

Polypropylene Chemical Compatibility Chart

This Polypropylene Chemical Compatibility Chart is a shorthand tool for describing the suitability of miniature fluidic and pneumatic polypropylene components for use in contact with various chemicals. Use this chart to help guide your component selection.

*Important note: Stress cracking is caused by a combination of tensile stress, a stress cracking chemical and the inherent susceptibility of a thermoplastic like polypropylene to stress cracking. Stress cracking chemicals include detergents, such as surfactants, lubricants, oils, ultra-pure water and plating additives brighteners and wetting agents.

Dil. sol - dilute aqueous solution at a concentration equal to or lower than 10%

Sat. sol - saturated aqueous solution prepared at 68F (20C)

Sol - aqueous solution at a concentration higher than 10% but not saturated

A - Suitable | B - Good, minor effect, slight corrosion or discoloration | F - Fair, not recommended

n/a - No data is available | X - Do not use

Chemical or product	Concentration	68°F	140°F	212°F
		20°C	60°C	100°C
Acetaldehyde		A	n/a	n/a
Acetamide		A	n/a	n/a
Acetate solvent		B	X	X
Acetic acid	Up to 20%	A	A	n/a
Acetic acid	Up to 40%	A	A	n/a
Acetic acid	50%	A	A	F
Acetic acid	80%	A	n/a	n/a
Acetic acid, glacial	>96%	A	F	X
Acetic anhydride	100%	B	X	X
Acetone	100%	A	A	n/a
Acetyl chloride, dry		X	X	X
Acetylene		A	n/a	n/a
Acetophenone	100%	A	F	X
Acids aromatic		A	A	n/a
Acrylonitrile	100%	A	n/a	n/a
Adipic Acid		B	B to 120°F (48°C)	X
Air		A	A	A
Alcoholic beverages		A	n/a	n/a
Alcohols, amyl	100%	A	A	A
Alcohols, benzyl	100%	A	F	X
Alcohols, butyl		A	B to 120°F (48°C)	X
Alcohols, diacetone		B	X	X
Alcohols, ethyl	Up to 95%	A	A	A
Alcohols, isobutyl		A	n/a	n/a
Alcohols, isopropyl	100%	A	A	A
Alcohols, methyl	5%	A	F	F

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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Alcohols, proyl		A	n/a	n/a
Alcohols, wax		A	F	X
Allene gas		X	X	X
Allyl alcohol	100%	A	A	n/a
Almond oil		A	n/a	n/a
Alum	Sol	A	A	n/a
Aluminum chloride		A	n/a	n/a
Aluminum chloride	20%	A	n/a	n/a
Aluminum fluoride		A	n/a	n/a
Aluminum hydroxide		A	n/a	n/a
Aluminum nitrate		A	A to 120°F (48°C)	X
Aluminum potassium sulfate	10%	A	n/a	n/a
Aluminum potassium sulfate	100%	A	n/a	n/a
Aluminum sulfate		A	n/a	n/a
Alums		A	n/a	n/a
Amines		B	B to 120°F (48°C)	X
Ammonia, anhydrous		A	n/a	n/a
Ammonia, aqueous	Sat. sol	A	A	n/a
Ammonia, dry gas	100%	A	n/a	n/a
Ammonia, liquid	10%	A	n/a	n/a
Ammonia, liquid	100%	A	n/a	n/a
Ammonia nitrate		A	n/a	n/a
Ammonium acetate	Sat. sol	A	A	n/a
Ammonium bifluoride		A	n/a	n/a
Ammonium carbonate		A	n/a	n/a
Ammonium caseinate		X	X	X
Ammonium chloride	Sat. sol	A	A	n/a
Ammonium fluoride	Up to 20%	A	A	n/a
Ammonium hydrogen carbonate	Sat. sol	A	A	n/a
Ammonium hydroxide		A	n/a	n/a
Ammonium metaphosphate	Sat. sol	A	A	A
Ammonium nitrate	Sat. sol	A	A	A
Ammonium oxalate		A	n/a	n/a
Ammonium persulphate	Sat. sol	A	A	n/a
Ammonium phosphate	Sat. sol	A	n/a	n/a
Ammonium phosphate, dibasic		A	n/a	n/a
Ammonium phosphate, monobasic		A	n/a	n/a
Ammonium phosphate, tribasic		A	n/a	n/a
Ammonium sulphate	Sat. sol	A	A	A
Ammonium sulphide	Sat. sol	A	A	n/a

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Ammonium sulfite		A	A to 120°F (48°C)	X
Amyl acetate	100%	F	X	X
Amyl alcohol	100%	A	A	A
Amyl chloride		X	X	X
Aniline	100%	A	A	n/a
Aniline hydrochloride		X	X	X
Animal oils		A	F	X
Antifreeze		X	X	X
Antimony trichloride		A	n/a	n/a
Apple juice		A	n/a	n/a
Aqua regia (HCl, HNO ₃)	3 to 1 ratio	X	X	X
Aqua regia (HCl, HNO ₃)	4 to 1 ratio	B	X	X
Arochlor 1248		X	X	X
Aromatic hydrocarbons		X	X	X
Arsenic acid		A	n/a	n/a
Arsenic salts		n/a	n/a	n/a
Asphalt		B	X	X
Barium bromide	Sat. sol	A	A	A
Barium carbonate	Sat. sol	A	A	A
Barium chloride	Sat. sol	A	A	A
Barium cyanide		X	X	X
Barium hydroxide	Sat. sol	A	A	A
Barium nitrate		A	n/a	n/a
Barium sulfate		B	X	X
Barium sulphide	Sat. sol	A	A	A
Beer		A	A	n/a
Beet sugar liquids		A	n/a	n/a
Benzaldehyde		X	X	X
Benzene	100%	X	X	X
Benzoic acid	Sat. sol	B	B	X
Benzene sulfonic acid		X	X	X
Benzoic acid		B	X	X
Benzol		B	X	X
Benzyl alcohol	100%	A	F	n/a
Benzyl chloride		F	X	X
Bleaching liquors		A	n/a	n/a
Bone oil		A	n/a	n/a
Borax (sodium borate)	Sol	A	A	n/a
Boric acid	Sat. sol	A	n/a	n/a

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Boron trifluoride	Sat. sol	A	n/a	n/a
Brewery slop		X	X	X
Bromine, gas		X	X	X
Bromine, liquid	100%	X	X	X
Butadine		F	X	X
Butane, gas	100%	A	n/a	n/a
Butanol (butyl alcohol)	100%	A	F	F
Buttermilk		A	n/a	n/a
Butyl acetate	100%	F	X	X
Butyl alcohol		A	n/a	n/a
Butyl amine		B	X	X
Butyl ether		X	X	X
Butyl glycol	100%	A	n/a	n/a
Butyl phenols	Sat. sol	A	n/a	n/a
Butyl phthalate	100%	A	F	F
Butylacetate		B	X	X
Butyric Acid		B	X	X

Calcium bisulfide		A	n/a	n/a
Calcium bisulfite		A	n/a	n/a
Calcium carbonate	Sat. sol	A	A	A
Calcium chlorate	Sat. sol	A	A	n/a
Calcium chloride	Sat. sol	A	A	A
Calcium hydroxide	Sat. sol	A	A	A
Calcium hypochlorite	Sol	A	n/a	n/a
Calcium nitrate	Sat. sol	A	A	n/a
Calcium oxide		A	n/a	n/a
Calcium sulfate		A	n/a	n/a
Calgon		A	n/a	n/a
Camphor oil		X	X	X
Cane juice		F	X	X
Carbolic acid (phenol)		B	X	X
Carbon bisulfide		X	X	X
Carbon dioxide, dry gas		A	A	n/a
Carbon dioxide, wet gas		A	A	n/a
Carbon disulphide	100%	A	X	X
Carbon monoxide, gas		A	A	n/a
Carbon tetrachloride	100%	X	X	X
Carbon tetrachloride, dry		X	X	X
Carbon tetrachloride, wet		X	X	X
Carbonated water		B	X	X

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Carbonic acid		A	n/a	n/a
Castor oil	100%	A	A	n/a
Catsup		A	n/a	n/a
Caustic potash (potassium hydroxide)	Up to 50%	A	A	A
Caustic soda	Up to 50%	A	F	F
Chlorine, aqueous	Sat. sol	A	F	X
Chlorine, dry gas	100%	X	X	X
Chlorine, anhydrous liquid		X	X	X
Chlorine, liquid	100%	X	X	X
Chlorine water		X	X	X
Chloroacetic acid	Sol	A	n/a	n/a
Chlorobenzene (mono)		F	X	X
Chlorobromomethane		A	n/a	n/a
Chloroethanol	100%	A	n/a	n/a
Chloroform	100%	F	X	X
Chlorosulphonic acid	100%	X	X	X
Chocolate syrup		A	A to 120°F (48°C)	X
Chrome alum	Sol	A	A	n/a
Chromic acid	5%	X	X	X
Chromic acid	10%	X	X	X
Chromic acid	30%	X	X	X
Chromic acid	Up to 40%	X	X	X
Chromic acid	50%	X	X	X
Chromium salts		n/a	n/a	n/a
Cider		A	n/a	n/a
Citric acid	Sat. sol	A	A	A
Citric oils		A	n/a	n/a
Cloroxr (bleach)		X	X	X
Coconut oil		A	n/a	n/a
Coffee		A	n/a	n/a
Copper (II)	Sat. sol	A	A	n/a
Copper (II) chloride	Sat. sol	A	A	n/a
Copper cyanide		A	n/a	n/a
Copper (II) nitrate	Sat. sol	A	A	A
Copper sulfate	Up to 5%	A	n/a	n/a
Copper sulfate	over 5%	A	n/a	n/a
Corn oil		A	F	X
Cottonseed oil		A	A	n/a
Cream		A	n/a	n/a
Cresols	over 90%	A	n/a	n/a
Cresylic acid		A	n/a	n/a

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Cupric acid		A	A to 120°F (48°C)	n/a
Cyclohexane	100%	A	n/a	n/a
Cyclohexanol	100%	A	F	X
Cyclohexanone	100%	F	X	X
Decalin (decahydronaphthalene)	100%	X	X	X
Detergents (can be stress cracking agents)		A	n/a	n/a
Dextrin	Sol	A	A	n/a
Dextrose	Sol	A	A	A
Diacetone alcohol		B	n/a	n/a
Dibutyl phthalate	100%	A	F	X
Dichloroacetic acid	100%	F	X	X
Dichlorobenzene		F	X	X
Dichloroethane		X	X	X
Dichloroethylene (A and B)	100%	F	X	X
Diesel fuel		A	X	X
Diethanolamine	100%	A	n/a	n/a
Diethyl ether	100%	A	F	X
Diethylamine		A	n/a	n/a
Diethylene glycol	100%	A	A	n/a
Diglycolic acid	Sat. sol	A	n/a	n/a
Diisooctyl	100%	A	F	X
Dimethyl amine, gas		A	n/a	n/a
Dimethyl aniline		X	X	X
Dimethyl formamide	100%	A	A	n/a
Dioctyl phthalate	100%	F	F	X
Dioxane	100%	F	F	X
Diphenyl		X	X	X
Diphenyl oxide		X	X	X
Distilled water	100%	A	A	A
Epsom salts (magnesium sulfate)		A	n/a	n/a
Ethane		X	X	X
Ethanol		A	n/a	n/a
Ethanolamine	100%	X	X	X
Ether		X	X	X
Ethyl acetate	100%	F	X	X
Ethyl alcohol	Up to 95%	A	A	A
Ethyl benzoate		B	X	X

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Ethyl chloride, gas		X	X	X
Ethylene chloride (mono and di)		F	F	X
Ethyl ether	100%	A	F	X
Ethylene bromide		X	X	X
Ethylene chloride		F	X	X
Ethylene chlorohydrin		X	X	X
Ethylene Dichloride		X	X	X
Ethylene glycol	100%	A	A	A
Ethylene oxide		X	X	X

Fatty acid amides		A	n/a	n/a
Fatty acids		A	F	X
Fatty alcohols		A	n/a	n/a
Ferric and ferrous salts		A	A	n/a
Ferric chloride	Sat. sol	A	A	A
Ferric nitrate		A	A	n/a
Ferric sulfate		A	A	A
Ferrous chloride (aqueous)	All	A	A	n/a
Ferrous sulfate		A	A	A
Fertilizer salts (aqueous)	All	A	A	n/a
Fir wood oil		A	A	n/a
Fluoboric acid (aqueous)		A	n/a	n/a
Fluorine		X	X	X
Fluorine gas, dry		X	X	X
Fluorine gas, wet		X	X	X
Fluosilicic acid		A	n/a	n/a
Fluosilicic acid	30% to 40%	n/a	n/a	n/a
Formaldehyde	less than 40%	A	A	n/a
Formaldehyde	40%	A	n/a	n/a
Formaldehyde	100%	F	X	X
Formamide		A	A	n/a
Formic acid (aqueous)	10%	A	A	F
Formic acid (aqueous)	10% to 50%	A	A	F
Formic acid (aqueous)	85%	A	X	X
Formic acid (aqueous)	85% to 100%	A	X	X
Formic acid, anhydrous	100%	A	F	F
Freon 12		A	A to 120°F (48°C)	X
Freon 22		B	X	X
Freon 113		X	X	X
Freon 114		X	X	X

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Freon F21		X	X	X
Freon F22		X	X	X
Freon TF		X	X	X
Freonr11		A	n/a	n/a
Fructose	All	A	A	A
Fruit juices	All	A	A	A
Fruit pulp		A	A	A
Fuel oils		A	n/a	n/a
Furan resin		X	X	X
Furfural		F	F	X
Furfuryl alcohol		A	X	X
Gallic acid		A	n/a	n/a
Gasoline, highly aromatic		A	X	X
Gasoline, leaded, refined		B	X	X
Gasoline, petrol (aliphatic hydrocarbons)		X	X	X
Gasoline, unleaded		F	X	X
Gelatin		A	A	n/a
Genantin®		A	A	A
Glucose	20%	A	A	A
Glue		A	A	n/a
Glycerine	100%	A	A	A
Glycerine (glycerol, aqueous)	All	A	A	A
Glycerol chlorohydrin		A	n/a	n/a
Glycine		A	A	n/a
Glycol (aqueous)		A	A	A
Glycolic acid	30%	A	n/a	n/a
Glycolic acid (aqueous)	less than 70%	A	n/a	n/a
Glysantin®		A	A	A
Heptane	100%	F	X	X
Hexane	100%	A	F	X
Hexanetroil		A	A	A
Honey		A	A	n/a
Hydraulic oil (petroleum)		X	X	X
Hydraulic oil (synthetic)		X	X	X
Hydrasine		A	n/a	n/a
Hydrazine		F	X	X
Hydrazine hydrate		A	n/a	n/a

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Hydrobromic acid	Up to 20%	A	A to 120°F (48°C)	X
Hydrobromic acid	Up to 48%	A	F	X
Hydrobromic acid	100%	F	X	X
Hydrochloric acid	Up to 20%	A	A	A
Hydrochloric acid	20%	B	X	X
Hydrochloric acid	30%	B	F	F
Hydrochloric acid	From 35 to 36%	F	X	X
Hydrochloric acid	37%	F	X	X
Hydrochloric acid	100%	B	X	X
Hydrochloric acid, dry gas		B	X	X
Hydrocyanic acid	10%	A	A	n/a
Hydrofluoric acid	Dil. Sol	A	n/a	n/a
Hydrofluoric acid	Up to 20%	A	A to 120°F (48°C)	X
Hydrofluoric acid	40%	A	A to 120°F (48°C)	X
Hydrofluoric acid	50%	A	A to 120°F (48°C)	X
Hydrofluoric acid	75%	F	X	X
Hydrofluoric acid	100%	F	X	X
Hydrofluosilicic acid	100%	A	n/a	n/a
Hydrofluosilicic acid	20%	A	n/a	n/a
Hydrogen gas	100%	A	A	n/a
Hydrogen chloride, gas, wet or dry	100%	A	A	n/a
Hydrogen peroxide	Up to 10%	A	n/a	n/a
Hydrogen peroxide	30%	B	X	X
Hydrogen peroxide	50%	B	X	X
Hydrogen peroxide	100%	B	X	X
Hydrogen sulphide, aqua		A	X	X
Hydrogen sulphide, dry gas	100%	A	X	X
Hydroquinone		A	n/a	n/a
Hydrosulphite (aqueous)	less than 10%	A	A	n/a
Hydroxylamine sulphate (aqueous)	12%	A	A	n/a
Hypochlorous acid		F	F	X
Ink		A	A	n/a
Iodine		F	X	X
Iodine, in alcohol		A	F	X
Iodine in potassium iodide (aqueous)	3%	A	F	X
Iron (III) chloride (aqueous)	100%	A	A	A

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Isobutyl alcohol		A	n/a	n/a
Isoctane	100%	F	X	X
Isoproponal	Pure	A	A	A
Isopropyl alcohol	100%	A	A	A
Isopropyl ether	100%	F	X	X
Jam, jellies		A	A	A
Jet fuels, JP-4 and JP-5		F	X	X
Juice, apple		A	n/a	n/a
Kerosene		F	X	X
Ketones		F	F	X
Kresol		A	n/a	n/a
Labarraque's solution		A	n/a	n/a
Lacquer thinners		X	X	X
Lacquers		X	X	X
Lactic acid	10% to 96%	A	A	A
Lactose		A	A	n/a
Lanolin (wool fat)		A	F	X
Lanoline		A	F	X
Lard		B	X	X
Latex		A	A to 120°F (48°C)	X
Lead acetate (aqueous)	All	A	A	n/a
Lead nitrate		A	A to 120°F (48°C)	X
Lead salts		A	A	n/a
Lead sulfamate		A	A to 120°F (48°C)	X
Lead tetraethyl		A	n/a	n/a
Ligroin		A	A to 120°F (48°C)	n/a
Lime		A	A	A
Lime sulfur		n/a	n/a	n/a
Lime water		A	A	n/a
Linoleic acid		B	X	X
Linseed oil		A	A	A
Liqueurs		A	A	n/a

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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Liquid manure		A	A	n/a
Liquid paraffin		A	F	X
Liquid soaps		A	A	n/a
Liquors		A	A	n/a
Lithium bromide		A	A	n/a
Lithium chloride		A	A to 120°F (48°C)	X
Lithium slats		A	A	n/a
Lubricants		A	n/a	n/a
Lubricating oils		F	F	X
Lye: Ca(OH) ² calcium hydroxide		A	A to 120°F (48°C)	X
Lye: KOH potassium hydroxide		A	n/a	n/a
Lye: NaOH sodium hydroxide		A	n/a	n/a
Lysol®		A	F	X
Magnesium bisulfate		A	A to 120°F (48°C)	X
Magnesium carbonate	Sat. sol	A	A	A
Magnesium chloride	Sat. sol	A	A	n/a
Magnesium hydroxide	Sat. sol	A	A	n/a
Magnesium nitrate		A	n/a	n/a
Magnesium sulphate (Epsom salts)	Sat. sol	A	A	n/a
Maleic acid	Sat. sol	A	A	n/a
Maleic anhydride		X	X	X
Malic acid		A	n/a	n/a
Melamine		A	n/a	n/a
Mercuric chloride (dilute)		B	X	X
Mercury (II) chloride	Sat. sol	A	A	n/a
Mercury (II) cyanide	Sat. sol	A	A	n/a
Mercury (I) nitrate	Sol	A	A	n/a
Mercury	100%	A	A	n/a
Methacrylic acid		A	A	n/a
Methane		A	F	X
Methanol	Pure	A	A	n/a
Methoxybutanol		A	n/a	n/a
Methoxybutyl acetate (Butoxyl)		A	n/a	n/a
Methyl acetate	100%	A	A	n/a
Methyl acrylate		X	X	X
Methyl alcohol	5%	A	F	F
Methyl alcohol	10%	A	n/a	n/a

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Methyl amine	Up to 32%	A	n/a	n/a
Methyl benzene		F	X	X
Methyl bromide	100%	X	X	X
Methyl butyl ketone		X	X	X
Methyl cellosolve		A	F	X
Methyl chloride		X	X	n/a
Methyl chloroform		F	X	n/a
Methyl cyclohexane		F	X	X
Methyl cyclohexanone		A	F	X
Methyl dichloride		X	X	X
Methyl ethyl ketone	100%	A	n/a	n/a
Methyl glycol		A	A	n/a
Methyl isobutyl ketone		A	F	X
Methyl methacrylate		X	X	X
Methyl propyl ketone		A	n/a	n/a
Methyl salicylate		A	n/a	n/a
Methyl sulfate	50%	X	X	X
4-methyl-2-pentanone		A	n/a	n/a
Methylamine		A	n/a	n/a
Methylene bromide		X	X	X
Methylene chloride	100%	F	X	X
Methylene iodide		X	X	n/a
Milk		B	B	B
Mineral oil		A	F	X
Mineral spirits		B	X	X
Mixed acids (sulfuric and nitric)		X	X	X
Mixed acids (sulfuric and phosphoric)		A	F	X
Molasses		A	A	n/a
Monochloroacetic acid	over 85%	A	A	n/a
Monochloroacetic acid ethyl ester		A	A	n/a
Monochloroacetic acid methyl ester		A	A	n/a
Monochlorobenzene		A	n/a	n/a
Monoethanolamine		B	X	X
Morpholine		B	B to 120°F (48°C)	X
Motor oil		A	F	X
Mowilith polymer emulsions®		A	n/a	n/a
Mustard		A	n/a	n/a
Nail polish remover		A	F	X
Naptha		A	X	X

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Napthalene		B	n/a	n/a
Natural gas		A	F	X
Nickel chloride	Sat. sol	A	A	n/a
Nickel nitrate	Sat. sol	A	A	n/a
Nickel salts		A	A	n/a
Nickel sulphate (aqueous)	All	A	A	n/a
Nitrating Acid (less than 15% HNO3)		F	X	X
Nitrating Acid (more than 15% H2SO4)		F	X	X
Nitrating Acid (S1% Acid)		F	X	X
Nitrating Acid (S15% H2SO4)		F	X	X
Nitric acid	5-10%	A	n/a	n/a
Nitric acid	Up to 20%	A	A to 120°F (48°C)	X
Nitric acid	Up to 30%	A	X	X
Nitric acid	40% to 50%	B	X	X
Nitric acid	50%	B	X	X
Nitric acid	Concentrated	X	X	X
Nitric acid, fuming (with nitrogen dioxide)		X	X	X
Nitrobenzene	100%	A	F	X
Nitrocellulose		A	n/a	n/a
Nitromethane		B	B to 120°F (48°C)	X
Nitrotoluene		A	F	X
Nitrous acid		A	n/a	n/a
Nitrous oxide (gas)		X	X	X
Nonyl alcohol		A	n/a	n/a
Octyl cresol		F	X	X
Oils: almond		A	A	n/a
Oils: aniline		A	n/a	n/a
Oils: animal		A	F	X
Oils: bone		A	n/a	n/a
Oils: camphor		X	X	X
Oils: castor		A	n/a	n/a
Oils: cinnamon		X	X	X
Oils: citric		A	n/a	n/a
Oils: coconut		A	n/a	n/a
Oils: cod Liver		A	n/a	n/a
Oils: corn		A	A to 120°F (48°C)	X
Oils: cottonseed		A	n/a	n/a

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Oils: creosote		F	X	X
Oils: diesel Fuel (20, 30, 40, 50)		A	n/a	n/a
Oils: fir wood		A	A	n/a
Oils: fuel (1, 2, 3, 5A, 5B, 6)		B	X	X
Oils: hydraulic oil (petroleum)		X	X	X
Oils: hydraulic oil (synthetic)		X	X	X
Oils: linseed		A	n/a	n/a
Oils: mineral		A	n/a	n/a
Oils: olive		A	A to 120°F (48°C)	X
Oils: orange		A	n/a	n/a
Oils: palm-kernal		A	F	X
Oils: peanut		X	X	X
Oile: perfume		F	X	X
Oils: pine		B	X	X
Oile: pine needle		A	A	n/a
Oils: rapeseed		X	X	X
Oils: rosin		A	A to 120°F (48°C)	X
Oils: sesame Seed		A	n/a	n/a
Oils: silicone		A	n/a	n/a
Oils: soybean		A	n/a	n/a
Oils: transformer		B	n/a	n/a
Oils: turbine		B	n/a	n/a
Oils: walnut		A	n/a	n/a
Oleic acid	100%	A	F	X
Oleum	25%	X	X	X
Oleum	100%	X	X	X
Optical brighteners (can be stress cracking agents)		A	A	n/a
Oxalic acid	Sat. sol	A	F	X
Oxygen, gas		F	X	X
Ozone, gas		B	X	X
Palmitic acid	10%	B	B	X
Palmitic acid	70%	B	B	X
Palmitic alcohol		A	A	n/a
Palm-kernal oil		A	F	X
Paraffin		A	A	n/a
Paraffin oil		X	X	X
Paraformaldehyde		A	n/a	n/a
Peanut oil		A	A	n/a

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Pentane		X	X	X
Pentanol		A	n/a	n/a
Peppermint oil		A	n/a	n/a
Perchloric acid (aqueous)	Less than 20%	A	A	n/a
Perchloric acid (aqueous)	70%	F	X	X
Perchloroethylene		X	X	X
Perfume oils		F	X	X
Petrolatum		X	X	X
Petroleum (refined)		B	B	X
Petroleum (sour)		B	F	X
Petroleum ether (ligroine)		F	F	X
Phenol (carbolic acid)	5%	B	B	X
Phenol (carbolic acid)	10%	B	X	X
Pneholc resin molding materials		A	A	n/a
Phenylethylalcohol		A	n/a	n/a
Phenylhydrazine		F	F	X
Phenylhydrazine hydrochloride		B	X	X
Phenylsulphonate		A	A	n/a
Phosgene gas		F	F	X
Phosgene liquid		X	X	X
Phosphates (aqueous)	All	A	A	n/a
Phosphine, gas		A	A	n/a
Phosphoric acid	540%	A	A	A
Phosphoric acid	50%	A	A	A
Phosphoric acid	Up to 85%	A	A	A
Phosphoric acid	80% to 100%	A	n/a	n/a
Phosphoric acid, crude		B	X	X
Phosphoric acid, molten		X	X	X
Phosphoric acid anhydride		A	A	A
Phosphorus		A	A	A
Phosphorus oxychloride		F	F	X
Phosphorus oxychloride	100%	F	X	X
Phosphorus pentoxide		A	A	n/a
Phosphorus trichloride		A	n/a	n/a
Photographic developer		A	A	A
Photographic solutions		A	A to 120°F (48°C)	X
Phthalic acid		A	n/a	n/a
Phthalic acid (aqueous)	50%	A	A	n/a
Phthalic acid ester		B	F	X
Phthalic anhydride		X	X	X
Picric acid (aqueous)	Sat. sol	A	n/a	n/a

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		20°C	60°C	100°C
Pine needle oil		A	A	n/a
Pineapple juice		A	A	n/a
Plasticizers		B	F	X
Plating Solutions, Antimony Plating		A	A to 130°F (54°C)	n/a
Plating Solutions, Arsenic Plating		A	A to 110°F (43°C)	n/a
Plating Solutions, Brass Plating: High-Speed Brass Bath		A	A to 110°F (43°C)	n/a
Plating Solutions, Brass Plating: Regular Brass Bath		A	A to 100°F (38°C)	n/a
Plating Solutions, Bronze Plating: Cu-Cd Bronze Bath R.T.		A	n/a	n/a
Plating Solutions, Bronze Plating: Cu-Sn Bronze Bath		A	A to 160°F (71°C)	n/a
Plating Solutions, Bronze Plating: Cu-Zn Bronze Bath		A	A to 100°F (38°C)	n/a
Plating Solutions, Cadmium Plating: Cyanide Bath		A	A to 90°F (32°C)	n/a
Plating Solutions, Cadmium Plating: Fluoborate Bath		A	A to 100°F (38°C)	n/a
Plating Solutions, Chromium Plating: Barrel Chrome Bath		A	A to 95°F (35°C)	n/a
Plating Solutions, Chromium Plating: Black Chrome Bath		A	A to 115°F (46°C)	n/a
Plating Solutions, Chromium Plating: Chromic-Sulfuric Bath		A	A to 130°F (54°C)	n/a
Plating Solutions, Chromium Plating: Fluoride Bath		A	A to 130°F (54°C)	n/a
Plating Solutions, Chromium Plating: Fluosilicate Bath		X	X	X
Plating Solutions, Copper Plating (Acid): Copper Fluoborate Bath		A	A to 120°F (49°C)	n/a
Plating Solutions, Copper Plating (Acid): Copper Sulfate Bath R.T.		A	n/a	n/a
Plating Solutions, Copper Plating (Cyanide): Copper Strike Bath		A	A to 120°F (49°C)	n/a
Plating Solutions, Copper Plating (Cyanide): High-Speed Bath		A	A to 180°F (82°C)	n/a
Plating Solutions, Copper Plating (Cyanide): Rochelle Salt Bath		A	A to 150°F (66°C)	n/a

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Plating Solutions, Copper Plating (Misc): Copper (Electroless)		A	n/a	n/a
Plating Solutions, Copper Plating (Misc): Copper Pyrophosphate		A	n/a	n/a
Plating Solutions, Gold Plating: Acid		A to 75°F (24°C)	X	X
Plating Solutions, Gold Plating: Cyanide		A	A to 150°F (66°C)	n/a
Plating Solutions, Gold Plating: Neutral		A to 75°F (24°C)	X	X
Plating Solutions, Indium Sulfamate Plating R.T.		A	n/a	n/a
Plating Solutions, Iron Plating: Ferrous Am Sulfate Bath		A	A to 150°F (66°C)	n/a
Plating Solutions, Iron Plating: Ferrous Chloride Bath		F	F to 190°F (88°C)	X
Plating Solutions, Iron Plating: Ferrous Sulfate Bath		A	A to 150°F (66°C)	n/a
Plating Solutions, Iron Plating: Fluoborate Bath		A	A to 145°F (63°C)	n/a
Plating Solutions, Iron Plating: Sulfamate		A	A to 140°F (60°C)	n/a
Plating Solutions, Iron Plating: Sulfate-Chloride Bath		A	A to 160°F (71°C)	n/a
Plating Solutions, Lead Fluoborate Plating		A	n/a	n/a
Plating Solutions, Nickel Plating: Electroless		X	X	X
Plating Solutions, Nickel Plating: Fluoborate 100-170°F (38-77°C)		A	A from 100°F (38°C) to 170°F (82°C)	n/a
Plating Solutions, Nickel Plating: High-Chloride 130-160°F (54-71°C)		A	A from 130°F (54°C) to 160°F (71°C)	n/a
Plating Solutions, Nickel Plating: Sulfamate 100-140°F (38-60°C)		A	A from 100°F (38°C) to 140°F (60°C)	n/a
Plating Solutions, Nickel Plating: Watts Type 115-160°F (46-71°C)		A	A from 115°F (46°C) to 160°F (71°C)	n/a
Plating Solutions, Rhodium Plating		A	A to 120°F (49°C)	n/a
Plating Solutions, Silver Plating 80-120°F (27-49°C)		A	A from 80°F (27°C) to 120°F (49°C)	n/a
Plating Solutions, Tin-Fluoborate Plating		A	A to 100°F (38°C)	n/a
Plating Solutions, Tin-Lead Plating		A	A to 100°F (38°C)	n/a

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Plating Solutions, Zinc Plating: Acid Chloride		A	A to 140°F (60°C)	n/a
Plating Solutions, Zinc Plating: Acid Fluoborate Bath R.T.		A	n/a	n/a
Plating Solutions, Zinc Plating: Acid Sulfate Bath		A	A to 150°F (66°C)	X
Plating Solutions, Zinc Plating: Alkaline Cyanide Bath R.T.		A	n/a	n/a
Polyester plasticizers		A	n/a	n/a
Polyester resins		F	X	X
Polyglycols		A	A	n/a
Potash alum (aqueous)		A	A	A
Potassium bicarbonate (potash)	Sat. sol	A	A	A
Potassium bisulphate (aqueous)	All	A	A	A
Potassium borate	Sat. sol	A	A	n/a
Potassium borate (aqueous)	1%	A	A	n/a
Potassium bromate	Up to 10%	A	A	n/a
Potassium bromide (aqueous)	All	A	A	A
Potassium carbonate (aqueous)	All	A	A	n/a
Potassium chlorate (aqueous)	All	A	A	A
Potassium chloride (aqueous)	All	A	A	A
Potassium chlorite	Sat. sol	A	A	n/a
Potassium chromate (aqueous)	All	A	A	A
Potassium cyanide (aqueous)	All	A	A	n/a
Potassium cyanide solutions		A	n/a	n/a
Potassium dichromate (aqueous)	All	A	A	A
Potassium ferricyanide (aqueous)	All	A	A	n/a
Potassium ferrocyanide (aqueous)	All	A	A	n/a
Potassium fluoride (aqueous)	All	A	A	n/a
Potassium hydroxide (caustic potash)	Up to 50%	A	A	A
Potassium iodide	Sat. sol	A	A to 120°F (48°C)	X
Potassium nitrate	Sat. sol	A	A	n/a
Potassium perchlorate	Up to 10%	A	A	n/a
Potassium permanganate	(2 N) 30%	A	F	X
Potassium persulphate (aqueous)	All	A	A	n/a
Potassium salts		A	A	n/a
Potassium sulphate	Sat. sol	A	A	n/a
Potassium sulfide		A	A	n/a
Potassium sulfite		A	A	n/a
Potassium thiosulphate		A	A	n/a
Propane, gas	100%	A	F	X

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Propane (liquified)		A	n/a	n/a
Propargyl alcohol (aqueous)	7%	A	A	n/a
Propionic acid (aqueous)	All	A	A	n/a
Propyl alcohol		A	n/a	n/a
Propylene dichloride	100%	X	X	X
Propylene glycol		A	A to 120°F (48°C)	X
Propylene oxide		B	F	X
Pyridine	100%	F	F	X
Pyrogallic acid		A	n/a	n/a
Quinone		A	A	n/a
Resorcinal		A	A to 120°F (48°C)	X
Rosins		A	A to 120°F (48°C)	X
Rubber dispersions (latexes)		A	A	n/a
Rum		A	n/a	n/a
Rust inhibitors		A	n/a	n/a
Sagrotan®		B	F	X
Salad dressings		A	n/a	n/a
Salicylaldehyde		A	F	X
Salicylic acid		A	F	X
Salt brine (NaCl saturated)		A	n/a	n/a
Saturated steam condensate		A	A	n/a
Sauerkraut		A	A	A
Seawater		A	A	A
Sewage (residential)		A	A	X
Shellac (bleached)		A	n/a	n/a
Shellac (orange)		A	n/a	n/a
Silicic acid (aqueous)	All	A	A	n/a
Silicone oil		A	A	A
Silver nitrate	Sat. sol	A	A	F
Silver salts		A	A	n/a
Soap solutions (can be stress cracking agents)		A	n/a	n/a
Soda ash (sodium carbonate)		A	n/a	n/a
Sodium acetate (aqueous)	All	A	A	A

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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Sodium aluminum sulphate		A	A	n/a
Sodium benzoate	35%	A	F	X
Sodium bicarbonate	Sat. sol	A	A	A
Sodium bisulfate		A	A	A
Sodium bisulfate (aqueous)	All	A	A	n/a
Sodium bisulfite		A	n/a	n/a
Sodium borate (borax)	Sol	A	A	n/a
Sodium bromide		A	A	n/a
Sodium carbonate (soda ash)	Up to 50%	A	A	F
Sodium chlorate	Sat. sol	A	A	n/a
Sodium chloride (aqueous)	Sat. sol	A	A	A
Sodium chlorite	2%	A	F	X
Sodium chlorite	20%	A	F	X
Sodium chromate		A	A	n/a
Sodium cyanide		A	A	n/a
Sodium dichromate	Sat. sol	A	A	A
Sodium dichromate, acid		A	A	A
Sodium dodecylbenzenesulphonate		A	A	n/a
Sodium ferrocyanide		A	A	n/a
Sodium fluoride		A	A	n/a
Sodium hexacyanoferrate		A	A	n/a
Sodium hydrogen carbonate	Sat. sol	A	A	A
Sodium hydrogen phosphate		A	A	n/a
Sodium hydrogen sulphate	Sat. sol	A	A	n/a
Sodium hydrogen sulphite	Sat. sol	A	n/a	n/a
Sodium hydroxide (solid and aqueous)	All	A	A	A
Sodium hypochlorite	5%	A	F	X
Sodium hypochlorite	10% to 15%	A	F	X
Sodium hypochlorite	20%	A	F	X
Sodium hypochlorite	100%	B	X	X
Sodium metaphosphate	Sol	A	n/a	n/a
Sodium metasilicate		A	n/a	n/a
Sodium nitrate		A	n/a	n/a
Sodium nitrate (aqueous)	Sat. sol	A	A	n/a
Sodium perborate (aqueous)	All	A	A	A
Sodium peroxide		B	X	X
Sodium phosphate (neutral, aqueous)	Sat. sol	A	A	A
Sodium polyphosphate		A	n/a	n/a
Sodium salts (aqueous)		A	A	n/a
Sodium silicate	Sol	A	A	n/a
Sodium sulphate		A	A	A
Sodium sulphate	Sat.sol	A	A	n/a

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Sodium sulphide	Sat.sol	A	A	n/a
Sodium sulphite	40%	A	A	A
Sodium thiosulphate (hypo)	Sat.sol	A	n/a	n/a
Sodium thiosulphate (solid and aqueous)		A	A	n/a
Soft soap		A	A	n/a
Sorghum syrup		A	A	A
Soybean oil		A	F	n/a
Stannic chloride		A	A	n/a
Stannous chloride		A	A	n/a
Starch (aqueous)	All	A	A to 120°F (48°C)	n/a
Stearic acid	50%	A	A to 120°F (48°C)	n/a
Stoddard solvent		F	X	X
Styrene		B	X	X
Succinic acid	50%	A	A	n/a
Succinic acid	Sat. sol	A	A	n/a
Sugar (liquids)		A	n/a	n/a
Sulphate (liquors)		A	n/a	n/a
Sulphite (liquors)		A	A	n/a
Sulphur		A	A	A
Sulphur acid (sulphacid)	10% to 30%	A	A	n/a
Sulfur chloride		F	X	X
Sulfur dioxide (dry)		A	A	n/a
Sulfur dioxide (wet)		A	A	n/a
Sulfur trioxide		F	X	X
Sulfur trioxide (dry)		X	X	X
Sulphuric acid	Up to 10%	A	A	A
Sulphuric acid	10% to 50%	A	F	X
Sulphuric acid	50%	A	F	X
Sulphuric acid	70% to 90%	B	X	X
Sulphuric acid	over 90%	F	X	X
Sulphuric acid (cold concentrated)		A	X	X
Sulphuric acid (hot concentrated)		X	X	X
Sulphuric dioxide, dry or wet	100%	A	A	n/a
Sulphuric ether		F	X	X
Sulphurous acid	Up to 30%	A	A	n/a
Sulfuryl chloride		X	X	X
Syrups and sugars		A	A	A

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Tallow		A	A to 120°F (48°C)	X
Tannic acid		A	n/a	n/a
Tanning liquors		A	n/a	n/a
Tartaric acid	Sat. sol	A	A	n/a
Tartaric acid (aqueous)		A	A	n/a
Tetrabromoethane		X	X	X
Tetrachloroethane		F	X	X
Tetrachloroethylene		X	X	X
Tetraethyl lead		A	n/a	n/a
Tetrahydroaphthalene (Tetralin®)		X	X	X
Tetrahydrofuran	100%	F	X	X
Tetralin	100%	X	X	X
Thiophene	100%	F	X	X
Thread cutting oil		A	F	X
Tin (IV) chloride	Sol	A	A	n/a
Tin (II) chloride	Sat. sol	A	A	n/a
Tin salts		A	n/a	n/a
Titanium tetrachloride		A	A	n/a
Toluene (toluol)	100%	F	X	X
Tomato juice		A	n/a	n/a
Transformer oil		B	F	X
Tri-B-chloroethyl phosphate		A	n/a	n/a
Tributyl citrate		F	X	X
Trichloroacetic acid	Up to 50%	A	F	X
Trichloroacetic acid	Pure	A	X	X
Trichloroethane		F	n/a	n/a
Trichloroethylene	100%	X	X	X
Tricresylphosphate (tricresyl phosphate)		B	F	X
Triethanolamine	Sol	A	F	X
Triethylamine		X	X	X
Triethylene glycol		A	A	n/a
Trimethylol propane (aqueous)		A	A	n/a
Trisodium phosphate		A	A	n/a
Triutyl phosphate		A	A	n/a
Turpentine		X	X	X
Tutagen U®		A	A	n/a
Tween 20 and 80®		A	A	n/a
Two-stroke engine oil		A	n/a	n/a
Urea	Sat. sol	A	A	n/a

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Uric acid		A	n/a	n/a
Urine		A	A	n/a
Varnish		A	n/a	n/a
Vaseline		A	F	X
Vegetable oils		A	A	n/a
Vinegar		A	A	n/a
Vinyl acetate		B	F	X
Walnut oil		A	n/a	n/a
Water, acid, mine		A	n/a	n/a
Water, brackish, mineral, potable		A	A	A
Water, deionized		A	A to 120°F (48°C)	n/a
Water, distilled		A	A	A
Water, fresh		A	A	A
Water, mine salt		A	A	A
Water, salt		A	A	A
Water, tap		A	A	A
Wax alcohols		F	X	X
Waxes		A	F	X
Whey		A	A	n/a
Whiskey		A	A	n/a
White liquor (pulp mill)		A	n/a	n/a
White water (paper mill)		A	n/a	n/a
Wines		A	A	n/a
Xylene	100%	X	X	X
Yeast	Sol	A	A	A
Zinc carbonate		A	A	n/a
Zinc chloride	Sat. sol	A	A	n/a
Zinc oxide		A	A	A
Zinc salts (aqueous)	All	A	A	n/a
Zinc sludge		A	A	n/a
Zinc stearate		A	A	A

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Zinc sulphate	Sat. sol	A	A	A

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