

Chemical Resistance of PE Based Glass Fiber-Reinforced Plastic

Chemical substance	Concentration	isophthalic polyester
A		
Acetaldehyde	100	N.R.
Acetic acid	10	40
Acetic acid	15	N.R.
Acetic acid	25	N.R.
Acetic acid	40	N.R.
Acetic acid	50	N.R.
Acetic acid	75	N.R.
Acetic acid	80	N.R.
Acetic acid	85	N.R.
Acetic acid	100	N.R.
Acetic acid glacial	100	N.R.
Acetic anhydride	100	N.R.
Acetic : Nitric acid : Chromic Oxide : H2O	3 : 5 : 3 : 89	-
Acetic : Sulfuric acid : H2O	20 : 10 : 70	-
Acetone	5	N.R.
Acetone	10	N.R.
Acetone	100	N.R.
Acetone : Methylene ketone : Methylisobutyl ketone : H2O	2 : 2 : 2 : 94	N.R.
Acetonitrile	all	N.R.
Acetyl acetone	20	-
Acetyl acetone	100	N.R.
Acetyl chloride	100	N.R.
Acrolein (= Acrylaldehyde)	20	-
Acrolein (= Acrylaldehyde)	100	N.R.
Acrylamide	50	N.R.
Acrylic acid	25	N.R.
Acrylic acid	100	N.R.
Acrylic Latex	all	-
Acrylonitrile	100	N.R.
Adipic acid	all	40
Adiponitrile	all	N.R.
Air	100	60
Alfol 810	100	-
Alkylaminopolyglycoether	all	25
Alkylaryl ammonium salt	all	25
Alkylaryl sulfonate salts	all	-
Alkylaryl sulfonic acid	all	-
Alkylbenzene ammonium salt	all	25
Alkylbenzene sulfonic acid	all	-

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Alkyl naphthalene sulfonic acid	all	-
Alkyl naphthol polyglycoether	all	25
Alkylol sulphates and salts	all	25
Alkylolakoxyolate	all	25
Alkyl ether phosphate	all	25
Alkyl ether sulphate	all	25
Alkyl phenol polyglycoether	all	25
Alkyl phenol polyglycoether and Salts sulphates	all	25
Alkyl sulfonate	all	-
Alkyl sulfonic acid and sulfonates	all	25
Allyl alcohol	100	N.R.
Allyl chloride	all	N.R.
Alpha methylstyrene	100	N.R.
Alum	all	-
Aluminium chloride	all	40
Aluminium chlorohydrate	all	-
Aluminium chlorohydroxide	50	-
Aluminium citrate	all	-
Aluminium fluoride	all	N.R.
Aluminium hydroxide	all	N.R.
Aluminium nitrate	all	40
Aluminium potassium sulphate	all	40
Aluminium sodium sulphate	all	40
Aluminium sulphate	all	40
Aluminium sulphate/ Acetic acid	all	-
Amino acids	all	-
Aminosulphonic acid	all	40
Ammonia (dry gas)	100	N.R.
Ammonia (wet gas)	100	N.R.
Ammonia, liquified gas	100	N.R.
Ammonium acetate	all	N.R.
Ammonium benzoate	all	-
Ammonium bicarbonate	4	N.R.
Ammonium bicarbonate	Sat'd	N.R.
Ammonium bifluoride	all	25
Ammonium bisulphide	all	N.R.
Ammonium bisulphite black Liquor		-
Ammonium bromate	all	40
Ammonium bromide	all	50
Ammonium carbonate	all	N.R.
Ammonium chloride	all	50
Ammonium citrate	all	N.R.
Ammonium fluoride	all	N.R.
Ammonium hydroxide (aq. ammonia)	1 (= 0.5% NH3)	N.R.

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Ammonium citrate	all	N.R.
Ammonium fluoride	all	N.R.
Ammonium hydroxide (aq. ammonia)	1 (= 0.5% NH ₃)	N.R.
Ammonium hydroxide (aq. ammonia)	5 (= 2.4% NH ₃)	N.R.
Ammonium hydroxide (aq. ammonia)	10 (= 5% NH ₃)	N.R.
Ammonium hydroxide (aq. ammonia)	41.2 (= 20% NH ₃)	N.R.
Ammonium hydroxide (aq. ammonia)	57.6 (= 28% NH ₃)	N.R.
Ammonium hydroxide (aq. ammonia)	61.7 (= 30% NH ₃)	N.R.
Ammonium lauryl sulphate	all	25
Ammonium lignosulphonate	50	-
Ammonium molybdate	all	N.R.
Ammonium nitrate	all	50
Ammonium oxalate	all	25
Ammonium pentaborate	all	25
Ammonium persulphate	all	N.R.
Ammonium phosphate, dibasic	1	50
Ammonium phosphate, dibasic	all	N.R.
Ammonium phosphate, monobasic	all	50
Ammonium polysulphide	all	N.R.
Ammonium sulphate	all	50
Ammonium sulphide	all	N.R.
Ammonium sulphite	all	N.R.
Ammonium thiocyanate	20	25
Ammonium thiocyanate	Sat'd	25
Ammonium thioglycolate	all	25
Ammonium thiosulphate	all	25
Amyl acetate (n-)	all	25
Amyl alcohol (sec-) (= pentanol, sec)	100	N.R.
Amyl alcohol (tert-) (= pentanol, tert)	100	N.R.
Amyl chloride	all	N.R.
Anaerobic sewage	-	-
Aniline	100	N.R.
Aniline	all	N.R.
Aniline hydrochloride	all	N.R.
Aniline sulphate	all	N.R.
Antimony pentachloride	all	N.R.
Antimony trichloride	all	40
Aqua regia (HCl : HNO ₃ = 3 : 1)	all	N.R.
Arsenic acid	all	-
Arsenious acid	all	-
B		
Barium acetate	all	40
Barium bromide	all	50
Barium carbonate	all	N.R.

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Barium chloride	all	50
Barium cyanide	all	N.R.
Barium hydroxide	Sat'd	N.R.
Barium nitrate	all	50
Barium sulphate	all	50
Barium sulphide	all	N.R.
Beer		-
Beet sugar liquor		-
Benzaldehyde	100	N.R.
Benzene	100	N.R.
Benzene	vapour	N.R.
Benzene sulfonic acid	25	N.R.
Benzene sulfonic acid	50	N.R.
Benzene sulfonic acid	Sat'd	N.R.
Benzene : Ethyl benzene	all	N.R.
Benzoic acid	all	40
Benzoquinones	100	-
Benzoyl benzoic acid (2-)	all	40
Benzoyl benzoic acid (4-)	all	40
Benzyl alcohol (= hydroxy toluene)	all	-
Benzyl chloride	100	N.R.
Benzyl chloride	all	N.R.
Benzyltrimethylammonium chloride	all	-
Biocides	all	-
Black Liquor (pulp mill)	all	N.R.
Bleach, chlorine dioxide, wet	Sat'd	N.R.
Bleach, chlorine water	Sat'd	N.R.
Bleach, chlorite	10	-
Bleach, hydrosulphite		-
Bleach, Lithium hypochlorite, pH > 11, active chlorine < 18%		N.R.
Bleach, Peroxide	Dil.	N.R.
Bleach, Sodium hypochlorite, pH > 11, active chlorine < 18%		N.R.
Bleach, Calcium hypochlorite, pH > 11 active chlorine < 18%		N.R.
Borax (sodium tetraborate)	all	40
Boric acid	all	40
Brine chlorinated (see Chlorinated Brine)		
Brine, salt	all	50
Bromine	liquid	N.R.
Bromine gas	dry	N.R.
Bromine gas	wet	N.R.
Bromine water	5	N.R.
Butanediol (1,2-)	all	40

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Chemical substance	Concentration	isophthalic polyester
Butanediol (1,3-)	all	40
Butanediol (1,4-)	all	40
Butanediol (2,3-)	all	40
Butanol (n-) (= butyl alcohol, n-)	100	N.R.
Butanol (n-) (= butyl alcohol, n-)	5	40
Butanol (sec-) (= butyl alcohol, sec-)	100	N.R.
Butanol (sec-) (= butyl alcohol, sec-)	5	40
Butanol (tert-) (= butyl alcohol, tert-)	20	40
Butanol (tert-) (= butyl alcohol, tert-)	100	N.R.
Butoxydiethylene glycol	100	N.R.
Butoxyethanol (2-)	20	N.R.
Butoxyethanol (2-)	100	N.R.
Butoxyethoxyethanol (2,2-)	100	N.R.
Butyl acetate (n-)	100	N.R.
Butyl acetate (sec-)	100	N.R.
Butyl acetate (tert-)	100	N.R.
Butyl acrylate	100	N.R.
Butyl amine (n-)	40	N.R.
Butyl amine (n-)	100	N.R.
Butyl amine (sec-)	40	N.R.
Butyl amine (sec-)	100	N.R.
Butyl amine (tert-)	40	N.R.
Butyl amine (tert-)	100	N.R.
Butyl benzoate	100	N.R.
Butyl benzyl phthalate	100	25
Butyl carbitol	100	N.R.
Butyl cellosolve	100	N.R.
Butyl diglycol	100	N.R.
Butyl stearate (5% in mineral spirits)		-
Butylaldehyde	100	N.R.
Butylene glycol	100	50
Butylene glycol	all	50
Butylene oxide	100	N.R.
Butyric acid	50	25
Butyric acid	85	25
Butyric acid	100	N.R.
C		
Cadmium chloride	all	25
Calcium bisulphite	all	-
Calcium bromide	all	50
Calcium carbonate (lime stone slurry)	Sat'd	N.R.
Calcium chlorate	all	40
Calcium chloride	all	50
Calcium hydroxide (lime)	Sat'd	N.R.

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Chemical substance	Concentration	isophthalic polyester
Calcium hypochlorite, pH > 11, active chlorine < 18%		N.R.
Calcium nitrate	all	50
Calcium sulphate	all	50
Calcium sulphite	all	-
Calgon (sodium hexamethaphosphate)	all	-
Cane sugar liquor & sweet water	all	-
Capric acid	100	-
Caprolactam	50	-
Caprolactam	100	N.R.
Caprolactone	100	N.R.
Caprylic acid	100	50
Caprylic acid	all	50
Carbolic acid	1	N.R.
Carbolic acid	2	N.R.
Carbolic acid	5	N.R.
Carbolic acid	> 5	N.R.
Carbon dioxide gas, dry		60
Carbon disulphide	100	N.R.
Carbon monoxide gas, dry		60
Carbon tetrachloride	100	25
Carbonic acid	all	40
Carbowax, polyethylene glycol	100	40
Carboxy ethylcellulose	10	-
Carboxy methylcellulose	all	-
Cashew nut oil	100	50
Castor oil	100	60
Caustic (see Sodium hydroxide)		
Cereclor 42, S-52	all	40
Chloric acid	conc	N.R.
Chlorinated brine, pH < 2.5	Sat'd Cl ₂	N.R.
Chlorinated brine, pH 2.5 - 9	Sat'd Cl ₂	N.R.
Chlorinated brine, pH > 9 (Hypochlorite)	Sat'd Cl ₂	N.R.
Chlorinated lime	all	N.R.
Chlorinated waxes	100	40
Chlorinated waxes	all	40
Chlorine	liquid	N.R.
Chlorine dioxide, dry	all	N.R.
Chlorine dioxide, wet	Sat'd	N.R.
Chlorine gas, dry	100	N.R.
Chlorine gas, wet	100	N.R.
Chlorin/Hydrochloric acid, wet		N.R.
Chloroacetic acid	1	-
Chloroacetic acid	25	-
Chloroacetic acid	50	N.R.

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Chloroacetic acid	80	N.R.
Chlorobenzene	100	N.R.
Chlorocholinchloride	75	40
Chloroethylene (1,1,1-)	100	N.R.
Chloroform	100	N.R.
Chloroparaffin	100	40
Chloropropionic acid (-2)	50	N.R.
Chloropropionic acid (-2)	all	N.R.
Chloropropionic acid (-3)	50	N.R.
Chloropropionic acid (-3)	all	N.R.
Chloropyridine (tetra)	100	N.R.
Chlorosulphonic acid	10	N.R.
Chlorosulphonic acid	100	N.R.
Chlorotoluene	100	N.R.
Chrome plating solution	-	N.R.
Chrome plating solution with sulphuric acid	-	N.R.
Chromic acid	1	30
Chromic acid	5	30
Chromic acid	10	30
Chromic acid	20	N.R.
Chromic acid	30	N.R.
Chromic sulphate	all	40
Chromic/Sulphuric acid	2.5 : 13.7	N.R.
Chromic/Sulphuric acid, maximum concentration mixture	10	-
Chromous sulphate	all	-
Cinnamaldehyde	100	N.R.
Citric acid	50	40
Citric acid	100	N.R.
Cobalt chloride	all	40
Cobalt citrate	all	40
Cobalt nitrate	all	40
Coconut fatty acid	100	60
Coconut oil	100	60
Cod liver oil	100	60
Copper acetate	all	40
Copper ammonium chloride	all	40
Copper cyanide	all	N.R.
Copper (I) chloride	all	40
Copper (I) nitrate	all	40
Copper (I) sulphate	all	40
Copper (II) chloride	all	40
Copper (II) nitrate	all	40
Copper (II) sulphate	all	40
Corn oil	100	60

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Corn starch slurry	all	40
Corn steep liquor	all	40
Corn sugar	all	40
Corn syrup	all	40
Cottonseed oil	100	60
Cresol (m-)	10	N.R.
Cresol (o-)	10	N.R.
Cresol (p-)	10	N.R.
Cresylic acids	all	N.R.
Crudeoil, sour and sweet	100	40
Cyclohexane	100	N.R.
Cyclohexanol	100	N.R.
Cyclohexanone	100	N.R.
Cyclohexylamine	100	N.R.
D		
Decalin	all	N.R.
Decanes	100	40
Decanol (decyl alcohol)	100	40
Decenes	100	40
Deionised water	100	40
Demineralised water	100	40
Detergents, sulphonated	all	N.R.
Di 2-ethylhexyl phosphoric acid (in kerosene)	20	-
Diallylphthalate	100	25
Diallylphthalate	all	25
Diammonium phosphate	all	-
Dibromophenol	100	N.R.
Dibromopropanol	100	N.R.
Dibromopropanol	all	N.R.
Dibutyl ether	100	N.R.
Dibutyl phthalate	100	25
Dibutyl phthalate	all	25
Dibutyl sebacate	all	25
Dibutylamine (n-)	100	N.R.
Dichloroacetic acid	80	N.R.
Dichlorobenzene	100	N.R.
Dichlorobenzene (m-)	100	N.R.
Dichlorobenzene (o-)	100	N.R.
Dichlorobenzene (p-)	100	N.R.
Dichloroethane (-1,1)	100	N.R.
Dichloroethane (-1,2) (= dichloroethylene)	100	N.R.
Dichloroethene (= dichloroethylene)	100	N.R.
Dichloromethane	0,2	N.R.
Dichloromethane (= Methylene chloride)	100	N.R.

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Dichloropropane (-1,1)	100	N.R.
Dichloropropane (-1,2)	100	N.R.
Dichloropropene	100	N.R.
Dichloropropionic acid	100	N.R.
Dichlorotoluene	100	N.R.
Diesel fuel	see fuel	
Diesel fuel, no aromatics, no methanol	see fuel	
Diethanol amine	100	N.R.
Diethyl amine	40	N.R.
Diethyl amine	100	N.R.
Diethyl aniline N,N	100	N.R.
Diethyl benzene	100	N.R.
Diethyl carbonate	100	N.R.
Diethyl ether	100	N.R.
Diethyl formamide	100	N.R.
Diethyl ketone	100	N.R.
Diethyl maleate	100	N.R.
Diethyl maleate	all	N.R.
Diethyl phtalate	100	25
Diethyl sulphate	100	N.R.
Diethylene glycol	100	50
Diethylene glycol	all	50
Diethylene glycol dimethyl ether	100	N.R.
Diethylene glycol monobutyl ether	100	N.R.
Diethylenetriamine	100	N.R.
Diisobutyl ketone	100	N.R.
Diisobutyl phthalate	100	25
Diisobutylene	100	N.R.
Diisopropanol amine	100	N.R.
Diisopropyl amine	all	N.R.
Dimethyl acetamide	100	N.R.
Dimethyl amine (DMA)	100	N.R.
Dimethyl formamide (DMF)	100	N.R.
Dimethyl phthalate	100	N.R.
Dimethyl sulphate	100	N.R.
Dimethyl sulphide	100	N.R.
Dimethyl sulphoxide	20	N.R.
Dimethyl sulphoxide	100	N.R.
Dimethyl aniline (= xylidine)	100	N.R.
Dimethyl morpholine (2,6-)	100	-
Dinonyl phthalate	100	40
Dioctyl phthalate	100	40
Dioctylsulfosuccinate sodium salt	all	25
Dioxane (1,4-)	all	N.R.

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Diphenyl ether	100	N.R.
Dipiperazine sulphate solution	all	-
Dipotassium hydrogenphosphate	0,5	40
Dipotassium hydrogenphosphate	10	N.R.
Dipropylamine (n-)	50	N.R.
Dipropylene glycol	100	40
Dipropylene glycol	all	40
Disodium hydrogenphosphate	0.5	40
Disodium hydrogenphosphate	10	N.R.
Dispersions, copolymer vinyl acetate/ vinyl versatate	50	-
Divinyl benzene	100	N.R.
Dodecanol	100	40
Dodecene	100	40
Dodecyl benzene sulphonic acid	all	25
Dodecyl guanidine hydrochloride	all	40
Dowanol DB glycoether	all	N.R.
E		
Embalming fluid	100	-
Epichlorohydrin	100	N.R.
Epoxidised Vegetable oils	100	40
Epoxidized Castor oil	100	50
Epoxidized Soybean oil	100	50
Epoxy Resins - Epikote® 828	100	-
Esters, Fatty acid	100	40
Ethanol (= ethyl alcohol)	1	40
Ethanol (= ethyl alcohol)	10	40
Ethanol (= ethyl alcohol)	20	40
Ethanol (= ethyl alcohol)	50	N.R.
Ethanol (= ethyl alcohol)	96	N.R.
Ethanol (= ethyl alcohol)	100	N.R.
Ethanol amine	100	N.R.
Ethyl acetate	100	N.R.
Ethyl acrylate	100	N.R.
Ethyl amine	40	N.R.
Ethyl benzene	100	N.R.
Ethyl bromide	100	N.R.
Ethyl chloride	100	N.R.
Ethyl chlorohydrin	100	N.R.
Ethyl ether	100	N.R.
Ethyl sulphate	100	N.R.
Ethylene chloride (= 1,2-dichloroethane)	100	N.R.
Ethylene chlorohydrin	100	N.R.
Ethylene diaminetetraacetic acid, EDTA	all	N.R.
Ethylene dibromide	100	N.R.

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Ethylene dichloride	100	N.R.
Ethylene glycol	100	40
Ethylene glycol	all	40
Ethylene glycol monobutyl ether	100	N.R.
Ethylene oxide	100	N.R.
Ethylhexanol (2-)	all	N.R.
Ethylhexylacrylat (-2)	100	N.R.
Eucalyptus oil	100	40
F		
Fatty acid esters	100	40
Fatty acids (C12 or higher)	all	40
Ferric acetate	all	40
Ferric chloride (III)	all	40
Ferric chloride : Ferric sulphate	all	40
Ferric chloride : Ferrous chloride	5.0 : 20	40
Ferric chloride : Ferrous chloride : Hydrochloric acid	48 : 0.2 : 0.2	N.R.
Ferric chloride : Hydrochloric acid	29 : 18	N.R.
Ferric nitrate	all	40
Ferric sulphate	all	40
Ferric sulphate : Sulphuric acid	Sat'd : 10	-
Ferrous chloride (II)	all	40
Ferrous chloride : Ferric chloride	20 : 5.0	40
Ferrous chloride : Hydrochloric acid	see HCl	
Ferrous nitrate	all	40
Ferrous sulphate	all	40
Ferrous sulphate : Magnesium oxide		-
Fertiliser Urea		-
Fertiliser, 8-8-8		N.R.
Fertilizer, Urea ammonium Continued 35.4% Urea		25
Flue gas, dry	100	-
Flue gas, wet	100	-
Flue gas, wet (traces HCL)	100	-
Flue gas, wet (traces HF)	100	-
Fluoboric acid	10	N.R.
Fluoboric acid	15	N.R.
Fluoboric acid	25	N.R.
Fluoboric acid	Sat'd	N.R.
Fluoride salts : Hydrochloric acid	30 : 10	N.R.
Fluorine gas		N.R.
Fluorocarbon 11	100	N.R.
Fluosilicic acid	10	N.R.
Fluosilicic acid	25	N.R.
Fluosilicic acid	35	N.R.
Fluosilicic acid	fumes	N.R.

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Formaldehyde	50	N.R.
Formamide	100	N.R.
Formic acid	10	30
Formic acid	30	N.R.
Formic acid	50	N.R.
Formic acid	85	N.R.
Formic acid	98	N.R.
FREON 11	100	N.R.
Fuel = Biodiesel (max 5.75% methylester)	100	40
Fuel = Biodiesel (no methanol)	100	-
Fuel = Diesel	100	-
Fuel = Diesel, no aromatics, no methanol	100	40
Fuel = Gasoline leaded	100	-
Fuel = Gasoline no lead, no methanol	100	-
Fuel = Gasoline : MTBE	85 : 15	-
Fuel = Jet fuel, general	100	-
Fuel = Kerosine	100	-
Fuel C (50 : 50 isooctane : toluene)	100	-
Fuel C : MTBE	85 : 15	-
Fuel oil, no aromatics, no methanol	100	25
Furfural	5	N.R.
Furfural	20	N.R.
Furfural	100	N.R.
Furfuryl alcohol	100	N.R.
G		
Gallic acid	all	25
Gasoline fuel	see fuel	-
Gluconic acid	50	-
Glucose	all	40
Glutaraldehyde	50	N.R.
Glutaric acid	all	40
Glycerine	100	40
Glycerine triacetate	all	-
Glycolic acid	35	-
Glycolic acid	70	N.R.
Glyme		N.R.
Glyoxal	40	N.R.
Green liquor (pulp mill)		N.R.
Gypsum slurry, phosphoric acid, Fluorine water		-
H		
Heavy aromatic naphtha (HAN)	100	-
Heptane	100	40
Heptene	100	40
Hexachlorocyclopentadiene	100	N.R.

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Hexachloroethane	100	N.R.
Hexamethylenetetramine	60	N.R.
Hexane	100	40
Hexanediol	100	25
Hexanediol	all	25
Hexene	100	40
Hexene (2-)	100	40
Hexene (2-trans-)	100	40
Hexene (3-trans-)	100	40
Hydraulic Fluid, alkaline	100	25
Hydraulic Fluid, neutral	100	25
Hydrazine	50	N.R.
Hydrazine	100	N.R.
Hydrazine hydrate	16	N.R.
Hydrobromic acid	1	25
Hydrobromic acid	10	25
Hydrobromic acid	18	N.R.
Hydrobromic acid	26	N.R.
Hydrobromic acid	48	N.R.
Hydrobromic acid	62	N.R.
Hydrochloric acid	0.01-1	N.R.
Hydrochloric acid	5	N.R.
Hydrochloric acid	10	N.R.
Hydrochloric acid	15	N.R.
Hydrochloric acid	18	N.R.
Hydrochloric acid	20	N.R.
Hydrochloric acid	21	N.R.
Hydrochloric acid	25	N.R.
Hydrochloric acid	26	N.R.
Hydrochloric acid	32	N.R.
Hydrochloric acid	35	N.R.
Hydrochloric acid	37	N.R.
Hydrochloric acid	fumes	-
Hydrochloric acid and organics		N.R.
Hydrochloric, sulphuric and acetic acid		N.R.
Hydrocyanic acid	10	-
Hydrofluoric acid	1	N.R.
Hydrofluoric acid	10	N.R.
Hydrofluoric acid	20	N.R.
Hydrofluoric acid	30	N.R.
Hydrofluosilicic acid	10	N.R.
Hydrofluosilicic acid	25	N.R.
Hydrofluosilicic acid	35	N.R.
Hydrofluosilicic acid	fumes	N.R.

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Hydrogen bromide gas, dry	all	-
Hydrogen bromide gas, wet	all	-
Hydrogen chloride gas, dry	all	-
Hydrogen chloride gas, wet	all	-
Hydrogen fluoride gas, dry	all	-
Hydrogen fluoride gas, wet	all	-
Hydrogen peroxide	5	N.R.
Hydrogen peroxide	30	N.R.
Hydrogen sulphide, gas	5	-
Hydrogen sulphide, gas	100	-
Hydroxyacetic acid	35	-
Hydroxyacetic acid	70	N.R.
Hydroxybenzenesulfonic acid	all	N.R.
Hypochlorous acid	0-10	N.R.
Hypochlorous acid	20	N.R.
Hypochlorous acid	50	N.R.
Hypophosphorous acid	50	N.R.
I		
Iodine	cristals	N.R.
Iodine	vapour	N.R.
Isoamyl alcohol (= isobutylcarbinol)	100	N.R.
Isobutanol (= isobutyl alcohol)	5	40
Isobutanol (= isobutyl alcohol)	100	N.R.
Isodecanol	100	40
Isononyl alcohol	100	40
Isooctyl adipate	100	-
Isooctyl alcohol	100	N.R.
Isopropanol (= isopropyl alcohol)	20	40
Isopropanol (= isopropyl alcohol)	100	N.R.
Isopropyl myristate	100	25
Isopropyl palmitate	100	25
Isopropyl palmitate	all	25
Isopropyl sulphate	all	25
Isopropylamine	40	N.R.
Isopropylamine	100	N.R.
Itaconic acid	40	N.R.
Itaconic acid	Sat'd	N.R.
J		
Jet fuel	see fuel	
Jojoba oil	100	-
K		
Kerosene	see fuel	
L		
Lactic acid	10	40

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Lactic acid	80	-
Latex, alkaline	all	-
Latex, paint emulsion	all	-
Latex, PVA emulsion	all	-
Latex, rubber emulsion	all	-
Lauric acid	100	50
Lauroyl alcohol	all	50
Lauroyl chloride	all	50
Lauryl alcohol	all	50
Lauryl chloride	all	50
Lauryl ether sulphate	all	25
Lauryl mercaptan	all	50
Lead acetate	all	25
Lead chloride	all	25
Lead nitrate	all	25
Levulinic acid	all	50
Lignin sulphate, pH 3-7	all	N.R.
Ligninsulfonate sodium salt	all	N.R.
Lime (calcium hydroxide)	Sat'd	N.R.
Lime stone slurry (calcium carbonate)	Sat'd	N.R.
Linoleic acid	100	60
Linolenic acid	100	60
Linseed oil	100	60
Liquid sugar	all	25
Lithium bromide	all	50
Lithium carbonate	1	N.R.
Lithium carbonate	Sat'd	N.R.
Lithium chloride	all	50
Lithium hydroxide	Sat'd	N.R.
Lithium hypochlorite, pH > 11, active chlorine < 18%		N.R.
Lithium sulphate	all	40
M		
Magnesium bicarbonate	all	40
Magnesium bisulphite	all	25
Magnesium carbonate	Sat'd	N.R.
Magnesium chloride	all	50
Magnesium fluosilicate	37.5	N.R.
Magnesium hydroxide	Sat'd	N.R.
Magnesium nitrate	all	50
Magnesium silicofluoride	37.5	N.R.
Magnesium sulphate	all	50
Maleic acid	all	25
Maleic anhydride	100	N.R.
Manganese sulphate/Sulphuric acid	90 : 10	-

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Manganese(II) chloride	all	50
Manganese(II) nitrate	all	50
Manganous sulphate	all	50
Maple syrup	all	25
Melamine resins	all	N.R.
Mercaptoacetic acid	all	N.R.
Mercaptopropionic -2	10	-
Mercuric chloride	all	50
Mercuric nitrate	all	50
Mercurous chloride (mercuric (I) chloride)	all	50
Mercury (quick silver)	100	40
Methacrylic acid	40	-
Methane : Nitrogen	70 : 30	-
Methanesulphonic acid	all	-
Methanol (= methyl alcohol)	5	N.R.
Methanol (= methyl alcohol)	100	N.R.
Methoxyethylacetate	100	N.R.
Methyl bromide, gas	10	N.R.
Methyl ethyl ketone	100	N.R.
Methyl isobutyl ketone	100	N.R.
Methyl methacrylate	100	N.R.
Methyl methacrylate	all	N.R.
Methyl-2-pentenediol-2,4	100	N.R.
Methylamine	40	N.R.
Methylamine	100	N.R.
Methylaniline	100	N.R.
Methylcellosolve	100	N.R.
Methylchlorophenoxyacetic acid (MCPA)	100	25
Methylchlorophenoxypropionic acid (MCPPE)	100	25
Methyldiethanolamine	100	N.R.
Methylene bromide	100	N.R.
Methylene chloride (= dichloromethane)	0.2	-
Methylene chloride (= dichloromethane)	100	N.R.
Methyleneblue salts PH 2-5.5, AQ	all	25
Methylpentanol (2-)	100	N.R.
Methylstyrene	100	N.R.
Milk and milk products	all	25
Mineral oils	100	60
Molasses & invert molasses (2 < pH < 9)	100	40
Molybdic acid	Sat'd	-
Monochloroacetic acid	50	N.R.
Monochloroacetic acid	80	N.R.
Monochloroacetic acid	100	N.R.
Monochlorobenzene	100	N.R.

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Monoethanol amine	100	N.R.
Monomethylhydrazine	100	N.R.
Morpholine	100	N.R.
Motor oil	100	50
Muriatic acid (= Hydrochloric acid)	see HCl	
Mustard	all	-
Myristic acid	100	25
N		
Naphta heavy aromatic	100	-
Naphta, aliphatic	100	40
Naphtalene	all	-
Naphtenoic acid (1-)	all	25
Naphtenoic acid (2-)	all	25
Naphthylamine-1-sulphonic acid (2-)	all	-
Neopentyl glycol	100	40
Neopenty lglycol	all	40
Nickel chloride	all	50
Nickel nitrate	all	50
Nickel sulphate	all	50
Nicotinic acid	all	-
Nitric acid	2	N.R.
Nitric acid	5	N.R.
Nitric acid	10	N.R.
Nitric acid	15	N.R.
Nitric acid	20	N.R.
Nitric acid	25	N.R.
Nitric acid	30	N.R.
Nitric acid	35	N.R.
Nitric acid	40	N.R.
Nitric acid	50	N.R.
Nitric acid	60	N.R.
Nitric acid	fumes	-
Nitric acid : Chromic acid	15 : 3	N.R.
Nitrobenzene	100	N.R.
Nitrogen	100	60
Nitrogen tetroxide	100	N.R.
Nitrous acid	10	-
N-methyl-2-pyrrolidone (NMP)	3	-
N-methyl-2-pyrrolidone (NMP)	100	N.R.
Nonanes	100	40
Nonenes	100	40
O		
Octane	100	40
Octanoic acid (see caprylic acid)	100	50

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Octanoic acid (see caprylic acid)	all	50
Octanol (1-) (= octyl alcohol, 1-)	100	N.R.
Octanol (2-) (= octyl alcohol, 2-)	100	N.R.
Octene	100	-
Octylamine (2-)	100	N.R.
Octylamine (n-)	100	N.R.
Octylamine (tert-)	100	N.R.
Oil, sour and sweet crude	100	40
Oils (Grease, Lube, Vegetable)	100	25
Oleic acid	100	25
Oleum (fuming sulphuric acid)		N.R.
Olive oil	100	-
Orange oil	100	-
Oxalic acid	20	30
Oxalic acid	Sat'd	N.R.
Ozone in solution 2 mg/l	all	N.R.
P		
Palm oil	100	-
Palmitic acid	100	25
Palmitoyl chloride	all	40
Paper mill effluent		-
Paraffin wax	100	50
Peanut oil	100	50
Pentachloroethane	100	N.R.
Pentane	100	35
Pentanedioic acid	all	40
Pentanol (= amyl alcohol)	100	N.R.
Pentasodium triphosphate (Na ₅ O ₁₀ P ₃)	all	40
Pentene	100	30
Peracetic acid	20	N.R.
Peracetic acid	35	N.R.
Peracetic acid : Acetic acid : Hydrogen peroxide : water	23 : 20 : 15 : 42	N.R.
Perchloric acid	10	N.R.
Perchloric acid	20	N.R.
Perchloric acid	30	N.R.
Perchloric acid	70	N.R.
Perchloroethylene	100	20
Peroxide bleach	diluted	N.R.
Phenol (Carbolic acid)	1	N.R.
Phenol (Carbolic acid)	2	N.R.
Phenol (Carbolic acid)	5	N.R.
Phenol (Carbolic acid)	> 5	N.R.
Phenolformaldehyde resin	all	-
Phenolsulphonic acid	all	N.R.

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Phosphoric acid	50	40
Phosphoric acid	80	40
Phosphoric acid	85	40
Phosphoric acid	95	N.R.
Phosphoric acid	105	N.R.
Phosphoric acid	115	N.R.
Phosphoric acid (super phosphoric acid)	105	N.R.
Phosphoric acid (poly phosphoric acid)	115	N.R.
Phosphorous acid (H3PO3)	70	N.R.
Phosphorous trichloride	100	N.R.
Phosy water		-
Phthalates/Phthalate esters	all	25
Phthalic acid	100	40
Phthalic acid	all	40
Phthalic anhydride	100	-
Phthalic anhydride	all	-
Picric acid	10	-
Pine oil	100	50
Pine oil disinfectant	100	-
Piperazine dihydrochloride	all	-
Plating solution, Cadmium		N.R.
Plating solution, Chrome		N.R.
Plating solution, Copper		-
Plating solution, Gold		-
Plating solution, Lead		-
Plating solution, Nickel		-
Plating solution, Platinum		-
Plating solution, Silver		-
Plating solution, Tin Fluoborate		-
Plating solution, Zinc Fluoborate		-
Pluronic surfactant 25R-2	all	60
Polyacrylamide	all	N.R.
Polyester resins (styrenated)	100	N.R.
Polyethylene glycol	100	50
Polyethylene glycol	all	50
Polymeric phosphoric acid	115	N.R.
Polyols	100	40
Polyols	all	40
Polyphosphoric acid	115	N.R.
Polyvinyl acetate emulsion	all	-
Polyvinyl alcohol	all	40
Potassium aluminium sulphate	all	40
Potassium amyl xanthate	5	-
Potassium bicarbonate	all	N.R.

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Potassium bromate	all	40
Potassium bromide	all	50
Potassium carbonate	10	N.R.
Potassium carbonate	Sat'd	N.R.
Potassium chlorate	all	40
Potassium chloride	all	50
Potassium chromate	all	40
Potassium cyanide	all	N.R.
Potassium dichromate	all	40
Potassium dihydrogenphosphate	all	-
Potassium ferricyanide	all	40
Potassium ferrocyanide	all	40
Potassium fluoride	all	40
Potassium gold cyanide	12	-
Potassium hydroxide	1	N.R.
Potassium hydroxide	10	N.R.
Potassium hydroxide	25	N.R.
Potassium hydroxide	Sat'd	N.R.
Potassium iodide	all	40
Potassium nitrate	all	50
Potassium nitrite	all	50
Potassium orthophosphate, tribasic (K3O4P.12H2O)	0.03	N.R.
Potassium orthophosphate, tribasic (K3O4P.12H2O)	all	N.R.
Potassium oxalate	all	40
Potassium permanganate	all	N.R.
Potassium persulphate	all	25
Potassium pyrophosphate	60	40
Potassium silicofluoride	all	25
Potassium sulphate	all	50
Propanol (1-) (= propyl alcohol, 1-)	20	40
Propanol (1-) (= propyl alcohol, 1-)	100	N.R.
Propanol (2-) (= propyl alcohol, 2-)	20	40
Propanol (2-) (= propyl alcohol, 2-)	100	N.R.
Propionic acid	40	25
Propionic acid	100	N.R.
Propylamine (n-)	40	N.R.
Propylamine (n-)	100	N.R.
Propylene glycol	all	40
Pyridine	100	N.R.
Q		
Quarternary ammonium salts	25	40
R		
Rayon spin bath		N.R.
Ref. Fuel C (Isooctane/Toluene)	100	N.R.

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Renex detergents	all	-
Rosin sizes		40
S		
Salicylaldehyde	100	N.R.
Salicylic acid	all	25
Salt brine (see sodium chloride)	all	50
Sea water		50
Selenious acid	all	25
Sewage municipal	all	-
Silicone oils or greases	100	40
Silver cyanide	all	-
Silver nitrate	all	40
Soaps	all	N.R.
Sodium acetate	all	40
Sodium alkylaryl sulphonate	all	-
Sodium aluminate	all	N.R.
Sodium benzoate	all	N.R.
Sodium bicarbonate	all	40
Sodium bicarbonate : Sodium carbonate	15 : 02	N.R.
Sodium bifluoride	all	40
Sodium bisulphate	all	40
Sodium bisulphite	all	N.R.
Sodium borate	all	40
Sodium borohydride : Sodium hydroxide	12 : 48	N.R.
Sodium bromate	all	40
Sodium bromide	all	50
Sodium bromide : Sodium bromate	20 : 20	40
Sodium butyl xanthane	5	-
Sodium carbonate	10	N.R.
Sodium carbonate	Sat'd	N.R.
Sodium chlorate	all	40
Sodium chlorate : Sodium Chloride	34 : 20	-
Sodium chloride (= salt brine)	all	50
Sodium chloride with Chlorine pH > 9	see chlori- nated brine	
Sodium chloride with Chlorine pH 2.5 > 9	see chlori- nated brine	
Sodium chloride pH > 2.5, Cl ₂ Sat'd	see chlori- nated brine	
Sodium chloride/ Sodium hydroxide	0.5 : 10/0.1 : 2	-
Sodium chlorite	10	-
Sodium chlorite	50	-
Sodium chlorite, pH < 6 (see chlorine dioxide)		-
Sodium chlorite, pH > 6	all	-
Sodium chlorite : Sodium Hypochlorite pH > 11	0.1-25 : 0.1-15	-
Sodium chromate	50	25
Sodium cyanide	5	N.R.

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Sodium cyanide	10	N.R.
Sodium cyanide	15	N.R.
Sodium dichromate	all	25
Sodium dihydrogenphosphate	all	40
Sodium diphosphate	all	40
Sodium dodecylbenzene sulphonate	all	-
Sodium ethyl xanthate	5	-
Sodium ferric cyanide	all	40
Sodium ferro cyanide	all	40
Sodium fluoride	all	40
Sodium fluorosilicate	all	25
Sodium hexametaphosphate	all	40
Sodium hydrosulphide	all	N.R.
Sodium hydrosulphite	all	N.R.
Sodium hydroxide	1	N.R.
Sodium hydroxide	5	N.R.
Sodium hydroxide	25	N.R.
Sodium hydroxide	50	N.R.
Sodium hydroxide - Chlorine gas		N.R.
Sodium hypochlorite, pH > 11, active chlorine < 18%		N.R.
Sodium lauryl sulphate	all	25
Sodium monophosphate	0.5	40
Sodium monophosphate	10	N.R.
Sodium nitrate	all	50
Sodium nitrite	all	40
Sodium orthophosphate, tribasic (Na ₃ O ₄ P.12H ₂ O)	0.03	N.R.
Sodium orthophosphate, tribasic (Na ₃ O ₄ P.12H ₂ O)	all	N.R.
Sodium oxalate	all	40
Sodium persulphate	all	25
Sodium polyacrylate	all	-
Sodium silicate (water glass)	all	N.R.
Sodium sulphate	all	50
Sodium sulphhydrate	all	N.R.
Sodium sulphide	all	N.R.
Sodium sulphite	all	-
Sodium tartrate	all	40
Sodium tetraborate	all	40
Sodium thiocyanate	all	40
Sodium thiosulphate	all	40
Sodium tridecylsulphate	all	40
Sodium triphosphate (Na ₅ O ₁₀ P ₃)	all	40
Sodium xylene sulphonate	all	N.R.
Sorbitol solutions	all	40
Soy sauce		-

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Soya oil (Soybean oil)	100	50
Span® surfactant	all	-
Spearmint oil	100	40
Stannic chloride	all	40
Stannous chloride	all	40
Stannous sulphate	all	40
Starch 4 < pH < 9	all	40
Stearic acid	all	40
Styrene	100	N.R.
Succinic acid	all	40
Succinonitril (aqueous)	all	25
Sucrose	all	25
Sulphamic acid	10	N.R.
Sulphamic acid	25	N.R.
Sulphanilic acid	all	-
Sulphated detergents	all	N.R.
Sulphite/Sulphate liquors (pulp mill)		N.R.
Sulphonated detergents	all	N.R.
Sulphonyl chloride, aromatic	all	N.R.
Sulphur	100	-
Sulphur chloride	all	N.R.
Sulphur dichloride	all	N.R.
Sulphur dioxide gas, dry	all	N.R.
Sulphur dioxide gas, wet	all	N.R.
Sulphur trioxide gas		N.R.
Sulphuric acid	1	30
Sulphuric acid	5	30
Sulphuric acid	10	30
Sulphuric acid	25	30
Sulphuric acid	50	30
Sulphuric acid	60	N.R.
Sulphuric acid	70	N.R.
Sulphuric acid	75	N.R.
Sulphuric acid	80	N.R.
Sulphuric acid	93	N.R.
Sulphuric acid (= oleum)	Fuming	N.R.
Sulphuric acid : Ferrous sulphate	10 : Sat'd	-
Sulphuric acid : Phosphoric acid	10 : 20	-
Sulphurous acid	10	N.R.
Sulphuryl chloride	100	N.R.
Superphosphoric acid (105% H3PO4)	105	N.R.
T		
Tall oil	all	-
Tannic acid	all	25

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Tartaric acid	all	40
Tetrachloroethane (-1,1,1,2)	100	N.R.
Tetrachloroethane (-1,1,2,2)	100	N.R.
Tetrachloroethene (perchloroethene)	100	20
Tetrachloromethane	100	N.R.
Tetrachloropentane	100	N.R.
Tetrachloropyridine	100	N.R.
Tetrapotassium pyrophosphate	5	40
Tetrapotassium pyrophosphate	60	-
Tetrasodium ethylenediaminetetraacetate	all	N.R.
Tetrasodium pyrophosphate	5	40
Tetrasodium pyrophosphate	60	-
THF (tetrahydrofuran)	5	-
THF (tetrahydrofuran)	100	N.R.
Thioglycolic acid	10	-
Thioglycolic acid	80	N.R.
Thioglycolic acid	100	N.R.
Thionyl chloride	100	N.R.
Tobias acid (2-naphthylamine - 1- Sulphonic)	all	-
Toluene	100	N.R.
Toluene diisocyanate	100	N.R.
Toluene sulphonic acid	50	N.R.
Toluene sulphonic acid	Sat'd	N.R.
Toluidine (1,2-)	100	N.R.
Toluidine (1,3-)	100	N.R.
Toluidine (1,4-)	100	N.R.
Transformer oils	100	N.R.
Tri-(2-chloroethyl) phosphate	all	N.R.
Tributyl phosphate	100	N.R.
Tributylamine -N	all	N.R.
Trichloroacetaldehyde	100	N.R.
Trichloroacetic acid	50	N.R.
Trichlorobenzene	100	N.R.
Trichloroethane (-1,1,1)	100	N.R.
Trichloroethane (-1,1,2)	100	N.R.
Trichloroethene	100	N.R.
Trichloromonofluoromethane	100	N.R.
Trichlorophenol	100	N.R.
Tricresyl phosphate	100	N.R.
Tridecylbenzene sulphonate	all	-
Triethanol amine	100	N.R.
Triethanol amine lauryl sulphate	all	N.R.
Triethyl amine	40	N.R.
Triethyl amine	100	N.R.

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Triethylene glycol	all	40
Trimethyl amine	all	N.R.
Trimethyl amine hydrochloride	Sat'd	N.R.
Trimethylene chlorobromide	100	N.R.
Triphenyl phosphate	100	N.R.
Triphenyl phosphite	100	N.R.
Tripotassium phosphate (K5O10P3)	0.03	N.R.
Tripotassium phosphate (K5O10P3)	all	N.R.
Tripropyl amine -N	all	N.R.
Tripropylene glycol	all	40
Trisodium phosphate (Na5O10P3)	0.03	N.R.
Trisodium phosphate (Na5O10P3)	all	N.R.
Tritolyl phosphate	all	N.R.
Tung oil	100	40
Turpentine	all	25
Tween® surfactant	all	-
U		
Uranium extraction		-
Urea	all	40
Urea formaldehyde resins PH < 7	all	25
Urea : ammonium nitrate : H2O	35 : 44 : 21	-
V		
Varsol® solvent	100	-
Vegetable oils	100	50
Versene® (NaEDTA)	all	N.R.
Vinegar	all	25
Vinyl acetate	100	N.R.
Vinyl chloride	100	N.R.
Vinyl toluene	100	N.R.
Vinylidene chloride (= 1,1-dichloroethylene)	100	N.R.
W		
Water, Condensate	100	40
Water, Deionized	100	40
Water, Demineralized	100	40
Water, Distilled	100	40
Water, Sea	100	50
Water, Tap	100	50
Whisky		-
White liquor (pulp mill)		N.R.
Wine		-
X		
Xylene	100	N.R.
Xylene (m-)	100	N.R.
Xylene (o-)	100	N.R.

N.R = not recommended

Chemical substance	Concentration	isophthalic polyester
Xylene (p-)	100	N.R.
Xylidine (= dimethyl aniline)	100	N.R.
Z		
Zeolite	all	-
Zinc chlorate	all	25
Zinc chloride	all	40
Zinc cyanide	all	-
Zinc nitrate	all	40
Zinc sulphate	all	40
Zinc sulphite	all	40

N.R = not recommended