbenzene. Toluene. Tridecylbenzene Triethylbenzene. Trimethylbenzene (all isomers). Xylenes. Xylenes/Ethylbenzene (10% or more) mixture. Alachlor technical (90% or more). Alkylbenzene sulfonic (alternately sulphonic) acid, sodium salt solution. Alkyl dithiothiadiazole (C6–C24). Alkyl (C18–C28) toluenesulfonic (alternately toluenesulphonic) acid, Calcium salts, high overbase. Alkyl (C18–C28) toluenesulfonic (alternately toluenesulphonic) acid, Calcium salts, low overbase. Asphalt. Asphalt blending stocks, roofers flux. Asphalt blending stocks, straight run residue Asphalt emulsion Asphalt, kerosene, and other components Aviation alkylates (C8 paraffins and isoparaffins BPT 95 to 120 °C). Bio-fuel blends of Diesel/gas oil and Alkanes (C10-C26), linear and branched with a flash point >60 °C (>25% but <99% by volume) Bio-fuel blends of Diesel/gas oil and Alkanes (C10–C26), linear and branched with a flash point ≤60 °C (>25% but <99% by volume). Calcium sulfonate (alternately sulphonate)/Calcium carbonate/Hydrocarbon solvent mixture. Coal tar. Coal tar crude bases. Coal tar distillate. Coal tar pitch (molten). Coal tar, high temperature. Decahydronaphthalene. Diphenyl/Diphenyl ether mixture. 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 (containing not over 4.23 grams lead per gal.). Aviation (containing not over 4.86 grams lead per gal.). Casinghead (natural). Polymer. Straight run.

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Group	Cargo
	Jet Fuels: JP-4. JP-5. JP-8. Kerosene. Mineral spirits. Naphtha: Aromatic. Coal tar solvent. Heavy. Paraffinic. 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, cracked. Gas, high pour. Gas, low pour. Gas, low sulfur (alternately sulphur). Heartcut distillate. Lubricating. Mineral. Mineral seal. Motor. Neatsfoot. Penetrating. Pine. Residual. Road. Rosin. Spindle. Transformer. Turbine. Vacuum gas oil. Oxyalkylated alkyl phenol formaldehyde. Petrolatum. Petroleum wax. Polybutene. Polyolefin (molecular weight 300+). Polyolefin amide alkeneamine (C17+). Polyolefin amide alkeneamine (C28+). Polyolefin amide alkeneamine borate (C28–C250) Polyolefin amide alkeneamine in mineral oil. Polyolefinamine (C28–C250). Sulfohydrocarbon (alternately Sulphohydrocarbon) (C3–C88). Sulfurized (alternately Sulphurized) fat (C14–C20). Sulfurized (alternately Sulphurized) polyolefinamide alkene (C28–C250) amine. Waxes: Petroleum. White spirit. White spirit (low (15–20%) aromatic). Alkenyl (C8+) amine, Alkenyl (C12+) acid ester mixture. Alkyl dithiocarbamate (C19–C35). Alkyl ester copolymer (C4–C20). Alkyl ester copolymer in mineral oil. Alkyl (C7–C9) nitrates. ¹ Alkyl (C8–C40) phenol sulfide (alternately sulphide). Alkyl (C10–C20), (saturated and unsaturated) phosphite. Alkyl sulfonic (alternately sulphonic) acid ester of phenol. Alkyl (C18–C28) toluenesulfonic (alternately toluenesulphonic) acid, Calcium salts, borated.
34. Esters	

Group	Cargo
	Alkylaryl phosphate mixtures (more than 40% Diphenyl tolyl phosphate, less than 0.02% ortho-isomer). Amyl acetate (all isomers). Amyl acid phosphate. Animal and Fish oils, n.o.s.: Cod liver oil. Lanolin. Neatsfoot oil. Pilchard oil. Sperm oil. Animal and Fish acid oils and distillates, n.o.s.: Animal acid oil. Fish acid oil. Lard acid oil. Mixed acid oil. Mixed general acid oil. Mixed hard acid oil. Mixed soft acid oil. Barium long-chain (C11–C50) alkaryl sulfonate (alternately sulphonate). Barium long-chain alkyl (C8–C14) phenate sulfide (alternately sulphide). Benzenetricarboxylic acid trioctyl ester. Benzyl acetate Bio-fuel blends of Diesel/gas oil and FAME (>25% but <99% by volume) Bio-fuel blends of Diesel/gas oil and vegetable oil (>25% but <99% by volume) Boronated calcium sulfonate Bis (2-ethylhexyl) terephthalate. Boronated calcium sulfonate (alternately sulphonate). Butyl acetate (all isomers) Butyl benzyl phthalate Butyl butyrate (all isomers). n-Butyl formate. n-Butyl propionate. Butyl stearate Calcium alkyl (C10–C28) salicylate. Calcium alkyl (C9) phenol sulfide (alternately sulphide), polyolefin phosphorosulfide (alternately phosphorosulphide) mixture. Calcium carbonate slurry. Calcium long-chain alkaryl sulfonate (alternately sulphonate) (C11–C50). Calcium long-chain alkyl (C5–C10) phenate. Calcium long-chain alkyl (C5–C20) phenate. Calcium long-chain alkyl (C11–C40) phenate. Calcium long-chain alkyl (C18–C28) salicylate. Calcium long-chain alkyl phenate sulfide (alternately sulphide) (C8–C40). Calcium long-chain alkyl salicylate (C13+). Calcium nitrate solutions (50% or less). Calcium nitrate/Magnesium nitrate/Potassium chloride solution. Calcium salts of fatty acids. Calcium stearate. Cobalt naphthenate in solvent naphtha. Copper salt of long-chain (C17+) alkanolic acid. Copper salt of long-chain (C3–C16) fatty acid. Cyclohexyl acetate. Decyl acetate. Dialkyl (C7–C13) phthalates: Di-(2-ethylhexyl) phthalate. Diheptyl phthalate. Dihexyl phthalate. Diisooctyl phthalate. Diocetyl phthalate. Diisodecyl phthalate. Diisononyl phthalate. Dinonyl phthalate. Ditridecyl phthalate. Diundecyl phthalate. Dialkyl thiophosphates sodium salts solution. Dibutyl hydrogen phosphonate Dibutyl phthalate Dibutyl terephthalate. Di-(2-ethylhexyl) adipate. Di-(2-ethylhexyl) terephthalate. Diethylene glycol dibenzoate. Diethylene glycol phthalate. Diethyl phthalate. Diethyl sulfate (alternately sulphate).

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Group	Cargo
	Di-n-hexyl adipate Diisobutyl phthalate Dimethyl adipate Dimethylcyclsiloxane hydrolyzate Dimethyl glutarate Dimethyl hydrogen phosphite. ¹ Dimethyl naphthalene sulfonic (alternately sulphonic) acid, sodium salt solution. ¹ Dimethyl phthalate Dimethylpolysiloxane. Dimethyl succinate Dipropylene glycol dibenzoate Dithiocarbamate ester (C7-C35) Ditridecyl adipate. 2-Dodecenylsuccinic acid, dipotassium salt solution. 2-Ethoxyethyl acetate. Ethyl acetate Ethyl acetoacetate Ethyl butyrate 2-Ethyl-2-(2,4-dichlorophenoxy) acetate 2-Ethyl-2-(2,4-dichlorophenoxy) propionate S-Ethyl dipropylthiocarbamate. Ethylene carbonate. Ethylene glycol acetate Ethylene glycol butyl ether acetate Ethylene glycol diacetate. Ethylene glycol methyl ether acetate. Ethyl-3-ethoxypropionate Ethyl hexyl phthalate Ethyl hexyl tallate. 2-Ethyl-2-(hydroxymethyl) propane-1,3-diol (C8–C10) ester. Ethyl lactate. Ethyl propionate. Fatty acid methyl esters. Fatty acids (C8–C10). Fatty acids (C12+). Fatty acids (saturated, C13+). Fatty acids (C16+). Fatty acids, essentially linear (C6–C18) 2-ethylhexyl ester. Glyceryl triacetate. Glycidyl ester of C10 trialkyl acetic acid. Glycidyl ester of tertiary carboxylic acid. Glycidyl ester of tridecyl acetic acid. Glycidyl ester of Versatic acid. Glycol diacetate. Glycol triacetate. Heptyl acetate. Herbicide (C15–H22–NO2-Cl). Hexyl acetate. Hog grease. Isobutyl formate Isopropyl acetate Lauric acid. Lauric acid methyl ester/Myristic acid methyl ester mixture. Lecithin Magnesium long-chain alkaryl sulfonate (alternately sulphonate) (C11–C50). Magnesium long-chain alkyl phenate sulfide (alternately sulphide) (C8–C20). Magnesium long-chain alkyl salicylate (C11+). Magnesium nonyl phenol sulfide (alternately sulphide). Magnesium sulfonate (alternately sulphonate). 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. N-(2-Methoxy-1-methyl ethyl)-2-ethyl-6-methyl chloroacetanilide. Metolachlor. Naphthalene sulfonic (alternately sulphonic) acid, sodium salt solution. Nitrilotriacetic acid, trisodium salt solution Nonyl acetate Nonyl phenol sulfide (90% or less) solution.

Group	Cargo
	Octamethylcyclotetrasiloxane n-Octyl acetate Octyl decyl adipate Octyl nitrate. Octyl phthalate. Oil, edible: Beechnut. Castor. Cocoa butter. Coconut. Cod liver. Corn. Cotton seed. Fish. Grape seed. Groundnut. Hazelnut. Illipe. Lard. Maize. Mango kernel. Nutmeg butter. Olive. Palm. Palm kernel. Palm kernel olein. Palm kernel stearin. Palm mid fraction. Palm olein. Palm stearin. Peanut. Poppy. Poppy seed. Raisin seed. Rapeseed. Rapeseed, (low erucic acid containing less than 4% free fatty acids). Rice bran. Safflower. Salad. Sesame. Shea butter. Soyabean. Sunflower. Sunflower seed. Tucum. Vegetable. Walnut. Oil, misc.: Acid mixture from soyabean, corn (maize) and sunflower oil refining. Animal. Camelina. Cashew nut shell oil (untreated). Coconut fatty acid. Coconut, fatty acid methyl ester. Cottonseed oil, fatty acid. Lanolin. Linseed. Oiticica. Palm acid. Palm fatty acid distillate. Palm oil, fatty acid methyl ester. Palm kernel acid. Palm kernel fatty acid distillate. Palm, non-edible industrial grade. Perilla. Pilchard. Rapeseed fatty acid methyl esters. Seal. Soapstock. Soyabean (epoxidized). Soyabean fatty acid methyl ester. Tall. Tall, crude. Tall, distilled.

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Group	Cargo
	Tall, fatty acid. Tall, fatty acid (resin acids less than 20%). Tall pitch. Tung. n-Pentyl propionate. Phosphate esters Poly (2–8)alkylene glycol monoalkyl (C1–C6) ether acetate: Diethylene glycol butyl ether acetate. Diethylene glycol ethyl ether acetate. Diethylene glycol methyl ether acetate. Polycarboxylic ester (C9+). Polyferric sulfate (alternately sulphate) solution. Polymerized esters. Polymethylsiloxane. Polyolefin aminoester salts (molecular weight 2000+). Polyolefin ester (C28–C250). Polyolefin phosphorosulfide (alternately phosphorosulphide), barium derivative (C28–C250). Poly(20)oxyethylene sorbitan monooleate. Polysiloxane Polysiloxane/White spirit, low (15–20%) aromatic. Potassium formate solutions. Potassium formate solution (75% or more) Potassium oleate. Potassium salt of polyolefin acid. n-Propyl acetate. Propylene carbonate Propylene glycol methyl ether acetate. Shea butter Siloxanes. Sodium acetate solution. Sodium acetate/Glycol/Water mixture (not containing Sodium hydroxide). Sodium alkyl (C14–C17) sulfonates (alternately sulphonates) 60–65% solution. Sodium aluminosilicate slurry. Sodium benzoate. Sodium bicarbonate solution (less than 10%). Sodium dimethyl naphthalene sulfonate (alternately sulphonate) solution.² Sodium long-chain alkyl salicylate (C13+). Sodium naphthalene sulfonate (alternately sulphonate) solution. Sodium petroleum sulfonate (alternately sulphonate). Sodium sulfate (alternately sulphate) solution. Tall oil soap, crude. Tallow. Tallow fatty acid. Tributyl phosphate Tricresyl phosphate (containing 1% or more ortho-isomer) Tricresyl phosphate (containing less than 1% ortho-isomer) Tridecanoic acid Tridecyl acetate. Triethylene glycol di-(2-ethylbutyrate). Triethylene glycol dibenzoate. Triethyl phosphate. Triethyl phosphite.¹ Triisooctyl trimellitate.¹ Triisopropylated phenyl phosphates. Trimethyl phosphite.¹ 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. Trisodium nitrilotriacetate solution. Trixylyl phosphate Trixylenyl phosphate. Vegetable acid oils, n.o.s.: Corn acid oil. Cottonseed acid oil. Dark mixed acid oil. Groundnut acid oil. Mixed acid oil. Mixed general acid oil. Mixed hard acid oil. Mixed soft acid oil. Rapeseed acid oil. Safflower acid oil. Soya acid oil. Sunflower seed acid oil.

Group	Cargo
	Vegetable fatty acid distillates, n.o.s.: Palm kernel fatty acid distillate. Palm oil fatty acid distillate. Tall fatty acid distillate. Tall oil fatty acid distillate.
	Vegetable oils, n.o.s.: Beechnut oil. Camelina oil. Cashew nut shell. Castor oil. Cocoa butter. Coconut oil. Corn oil. Cotton seed oil. Croton oil. Grape seed oil. Groundnut oil. Hazelnut oil. Illipe oil. Linseed oil. Mango kernel oil. Nutmeg butter. Oiticica oil. Olive oil. Palm kernel oil. Palm kernel olein. Palm kernel stearin. Palm mid fraction. Palm, non-edible industrial grade. Palm oil. Palm olein. Palm stearin. Peanut oil. Peel oil (oranges and lemons). Perilla oil. Pine oil. Poppy seed oil. Poppy oil. Raisin seed oil. Rapeseed oil. Rapeseed (low erucic acid containing less than 4% free fatty acids). Rice bran oil. Rosin oil. Safflower oil. Salad oil. Sesame oil. Shea butter. Soyabean oil. Sunflower seed oil. Tall. Tall, crude. Tall, distilled. Tall, pitch. Tucum oil. Tung oil. Walnut oil.
	Waxes: Candelilla. Carnauba.
	Zinc alkaryl dithiophosphate (C7-C16) Zinc alkyl dithiophosphate (C3-C14)
35. Vinyl Halides	Vinyl chloride
	Vinylidene chloride
36. Halogenated Hydrocarbons	Benzyl chloride Bromochloromethane Carbon tetrachloride. ¹ Catoxid feedstock. ¹ Chlorinated paraffins (C10-C13) Chlorinated paraffins (C14-C17) (with 50% Chlorine or more, and less than 1% C13 or shorter chains) Chlorinated paraffins (C14-C17) (with 52% Chlorine). Chlorinated paraffins (C18+) with any level of Chlorine. Chlorobenzene Chloroform

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Group	Cargo
	m-Chlorotoluene o-Chlorotoluene p-Chlorotoluene Chlorotoluenes (mixed isomers) Dibromomethane. Dichlorobenzene (all isomers). 3,4-Dichloro-1-butene. Dichlorodifluoromethane. 1,1-Dichloroethane 1,6-Dichlorohexane Dichloromethane Dichloropropane. 1,1-Dichloropropane. 1,2-Dichloropropane. 1,3-Dichloropropane. Ethyl chloride Ethylene dibromide Ethylene dichloride. ¹ Methyl bromide Methyl chloride Methylene chloride. Monochlorodifluoromethane. Pentachloroethane. Perchloroethylene. n-Propyl chloride. Sym-trichlorobenzene. Tetrachloroethane. 1,1,2,2-Tetrachloroethane 1,2,3-Trichlorobenzene (molten) 1,2,4-Trichlorobenzene 1,2,3-Trichlorobenzol. 1,1,1-Trichloroethane. ¹ 1,1,2-Trichloroethane Trichloroethylene. ¹ 1,1,2-Trichloro-1,2,2-trifluoroethane. 1,2,3-Trichloropropane. Acetonitrile Acetonitrile (low purity grade) Adiponitrile Lactonitrile solution (80% or less) 2-Methylglutaronitrile 2-Methylglutaronitrile with 2-Ethylsuccinonitrile (12% or less) Propionitrile Tallow alkyl nitrile. Carbon disulfide (alternately disulphide). Sulfolane (alternately Sulpholane). Alkyl (C7–C11) phenol poly(4–12) ethoxylates. Alkyl (C9–C15) phenyl propoxylate. Diethylene glycol. ¹ Diethylene glycol butyl ether Diethylene glycol dibutyl ether. Diethylene glycol diethyl ether. Diethylene glycol ethyl ether Diethylene glycol methyl ether Diethylene glycol n-hexyl ethe Diethylene glycol phenyl ether Diethylene glycol propyl ether Dipropylene glycol. Dipropylene glycol butyl ether Dipropylene glycol methyl ether 2-Ethoxyethanol. Ethoxy triglycol (crude). Ethylene glycol dibutyl ether. Ethylene glycol monoalkyl ethers: Ethylene glycol butyl ether. Ethylene glycol tert-butyl ether. Ethylene glycol ethyl ether. Ethylene glycol hexyl ether. Ethylene glycol isopropyl ether. Ethylene glycol methyl butyl ether. Ethylene glycol methyl ether. Ethylene glycol propyl ether.
37. Nitriles	
38. Carbon Disulfide (Alternately Disulfide).	
39. Sulfolane (Alternately Sulfolane).	
40. Glycol Ethers	

Group	Cargo
	Ethylene glycol n-propyl ether. Ethylene glycol phenyl ether. Ethylene glycol phenyl ether/Diethylene glycol phenyl ether mixture. Glucitol/glycerol blend propoxylated (containing less than 10% amines). Glycerol, ethoxylated. Glycerol polyalkoxylate. Glycerol, propoxylated. Glycerol, propoxylated and ethoxylated. Glycerol/Sucrose blend propoxylated and ethoxylated. alpha-Hydro-omega-hydroxytetradeca (oxytetramethylene). Methoxy triglycol. Nonyl phenol poly(4+)ethoxylates. Pentaethylene glycol methyl ether. Polyalkylene glycols/Polyalkylene glycol monoalkyl ethers mixtures. Poly(2–8)alkylene glycol monoalkyl (C1–C6) ethers: Diethylene glycol butyl ether. Diethylene glycol ethyl ether. Diethylene glycol n-hexyl ether. Diethylene glycol methyl ether. Diethylene glycol propyl ether. Dipropylene glycol butyl ether. Dipropylene glycol methyl ether. Polyalkylene glycol butyl ether. Polyethylene glycol monoalkyl ether. Polypropylene glycol methyl ether. Tetraethylene glycol methyl ether. Triethylene glycol butyl ether. Triethylene glycol ethyl ether. Triethylene glycol methyl ether. Tripropylene glycol methyl ether. Polyethylene glycol. Polyalkylene glycol butyl ether. Polyethylene glycol dimethyl ether. Poly (ethylene glycol) methylbutenyl ether (molecular weight >1000). Polypropylene glycol. Poly (tetramethylene ether) glycols (molecular weight 950–1050). Polytetramethylene ether glycol. Propylene glycol monoalkyl ethers: n-Propoxypropanol. Propylene glycol n-butyl ether. Propylene glycol ethyl ether. Propylene glycol methyl ether. Propylene glycol propyl ether. Propylene glycol phenyl ether. Tetraethylene glycol. Triethylene glycol. Triethylene glycol butyl ether mixture. Triethylene glycol ether mixture. Tripropylene glycol. 41. Ethers Alcohol (C12–C13, branched and linear) poly (4–8) propoxy sulfates (alternately sulphates), sodium salt 25–30% solution. Alkaryl polyethers (C9–C20). tert-Amyl methyl ether. n-Butyl ether. Dichloroethyl ether. 2,2'-Dichloroisopropyl ether. Diethyl ether. Dimethyl ether. Dimethyl furan. 1,4-Dioxane. Diphenyl ether. Diphenyl ether/Diphenyl phenyl ether mixture. Ethyl tert-butyl ether. ¹ Isopropyl ether. Long chain alkaryl polyether (C11-C20). Methyl-tert-butyl ether. ¹ Methyl tert-pentyl ether. Polyether, borated. Polyether (molecular weight 1350+). Polyether polyols. Poly(oxyalkylene) alkenyl ether (molecular weight >1000). Polyoxybutylene alcohol. Propyl ether. Tetrahydrofuran.

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Group	Cargo
42. Nitrocompounds	1,3,5-Trioxane. o-Chloronitrobenzene Dinitrotoluene (molten). Nitrobenzene. o-Nitrochlorobenzene. Nitroethane Nitroethane (80%)/Nitropropane (20%). Nitroethane/1-Nitropropane (each 15% or more) mixture. Nitrophenol (mixed isomers). Nitropropane (60%)/Nitroethane (40%) mixtures. 1- or 2-Nitropropane. o- or p-Nitrotoluenes. Alkyl (C8–C10) polyglucoside solution (65% or less).
43. Miscellaneous Water Solutions.	Alkyl (C8–C10)/(C12–C14):(40% or less/60% or more) polyglucoside solution (55% or less). Alkyl (C8–C10)/(C12–C14):(50%/50%) polyglucoside solution (55% or less). Alkyl (C8–C10)/(C12–C14):(60% or more/40% or less) polyglucoside solution (55% or less) Alkyl (C12–C14) polyglucoside solution (55% or less). Aluminum sulfate (alternately Aluminium sulphate) solution. ¹ 2-Amino-2-hydroxymethyl-1,3-propanediol solution Ammonium bisulfite (alternately bisulphite) solution (70% or less). ¹ Ammonium chloride solution (less than 25%). Ammonium polyphosphate solution Ammonium sulfate (alternately sulphate) solution. Ammonium sulfate (alternately sulphate) solution (20% or less). Ammonium thiosulfate (alternately thiosulphate) solution (60% or less). Apple juice. Caramel solutions Cesium formate solution. Clay slurry Coal slurry Corn syrup Dextrose solution 2,4-Dichlorophenoxyacetic acid, Diethanolamine salt solution 2,4-Dichlorophenoxyacetic acid, Trisopropanolamine salt solution. ¹ Diethylenetriaminepentaacetic acid, pentasodium salt solution. Dodecyl diphenyl ether disulfonate (alternately disulphonate) solution. Drilling brines (containing Calcium, Potassium, or Sodium salts). Drilling brines (containing Zinc salts). Drilling brines, including: Calcium bromide solution, Calcium chloride solution, and Sodium chloride solution. Drilling mud (low toxicity) (if non-flammable or non-combustible). Ethylenediaminetetracetic acid/tetrasodium salt solution. Ethylene-Vinyl acetate copolymer (emulsion). Ferric hydroxyethylethylenediaminetriacetic acid, trisodium salt solution. ¹ Fish solubles (water-based fish meal extracts). Fructose solution Fumaric adduct of Rosin, water dispersion Glucose solution. Hexamethylenediamine adipate (50% in water). Hexamethylenediamine adipate solution N-(Hydroxyethyl)ethylenediamine triacetic acid, trisodium salt solution. Kaolin clay solution. Kaolin slurry. Latex, liquid synthetic. Latex: Carboxylated Styrene-Butadiene copolymer; Styrene-butadiene rubber. Lauryl polyglucose. Lauryl polyglucose (50% or less). Lignin liquor Ligninsulfonic (alternately Ligninsulphonic) acid, magnesium salt solution. Ligninsulfonic (alternately Ligninsulphonic) acid, sodium salt solution. Liquid Streptomyces solubles L-Lysine solution (60% or less) Magnesium nitrate solution (66.7%) Microsilica slurry. Milk. N-Methylglucamine solution N-Methylglucamine solution (70% or less) Naphthenic acid, sodium salt solution Pentasodium salt of Diethylenetriaminepentaacetic acid solution. Phenol solutions (2% or less). Polyacrylic acid solution (40% or less) Potassium chloride solution Potassium chloride solution (10% or more).

Group	Cargo
	Potassium chloride solution (less than 26%) Potassium thiosulfate (alternately thiosulphate) (50% or less). Rosin soap (disproportionated) solution Sewage sludge. Silica slurry. Sludge, treated. Sodium bromide solution (less than 50%) Sodium hydrogen sulfite (alternately sulphite) solution (45% or less). Sodium lignosulfonate (alternately lignosulphonate) solution. <i>Sodium naphthalene sulfonate solution (40% or less), see Naphthalene sulphonic acid, sodium salt solution (40% or less).</i> <i>Sodium naphthenate solution, see Naphthenic acid, sodium salt solution.</i> Sodium poly(4+)acrylate solution. Sodium polyacrylate solution. ¹ Sodium salt of Ferric hydroxyethylethylenediaminetriacetic acid solution. Sodium silicate solution. ¹ Sodium sulfide (alternately sulphide) solution (15% or less). Sodium sulfite (alternately sulphite) solution (25% or less). Sodium tartrates/Sodium succinates solution. Sulfonated (alternately Sulphonated) polyacrylate solution. ¹ Tall oil soap (disproportionated) solution Tetrasodium salt of ethylenediaminetetraacetic acid solution. Titanium dioxide slurry Triisopropanolamine salt of 2,4-Dichlorophenoxyacetic acid solution Trisodium salt of N-(Hydroxyethyl)ethylenediaminetriacetic acid solution. Urea solution. Urea/Ammonium nitrate solution (containing less than 1% free Ammonia). Urea/Ammonium phosphate solution. Vegetable protein solution (hydrolyzed). Water.

Notes:

¹ See Appendix I to 46 CFR part 150 (Exceptions to the Chart).² See Appendix I to 46 CFR part 150 (Exceptions to the Chart).

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 USCG-2013-0423, 85 FR 21700, Apr. 17, 2020; 85
 FR 27309, May 8, 2020; 86 FR 42740, Aug. 5,
 2021]

APPENDIX I TO PART 150—EXCEPTIONS TO THE CHART

(a) The binary combinations listed below have been tested as prescribed in Appendix III to part 150 and found not to be dangerously reactive. These combinations are exceptions to Figure 1 of part 150 (Compatibility Chart) and may be stowed in adjacent tanks.

Member of reactive group	Compatible with
Acetone (18)	Diethylenetriamine (7).
Acetone cyanohydrin (0)	Acetic acid (4).
	Acrylates (14).
	Alcohols, Glycols (20).
	Aldehydes (19).
	Aromatic Hydrocarbon Mixtures (32).
	Carbon Disulfide (alternately Disulphide) (38).
	Esters (34).
	Ethers (41).
	Glycol Ethers (40).
	Halogenated Hydrocarbons (36).
	Ketones (18).
	Miscellaneous Hydrocarbon Mixtures (33).
	Nitriles (37).
	Nitrocompounds (42).
	Olefins (30).
	Paraffins (31).
	Phenols, Cresols (21).
	Substituted Alkyls (15).
	Sulfolane (alternately Sulpholane) (39).
	Vinyl Acetate (13).
	Vinyl Halides (35).
Acrylonitrile (15)	Triethanolamine (8).

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Member of reactive group	Compatible with
1,3-Butylene glycol (20)	Morpholine (7).
1,4-Butylene glycol (20)	Ethylamine (7).
gamma-Butyrolactone (0)	Triethanolamine (8).
Caustic potash, 50% or less (5)	N-Methyl-2-pyrrolidone (9).
	Bio-fuel blends of Gasoline and Ethyl alcohol (>25% but <99% by volume) (20).
	n-Butyl alcohol (20).
	Cetyl alcohol (Hexadecanol) (20).
	Ethyl alcohol (20).
	Ethylene glycol (20).
	Isobutyl alcohol (20).
	Isooctyl alcohol (20).
	Isopropyl alcohol (20).
	Methyl alcohol (20).
	Propylene glycol (20).
Caustic soda, 50% or less (5)	Acrylonitrile/Styrene copolymer dispersion in Polyether polyol (20).
	Alcohol (C12–C16) poly(1–6)ethoxylates (20).
	Bio-fuel blends of Gasoline and Ethyl alcohol (>25% but <99% by volume) (20).
	Butyl alcohol (20).
	tert-Butyl alcohol, Methanol mixtures (20).
	Cetyl alcohol (Hexadecanol) (20).
	Decyl alcohol (20).
	Diacetone alcohol (20).
	Diethylene glycol (40).
	Dodecyl alcohol (20).
	Ethyl alcohol (20).
	Ethyl alcohol (40% whiskey) (20).
	Ethylene glycol (20).
	Ethylene glycol, Diethylene glycol mixture (20).
	Ethyl hexanol (Octyl alcohol) (20).
	Isobutyl alcohol (20).
	Isodecyl alcohol (20).
	Isononyl alcohol (20).
	Isopropyl alcohol (20).
	Isotridecanol (20).
	Methyl alcohol (20).
	Nonyl alcohol (20).
	Propyl alcohol (20).
	Propylene glycol (20).
Dimethyl disulfide (alternately disulfide) (0)	Sodium chlorate solution (0).
	Acrylates (14).
	Alcohols, Glycols (20).
	Aromatic Hydrocarbon Mixtures (32).
	Esters (34).
	Halogenated Hydrocarbons (36).
	Ketones (18).
	Methyl tert-butyl ether (41).
	Olefins (30).
	Organic Acids (4).
	Organic Anhydrides (11).
	Paraffins (31).
	Phenols, Cresols (21).
Diphenylmethane diisocyanate (12)	2,2-Dimethylpropane-1,3-diol (20).
	Polypropylene glycol (40).
tert-Dodecanethiol (20)	Caustic soda solution (50%) (5).
	Isopropylamine solution (70%) (7).
	Polymethylene polyphenyl isocyanate (12).
	Toluene diisocyanate (12).
Dodecyl and Tetradecylamine mixture (7)	Tall oil, fatty acid (34).
Ethylenediamine (7)	Bio-fuel blends of Gasoline and Ethyl alcohol (>25% but <99% by volume) (20).
	Butyl alcohol (20).
	tert-Butyl alcohol (20).
	Butylene glycol (20).
	Creosote (21).
	Diethylene glycol (40).
	Diisobutyl ketone (18).
	Ethyl alcohol (20).
	Ethylene glycol (20).
	Ethyl hexanol (20).
	Fatty alcohols (C12–C14)(20).
	Glycerine (20).

Member of reactive group	Compatible with
Lactic acid (0)	Isononyl alcohol (20). Isophorone (18). Methyl butyl ketone (18). Methyl ethyl ketone (18). Methyl isobutyl ketone (18). Propyl alcohol (20). Propylene glycol (20). Acetic acid (4). Benzene (32). Ethanol (20). Polypropylene glycol (40). Vinyl acetate (13). Hexane (31).
Oleum (0)	Dichloromethane (36). Perchloroethylene (36). Diethylenetriamine (7). Polyethylene polyamines (7). Triethylenetetramine (7). Methyl alcohol (20).
1,2-Propylene glycol (20)	Acetone (18). n-Butyl alcohol (20). Ethyl acetate (34). 1-Hexene (30). Methyl alcohol (20). Octene (all isomers) (30). Phosphoric acid (1). Isopropyl alcohol (20).
Sodium cresylate as Cresylate spent caustic (5)	Methyl alcohol (20).
Sodium dichromate solution (70% or less) (0)	1,2-Dichloropropane (36). Chlorobenzene (36). Cyclohexanone (18). Cyclohexanone, Cyclohexanol mixtures (18). Diethanolamine (8). Diisononyl phthalate (34). Dimethylformamide (10). Ethyl alcohol (20). Ethylene glycol (20). Furfuryl alcohol (20). Heptene (all isomers) (30). Isobutyl alcohol (20). Isopropyl alcohol (20). Lubricating oil (33). Methyl ethyl ketone (18). Nonene (all isomers) (30). Nonyl alcohol (all isomers) (20). Octene (all isomers) (30). Perchloroethylene (36). Polyisobutenamine in aliphatic (C10–C14) solvent (7). o-Toluidine (9). Xylene (32).
Sulfuric (alternately Sulphuric) acid (2)	Coconut oil (34). Coconut oil, fatty acid (34). Palm oil (34). Soyabean oil (34). Tallow (34).
Sulfuric (alternately Sulphuric) acid, 98% or less (2)	Choice white grease tallow (34).
Urea/Ammonium Nitrate solution (containing less than 1% free Ammonia) (43).	Magnesium chloride solutions (0).

(b) The binary combinations listed below have been determined to be dangerously reactive, based either on data obtained in the literature or on laboratory testing that has been carried out in accordance with procedures prescribed in Appendix III. These combinations are exceptions to Figure 1 of part 150 (Compatibility Chart) and may not be stowed in adjacent tanks.

Acetone cyanohydrin (0) is not compatible with Groups 1–12, 16, 17 or 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.

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

Alkylbenzene sulfonic (alternately sulphonic) acid (less than 4%) (0) is not compatible with Groups 1–3, 5–9, 15, 16, 18, 19, 30, 34, 37, or strong oxidizers.

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

Aluminum sulfate (alternately Aluminium sulphate) solution (43) is not compatible with Groups 5–11.

Ammonium bisulfite (alternately bisulphite) solution (70% or less) (43) is not compatible with Groups 1 or 3–5.

Benzenesulfonyl (alternately Benzenesulphonyl) chloride (0) is not compatible with Groups 5–7, or 43.

Butylene glycol (20) is not compatible with Caustic soda solution (5).

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

C9 Resinfeed (DSM) (32) is not compatible with Group 2, Sulfuric (alternately Sulphuric) Acids.

Carbon tetrachloride (36) is not compatible with Tetraethylenepentamine or Triethylenetetramine, both Group 7, Aliphatic Amines.

Catoxid feedstock (36) is not compatible with Groups 1–5, or 12.

Caustic soda solution (5) is not compatible with Butylene glycol (20).

1-(4-Chlorophenyl)-4,4-dimethyl pentan-3-one (18) is not compatible with Group 5, Caustics, or Group 10, Amides.

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, Dimethylamine salt solution (70% or less) (0) is not compatible with Groups 1–5, 11, 12, or 16.

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

Diethylenetriamine (7) is not compatible with 1,2,3-Trichloropropane, Group 36, Halogenated Hydrocarbons.

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

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

Dodecylbenzenesulfonic (alternately Dodecylbenzenesulphonic) acid (0) is not compatible with oxidizing agents or Groups 1–3, 5–9, 15, 16, 18, 19, 30, 34, or 37.

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

Ethylenediamine (7) and Ethyleneamine EA 1302 (7) are not compatible with either

Ethylene dichloride (36) or 1,2,3-Trichloropropane (36).

Ethylene dichloride (36) is not compatible with Ethylenediamine (7) or Ethyleneamine EA 1302 (7).

Ethylidene norbornene (30) is not compatible with Groups 1–3 or 5–8.

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

Fatty acids, essentially linear (C6–C18) 2-ethylhexyl ester (34) is not compatible with Group 3, Nitric Acids.

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

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

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

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

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

1,6-Hexanediol distillation overheads (4) is not compatible with Group 3, Nitric Acids, or Group 9, Aromatic Amines.

2-Hydroxyethyl acrylate (14) is not compatible with Groups 5, 6, or 12.

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

Lactic acid (0) is not compatible with Caustic soda solution (5).

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

Nitroethane/1-Nitropropane (each 15% or more) mixture (42) is not compatible with Group 7, Aliphatic Amines; Group 8, Alkanolamines; or Group 9, Aromatic Amines.

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

Nitropropane (60%)/Nitroethane (40%) mixture (42) is not compatible with Group 7, Aliphatic Amines; Group 8, Alkanolamines; or Group 9, Aromatic Amines.

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

Phthalate-based polyester polyol (0) is not compatible with Groups 2, 3, 5, 7, or 12.

Polyglycerine, Sodium salts solution (containing less than 3% sodium hydroxide) (20) is not compatible with Groups 1, 4, 11, 16, 17, 19, 21, or 22.

Propylene, Propane, MAPP gas mixture (containing 12% or less MAPP gas) (30) is not

compatible with Group 1, Non-Oxidizing Mineral Acids, Group 36, Halogenated Hydrocarbons, or with nitrogen dioxide, oxidizing agents, or molten sulfur (alternately sulphur) (0).

Sodium acetate, Glycol, Water mixture (containing 1% or less Sodium hydroxide) (5) 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, or 20.

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

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

Sodium hydrosulfide (alternately sulphide) (6% or less)/Sodium carbonate solution (3% or less) (0) is not compatible with Group 6, Ammonia, or Group 7, Aliphatic Amines.

Sodium hydrosulfide (alternately hydrosulphide) solution (45% or less) (5) is not compatible with Group 6, Ammonia, or Group 7, Aliphatic Amines.

Sodium hydrosulfide (alternately hydrosulphide), Ammonium sulfide (alternately sulphide) solution (5) is not compatible with Group 6, Ammonia, or Group 7, Aliphatic Amines.

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

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

Sodium sulfide, hydrosulfide (alternately sulphide, hydrosulphide) solution (0) is not compatible with Group 6, Ammonia, or Group 7, Aliphatic Amines.

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

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

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

Tall oil fatty acid (Resin acids less than 20%) (34) is not compatible with Group 5, Caustics.

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

Tetraethylenepentamine (7) is not compatible with Carbon tetrachloride, Group 36, Halogenated Hydrocarbons.

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

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

1,2,3-Trichloropropane (36) is not compatible with Diethylenetriamine, Ethylenediamine, Ethyleanamine EA 1302, or Triethylenetetramine, all Group 7, Aliphatic Amines.

Triethylenetetramine (7) is not compatible with Carbon tetrachloride, or 1,2,3-

Trichloropropane, both Group 36, Halogenated Hydrocarbons.

Triethyl phosphite (34) is not compatible with Group 1, Non-Oxidizing Mineral Acids, or Group 4, Organic Acids.

Trimethyl phosphite (34) is not compatible with Group 1, Non-Oxidizing Mineral Acids, or Group 4, Organic Acids.

1,3,5-Trioxane (41) is not compatible with Group 1, Non-Oxidizing Mineral Acids, or Group 4, Organic Acids.

Vinyl neodecanoate (13) is not compatible with Group 5, Caustics.

[78 FR 50205, Aug. 16, 2013, as amended at USCG-2013-0423, 85 FR 21700, Apr. 17, 2020; 86 FR 42741, Aug. 5, 2021]

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 information:

(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.)

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.

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

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 capillary 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 temperature. 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 fluorinated 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 ref-

erence 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 (CG-ENG-5), Attn: Hazardous Materials Division, U.S. Coast Guard Stop 7509, 2703 Martin Luther King Jr. Avenue SE., Washington, DC 20593-7509.

[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, 1988; CGD 96-041, 61 FR 50731, Sept. 27, 1996; USCG-2012-0832, 77 FR 59783, Oct. 1, 2012; USCG-2013-0671, 78 FR 60155, Sept. 30, 2013; USCG-2014-0688, 79 FR 58284, Sept. 29, 2014]

APPENDIX IV TO PART 150—DATA SHEET

CHEMICAL REACTIVITY TEST DATA

Chemicals: A _____ B _____

Synonyms: _____

Formula: _____

Description of Products:

Manufacturer

Sample Source

Composition (by weight %)

Inhibitors or Stabilizers

Deviations from Prescribed Method
(including special equipment)

A	B

Step Number 1

Products miscible? _____ Gases evolved? _____

Other Observations:

Step Number 2

A/B Ratio:

Initial Temperature

Maximum ΔT

Time to reach Max. Temp.

Products miscible?

Gases evolved?

Other Observations

2/18	10/10	18/2

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: _____

**PART 151—BARGES CARRYING
BULK LIQUID HAZARDOUS MATERIAL CARGOES****Subpart 151.01—General**

Sec.

- 151.01-1 Applicability.
- 151.01-2 Incorporation by reference.
- 151.01-3 [Reserved]
- 151.01-5 [Reserved]
- 151.01-10 Application of vessel inspection regulations.
- 151.01-15 Dangerous cargoes not specifically named.
- 151.01-20 Use of minimum requirements.
- 151.01-25 Existing barges.
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- 151.01-35 Right of appeal.

Subpart 151.02—Equivalents

- 151.02-1 Conditions under which equivalents may be used.
- 151.02-5 Design of unmanned barges.

Subpart 151.03—Definitions

- 151.03-1 Definitions of terms.
- 151.03-3 Angle of downflooding.
- 151.03-5 Approved.
- 151.03-7 Barge.
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- 151.03-13 Cofferdam.
- 151.03-15 Commandant.
- 151.03-17 Compatible.
- 151.03-19 Environment.
- 151.03-21 Filling density.
- 151.03-23 Flame arrestor.
- 151.03-25 Flame screen.