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

*Important note: Stress cracking is caused by a combination of a stress cracking chemical, tensile stress, 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.

Learn more about plastics chemical compatibility >>

Dil. sol - dilute aqueous solution at a concentration equal to or lower than 10% Saturated solution - 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 20°C	140°F 60°C	212°F 100°C
Acetaldehyde		Α	n/a	n/a
Acetamide		Α	n/a	n/a
Acetate solvent		В	Χ	Χ
Acetic acid	up to 20%	Α	Α	n/a
Acetic acid	up to 40%	Α	Α	n/a
Acetic acid	50%	Α	Α	F
Acetic acid	80%	Α	n/a	n/a
Acetic acid, glacial	>96%	Α	F	Χ
Acetic anhydride	100%	В	Χ	Χ
Acetone	100%	Α	Α	n/a
Acetyl chloride, dry		Χ	Χ	Χ
Acetylene		Α	n/a	n/a
Acetophenone	100%	Α	F	Χ
Acids, aromatic		Α	Α	n/a
Acrylonitrile	100%	Α	n/a	n/a
Adipic Acid		В	B to 120°F (48°C)	Х
Air		Α	Α	Α
Alcoholic beverages		Α	n/a	n/a
Alcohols, amyl	100%	Α	Α	Α
Alcohols, benzyl	100%	Α	F	Χ
Alcohols, butyl		Α	B to 120°F (48°C)	Х



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Alcohols, diacetone		В	Χ	X
Alcohols, ethyl	up to 95%	Α	Α	Α
Alcohols, hexyl		Α	n/a	n/a
Alcohols, isobutyl		Α	n/a	n/a
Alcohols, isopropyl	100%	Α	Α	Α
Alcohols, methyl	5%	Α	F	F
Alcohols, propyl		Α	n/a	n/a
Alcohols, wax		Α	F	Х
Allene gas		Χ	Χ	Χ
Allyl alcohol	100%	Α	А	n/a
Almond oil		Α	n/a	n/a
Alum	Aqueous solution	Α	А	n/a
Aluminum chloride		Α	n/a	n/a
Aluminum chloride	20%	Α	n/a	n/a
Aluminum fluoride		Α	n/a	n/a
Aluminum hydroxide		Α	n/a	n/a
Aluminum nitrate		Α	A to 120°F (48°C)	Χ
Aluminum potassium sulfate	10%	Α	n/a	n/a
Aluminum potassium sulfate	100%	Α	n/a	n/a
Aluminum sulfate		Α	n/a	n/a
Alums		Α	n/a	n/a
Amines		В	B to 120°F (48°C)	Х
Ammonia	10%	Α	n/a	n/a
Ammonia, anhydrous		Α	n/a	n/a
Ammonia, aqueous	Saturated solution	Α	Α	n/a
Ammonia, dry gas	100%	Α	n/a	n/a
Ammonia, liquid	10%	Α	n/a	n/a
Ammonia, liquid	100%	Α	n/a	n/a
Ammonia nitrate		Α	n/a	n/a
Ammonium acetate	Saturated solution	Α	Α	n/a
Ammonium bifluoride		Α	n/a	n/a
Ammonium carbonate		Α	n/a	n/a
Ammonium caseinate		Χ	X	Χ
Ammonium chloride	Saturated solution	Α	Α	n/a
Ammonium fluoride	up to 20%	Α	Α	n/a



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Ammonium hydrogen carbonate	Saturated solution	Α	А	n/a
Ammonium hydroxide		Α	n/a	n/a
Ammonium metaphosphate	Saturated solution	Α	Α	Α
Ammonium nitrate	Saturated solution	Α	Α	Α
Ammonium oxalate		Α	n/a	n/a
Ammonium persulfate	Saturated solution	Α	Α	n/a
Ammonium phosphate	Saturated solution	Α	n/a	n/a
Ammonium phosphate, dibasic		Α	n/a	n/a
Ammonium phosphate, monobasic		Α	n/a	n/a
Ammonium phosphate, tribasic		Α	n/a	n/a
Ammonium sulphate	Saturated solution	Α	Α	Α
Ammonium sulfide	Saturated solution	Α	Α	n/a
Ammonium sulfite		Α	A to 120°F (48°C)	Х
Amyl acetate	100%	F	Χ	Χ
Amyl alcohol	100%	Α	Α	Α
Amyl chloride		Χ	Χ	Χ
Aniline	100%	Α	Α	n/a
Aniline hydrochloride		Χ	Χ	Χ
Animal oils		Α	F	Χ
Antifreeze		Χ	Χ	Χ
Antimony trichloride		Α	n/a	n/a
Apple juice		Α	n/a	n/a
Aqua regia (HCI, HNO ₃)	3 to 1 ratio	Χ	Χ	Х
Aqua regia (HCI, HNO ₃)	4 to 1 ratio	В	X	Х
Arochlor 1248		Х	Χ	Х
Aromatic hydrocarbons		Х	Χ	Х
Arsenic acid		Α	n/a	n/a
Arsenic salts		n/a	n/a	n/a
Asphalt		В	Χ	Х
Barium bromide	Saturated solution	Α	Α	Α
Barium carbonate	Saturated solution	Α	Α	А
Barium chloride	Saturated solution	Α	Α	Α
Barium cyanide		Х	X	Х
Barium hydroxide	Saturated solution	Α	Α	Α
Barium nitrate		Α	n/a	n/a



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Barium sulfate		В	Χ	Х
Barium sulfide	Saturated solution	Α	А	Α
Beer		Α	Α	n/a
Beet sugar liquids		Α	n/a	n/a
Benzaldehyde		Χ	Χ	Χ
Benzene	100%	Χ	Χ	Χ
Benzoic acid	Saturated solution	В	В	Χ
Benzene sulfonic acid		Χ	Χ	Χ
Benzoic acid		В	Χ	Χ
Benzol		В	Χ	Χ
Benzyl alcohol	100%	Α	F	n/a
Benzyl chloride		F	Χ	Χ
Bleaching liquors		Α	n/a	n/a
Bone oil		Α	n/a	n/a
Borax (sodium borate)	Aqueous solution	Α	Α	n/a
Boric acid	Saturated solution	Α	n/a	n/a
Boron trifluoride	Saturated solution	Α	n/a	n/a
Brewery slop		Χ	Χ	Χ
Bromine, gas		Χ	Χ	X
Bromine, liquid	100%	Χ	Χ	Χ
Butadiene		F	Χ	Χ
Butane, gas	100%	Α	n/a	n/a
Butanol (butyl alcohol)	100%	Α	F	F
Buttermilk		Α	n/a	n/a
Butyl acetate (butylacetate, n-Butyl acetate)	100%	F	Χ	Χ
Butyl alcohol		Α	n/a	n/a
Butyl amine		В	Χ	Χ
Butyl ether		Χ	Χ	X
Butyl glycol	100%	Α	n/a	n/a
Butyl phenols	Saturated solution	А	n/a	n/a
Butyl phthalate	100%	Α	F	F
Butyric Acid		В	Χ	Χ
Calcium bisulfide		Α	n/a	n/a
Calcium bisulfite		А	n/a	n/a
Calcium carbonate	Saturated solution	Α	А	А
Calcium chlorate	Saturated solution	Α	А	n/a



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Calcium chloride	Saturated solution	Α	Α	Α
Calcium hydroxide	Saturated solution	Α	Α	Α
Calcium hypochlorite	Aqueous solution	Α	n/a	n/a
Calcium nitrate	Saturated solution	Α	Α	n/a
Calcium oxide		Α	n/a	n/a
Calcium sulfate		Α	n/a	n/a
Calgon		Α	n/a	n/a
Camphor oil		Χ	Χ	Χ
Cane juice		F	X	Χ
Carbolic acid (phenol)		В	Χ	Χ
Carbon bisulfide		X	X	Χ
Carbon dioxide, dry gas		Α	Α	n/a
Carbon dioxide, wet gas		Α	Α	n/a
Carbon disulfide	100%	Α	Χ	Χ
Carbon monoxide, gas		Α	Α	n/a
Carbon tetrachloride	100%	Χ	Χ	Χ
Carbon tetrachloride, dry		X	X	Χ
Carbon tetrachloride, wet		Χ	Χ	Χ
Carbonated water		В	Χ	Χ
Carbonic acid		Α	n/a	n/a
Castor oil	100%	Α	Α	n/a
Catsup		Α	n/a	n/a
Caustic potash (potassium hydroxide)	up to 50%	Α	Α	Α
Caustic soda	up to 50%	Α	F	F
Chlorine, aqueous	Saturated solution	Α	F	Χ
Chlorine, dry gas	100%	X	Χ	Χ
Chlorine, anhydrous liquid		X	X	Χ
Chlorine, liquid	100%	Χ	Χ	Χ
Chlorine water		Χ	Χ	Χ
Chloroacetic acid	Aqueous solution	Α	n/a	n/a
Chlorobenzene (mono)		F	X	Χ
Chlorobromomethane		Α	n/a	n/a
Chloroethanol	100%	Α	n/a	n/a
Chloroform	100%	F	X	Χ
Chlorosulfonic acid	100%	Χ	X	Χ
Chocolate syrup		Α	A to 120°F (48°C)	Х



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Chrome alum	Aqueous solution	Α	Α	n/a
Chromic acid	5%	Χ	X	Χ
Chromic acid	10%	Χ	X	Χ
Chromic acid	30%	Χ	X	Χ
Chromic acid	up to 40%	Χ	X	Χ
Chromic acid	50%	Χ	X	Χ
Chromium salts		n/a	n/a	n/a
Cider		Α	n/a	n/a
Citric acid	Saturated solution	Α	Α	Α
Citric oils		Α	n/a	n/a
Clorox® (bleach)		Χ	X	Χ
Coconut oil		Α	n/a	n/a
Coffee		Α	n/a	n/a
Copper (II)	Saturated solution	Α	Α	n/a
Copper (II) chloride	Saturated solution	Α	Α	n/a
Copper cyanide		Α	n/a	n/a
Copper (II) nitrate	Saturated solution	Α	Α	Α
Copper sulfate	up to 5%	Α	n/a	n/a
Copper sulfate	over 5%	Α	n/a	n/a
Corn oil		Α	F	Χ
Cottonseed oil		Α	Α	n/a
Cream		Α	n/a	n/a
Cresols	over 90%	Α	n/a	n/a
Cresylic acid		Α	n/a	n/a
Cupric acid		Α	A to 120°F (48°C)	n/a
Cyclohexane	100%	Α	n/a	n/a
Cyclohexanol	100%	Α	F	Χ
Cyclohexanone	100%	F	X	Χ
Decalin (decahydronaphthalene)	100%	Χ	X	Χ
Detergents (can be stress cracking agents)		Α	n/a	n/a
Dextrin	Aqueous solution	Α	Α	n/a
Dextrose	Aqueous solution	Α	Α	Α
Diacetone alcohol		В	n/a	n/a
Dibutyl phthalate	100%	Α	F	Χ
Dichloroacetic acid	100%	F	X	Χ
Dichlorobenzene		F	X	Χ



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Dichloroethane		X	Χ	Х
Dichloroethylene (A and B)	100%	F	X	Χ
Diesel fuel		Α	X	Χ
Diethanolamine	100%	Α	n/a	n/a
Diethyl ether	100%	Α	F	Χ
Diethylamine		Α	n/a	n/a
Diethylene glycol	100%	Α	Α	n/a
Diglycolic acid	Saturated solution	Α	n/a	n/a
Diisooctyl	100%	Α	F	Χ
Dimethyl amine, gas		Α	n/a	n/a
Dimethyl aniline		Χ	X	Χ
Dimethyl formamide	100%	Α	А	n/a
Dioctyl phthalate	100%	F	F	Χ
Dioxane	100%	F	F	Χ
Diphenyl		Χ	X	Χ
Diphenyl oxide		Χ	X	Χ
Distilled water	100%	Α	Α	Α
Epsom salts (magnesium sulfate)		Α	n/a	n/a
Ethane		Χ	X	Χ
Ethanol		Α	n/a	n/a
Ethanolamine	100%	Χ	X	Χ
Ether		Χ	X	Χ
Ethyl acetate	100%	F	X	Χ
Ethyl alcohol	up to 95%	Α	Α	Α
Ethyl benzoate		В	X	Χ
Ethyl chloride, gas		Χ	X	Χ
Ethylene chloride (mono and di)		F	F	Χ
Ethyl ether	100%	Α	F	Χ
Ethylene bromide		Χ	Χ	Χ
Ethylene chloride		F	X	Χ
Ethylene chlorohydrin		Χ	X	Χ
Ethylene Dichloride		Χ	Χ	Χ
Ethylene glycol	100%	Α	Α	Α
Ethylene oxide		Χ	Χ	Χ
Fatty acid amides		Α	n/a	n/a
Fatty acids		Α	F	X



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Fatty alcohols		Α	n/a	n/a
Ferric and ferrous salts		Α	Α	n/a
Ferric chloride	Saturated solution	Α	Α	Α
Ferric nitrate		Α	А	n/a
Ferric sulfate		Α	Α	Α
Ferrous chloride (aqueous)	All	Α	Α	n/a
Ferrous sulfate		Α	Α	Α
Fertilizer salts (aqueous)	All	Α	Α	n/a
Fir wood oil		Α	Α	n/a
Fluoboric acid (aqueous)		Α	n/a	n/a
Fluorine		Χ	X	Χ
Fluorine gas, dry		Х	X	Χ
Fluorine gas, wet		Χ	X	Χ
Fluosilicic acid		Α	n/a	n/a
Fluosilicic acid	30% to 40%	n/a	n/a	n/a
Formaldehyde	less than 40%	Α	Α	n/a
Formaldehyde	40%	Α	n/a	n/a
Formaldehyde	100%	F	Χ	Χ
Formamide		Α	Α	n/a
Formic acid (aqueous)	10%	Α	Α	F
Formic acid (aqueous)	10% to 50%	Α	Α	F
Formic acid (aqueous)	85%	Α	Χ	Χ
Formic acid (aqueous)	85% to 100%	Α	Χ	Χ
Formic acid, anhydrous	100%	Α	F	F
Freon 12		А	A to 120°F (48°C)	Х
Freon 22		В	Χ	Χ
Freon 113		Χ	Χ	Χ
Freon 114		Χ	X	Χ
Freon F21		Χ	X	Χ
Freon F22		Χ	X	Χ
Freon TF		Χ	X	Χ
Freonr11		Α	n/a	n/a
Fructose	All	Α	Α	Α
Fruit juices	All	Α	А	Α
Fruit pulp		Α	Α	Α
Fuel oils		Α	n/a	n/a



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Furan resin		Χ	Χ	Χ
Furfural		F	F	Χ
Furfuryl alcohol		Α	X	Χ
Gallic acid		Α	n/a	n/a
Gasoline, highly aromatic		Α	X	Χ
Gasoline, leaded, refined		В	Χ	Χ
Gasoline, petrol (aliphatic hydrocarbons)		Χ	X	Χ
Gasoline, unleaded		F	Χ	Χ
Gelatin		Α	Α	n/a
Genantin®		Α	Α	Α
Glucose	20%	Α	Α	Α
Glue		Α	Α	n/a
Glycerine	100%	Α	Α	Α
Glycerine (glycerol, aqueous)	All	Α	Α	Α
Glycerol chlorohydrin		Α	n/a	n/a
Glycine		Α	Α	n/a
Glycol (aqueous)		Α	Α	Α
Glycolic acid	30%	Α	n/a	n/a
Glycolic acid (aqueous)	less than 70%	Α	n/a	n/a
Glysantin®		Α	Α	Α
Heptane	100%	F	X	Χ
Hexane	100%	Α	F	Χ
Hexanetriol		Α	Α	Α
Hexanol		Α	n/a	n/a
Honey		Α	Α	n/a
Hydraulic oil (petroleum)		Χ	X	Χ
Hydraulic oil (synthetic)		Χ	Χ	Χ
Hydrastine		Α	n/a	n/a
Hydrazine		F	Χ	Χ
Hydrazine hydrate		Α	n/a	n/a
Hydrobromic acid	up to 20%	Α	A to 120°F (48°C)	Χ
Hydrobromic acid	up to 48%	Α	F	Χ
Hydrobromic acid	100%	F	X	Χ
Hydrochloric acid	up to 20%	Α	Α	А
Hydrochloric acid	20%	В	X	Χ
Hydrochloric acid	30%	В	F	F

It is the sole responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation, and maintenance of these products. Material compatibility, product ratings and application details should be considered in the selection. Improper selection or use of products described herein can cause personal injury or product damage.



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Hydrochloric acid	from 35 to 36%	F	X	Χ
Hydrochloric acid	37%	F	X	Χ
Hydrochloric acid	100%	В	Χ	Χ
Hydrochloric acid, dry gas		В	X	Χ
Hydrocyanic acid	100%	Α	Α	n/a
Hydrofluoric acid	Dilute aqueous solution	Α	n/a	n/a
Hydrofluoric acid	Up to 20%	Α	A to 120°F (48°C)	Χ
Hydrofluoric acid	40%	Α	A to 120°F (48°C)	Х
Hydrofluoric acid	50%	Α	A to 120°F (48°C)	Х
Hydrofluoric acid	75%	F	X	Χ
Hydrofluoric acid	100%	F	X	Х
Hydrofluosilicic acid	100%	Α	n/a	n/a
Hydrofluosilicic acid	20%	Α	n/a	n/a
Hydrogen gas	100%	Α	Α	n/a
Hydrogen chloride, gas, wet or dry	100%	Α	Α	n/a
Hydrogen peroxide	up to 10%	Α	n/a	n/a
Hydrogen peroxide	30%	В	Χ	Χ
Hydrogen peroxide	5%	В	X	Χ
Hydrogen peroxide	100%	В	X	Χ
Hydrogen sulfide, aqua		Α	X	Χ
Hydrogen sulfide, dry gas	100%	Α	X	Χ
Hydroquinone		Α	n/a	n/a
Hydrosulfite (aqueous)	less than 10%	Α	Α	n/a
Hydroxylamine sulphate (aqueous)	12%	Α	А	n/a
Hypochlorous acid		F	F	Χ
Ink		Α	Α	n/a
lodine		F	Χ	X
lodine, in alcohol		Α	F	Χ
lodine in potassium iodide (aqueous)	3%	Α	F	X
Iron (III) chloride (aqueous)	100%	Α	Α	Α
Isobutyl alcohol		Α	n/a	n/a
Isooctane	100%	F	Χ	Χ
Isopropanol	Pure	Α	Α	Α
Isopropyl alcohol	100%	Α	А	Α



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Isopropyl ether	100%	F	Χ	Х
Jam, jellies		А	Α	Α
Jet fuels, JP-4 and JP-5		F	Χ	Χ
Juice, apple		Α	n/a	n/a
Kerosene		F	Χ	Χ
Ketones		F	F	Χ
Kresol		Α	n/a	n/a
Labarraque's solution		Α	n/a	n/a
Lacquer thinners		Χ	Χ	Χ
Lacquers		Χ	Χ	Χ
Lactic acid	10% to 96%	Α	Α	Α
Lactose		Α	Α	n/a
Lanolin (wool fat)		Α	F	Χ
Lanoline		Α	F	Χ
Lard		В	Χ	Χ
Latex		Α	A to 120°F (48°C)	Х
Lead acetate (aqueous)	All	Α	Α	n/a
Lead nitrate		Α	A to 120°F (48°C)	Χ
Lead salts		Α	Α	n/a
Lead sulfamate		Α	A to 120°F (48°C)	Х
Lead tetraethyl		Α	n/a	n/a
Ligroin		А	A to 120°F (48°C)	n/a
Lime		Α	Α	A
Lime sulfur		n/a	n/a	n/a
Lime water		A	A	n/a
Linoleic acid		В	X	X
Linseed oil		Α	Α	Α
Liqueurs		А	Α	n/a
Liquid manure		Α	А	n/a
Liquid paraffin		Α	F	X
Liquid soaps		Α	А	n/a
Liquors		Α	Α	n/a
Lithium bromide		Α	А	n/a
Lithium chloride		А	A to 120°F (48°C)	Х



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Lithium slats		Α	Α	n/a
Lubricants		Α	n/a	n/a
Lubricating oils		F	F	Χ
Lye: Ca(OH) ² calcium hydroxide		А	A to 120°F (48°C)	Х
Lye: KOH potassium hydroxide		Α	n/a	n/a
Lye: NaOH sodium hydroxide		Α	n/a	n/a
Lysol®		Α	F	Χ
Magnesium bisulfate		Α	A to 120°F (48°C)	Χ
Magnesium carbonate	Saturated solution	Α	Α	Α
Magnesium chloride	Saturated solution	Α	Α	n/a
Magnesium hydroxide	Saturated solution	Α	Α	n/a
Magnesium nitrate		Α	n/a	n/a
Magnesium sulphate (Epsom salts)	Saturated solution	Α	Α	n/a
Maleic acid	Saturated solution	Α	Α	n/a
Maleic anhydride		Χ	X	Χ
Malic acid		Α	n/a	n/a
Melamine		Α	n/a	n/a
Mercuric chloride (dilute)		В	Χ	Χ
Mercury (II) chloride	Saturated solution	Α	Α	n/a
Mercury (II) cyanide	Saturated solution	Α	Α	n/a
Mercury (I) nitrate	Aqueous solution	Α	Α	n/a
Mercury	100%	Α	Α	n/a
Methacrylic acid		Α	Α	n/a
Methane		Α	F	Χ
Methanol	Pure	Α	Α	n/a
Methoxybutanol		Α	n/a	n/a
Methoxybutyl acetate (Butoxyl)		Α	n/a	n/a
Methyl acetate	100%	Α	Α	n/a
Methyl acrylate		Χ	Χ	Χ
Methyl alcohol	5%	Α	F	F
Methyl alcohol	10%	Α	n/a	n/a
Methyl amine	up to 32%	Α	n/a	n/a
Methyl benzene		F	X	Χ
Methyl bromide	100%	Χ	X	Χ
Methyl butyl ketone		X	Χ	Χ



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Methyl cellosolve		Α	F	Х
Methyl chloride		Χ	X	n/a
Methyl chloroform		F	X	n/a
Methyl cyclohexane		F	Χ	Χ
Methyl cyclohexanone		Α	F	Χ
Methyl dichloride		Χ	Χ	Χ
Methyl ethyl ketone	100%	Α	n/a	n/a
Methyl glycol		Α	Α	n/a
Methyl isobutyl ketone		Α	F	Χ
Methyl methacrylate		Χ	X	Χ
Methyl propyl ketone		Α	n/a	n/a
Methyl salicylate		Α	n/a	n/a
Methyl sulfate	50%	Χ	Χ	Х
4-methyl-2-pentanone		Α	n/a	n/a
Methylamine		Α	n/a	n/a
Methylene bromide		Χ	Χ	Χ
Methylene chloride	100%	F	Χ	Х
Methylene iodide		Χ	Χ	n/a
Milk		В	В	В
Mineral oil		Α	F	Χ
Mineral spirits		В	Χ	Х
Mixed acids (sulfuric and nitric)		Χ	Χ	Х
Mixed acids (sulfuric and phosphoric)		Α	F	Х
Molasses		Α	Α	n/a
Monochloroacetic acid	over 85%	Α	Α	n/a
Monochloroacetic acid ethyl ester		Α	Α	n/a
Monochloroacetic acid methyl ester		Α	Α	n/a
Monochlorobenzene		Α	n/a	n/a
Monoethanolamine		В	Χ	Χ
Morpholine		В	B to 120°F (48°C)	Х
Motor oil		Α	F	Х
Mowilith polymer emulsions®		Α	n/a	n/a
Mustard		Α	n/a	n/a
Nail polish remover		Α	F	Χ
Naphtha		Α	X	Х
Naphthalene		В	n/a	n/a



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Natural gas		Α	F	Х
Nickel chloride	Saturated solution	Α	Α	n/a
Nickel nitrate	Saturated solution	Α	Α	n/a
Nickel salts		Α	Α	n/a
Nickel sulphate (aqueous)	All	Α	Α	n/a
Nitrating Acid (less than 15% HNO3)		F	Χ	Χ
Nitrating Acid (more than 15% H2SO4)		F	X	Χ
Nitrating Acid (S1% Acid)		F	Χ	Χ
Nitrating Acid (S15% H2SO4)		F	X	Χ
Nitric acid	5 to 10%	Α	n/a	n/a
Nitric acid	up to 20%	Α	A to 120°F (48°C)	Χ
Nitric acid	up to 30%	Α	X	Х
Nitric acid	40% to 50%	В	Χ	Х
Nitric acid	50%	В	Χ	Х
Nitric acid	Concentrated	X	X	Х
Nitric acid, fuming (with nitrogen dioxide)		X	X	Х
Nitrobenzene	100%	Α	F	Х
Nitrocellulose		Α	n/a	n/a
Nitromethane		В	B to 120°F (48°C)	Χ
Nitrotoluene		Α	F	Х
Nitrous acid		Α	n/a	n/a
Nitrous oxide (gas)		X	Χ	Χ
Nonyl alcohol		Α	n/a	n/a
Octyl cresol		F	Χ	Χ
Oils: almond		Α	Α	n/a
Oils: aniline		Α	n/a	n/a
Oils: animal		Α	F	Χ
Oils: bone		Α	n/a	n/a
Oils: camphor		Χ	X	Χ
Oils: castor		Α	n/a	n/a
Oils: cinnamon		Χ	X	Χ
Oils: citric		Α	n/a	n/a
Oils: coconut		Α	n/a	n/a
Oils: cod Liver		Α	n/a	n/a
Oils: corn		Α	A to 120°F (48°C)	Х



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Oils: cottonseed		Α	n/a	n/a
Oils: creosote		F	X	X
Oils: diesel Fuel (20, 30, 40, 50)		Α	n/a	n/a
Oils: fir wood		Α	Α	n/a
Oils: fuel (1, 2, 3, 5A, 5B, 6)		В	Χ	Χ
Oils: hydraulic oil (petroleum)		Χ	X	Χ
Oils: hydraulic oil (synthetic)		Χ	Χ	Χ
Oils: linseed		Α	n/a	n/a
Oils: mineral		Α	n/a	n/a
Oils: olive		Α	A to 120°F (48°C)	Χ
Oils: orange		Α	n/a	n/a
Oils: palm-kernel		Α	F	Χ
Oils: peanut		Χ	Χ	Χ
Oils: perfume		F	X	Χ
Oils: pine		В	Χ	Χ
Oils: pine needle		Α	Α	n/a
Oils: rapeseed		Χ	Χ	Χ
Oils: rosin		А	A to 120°F (48°C)	Χ
Oils: sesame Seed		Α	n/a	n/a
Oils: silicone		Α	n/a	n/a
Oils: soybean		Α	n/a	n/a
Oils: transformer		В	n/a	n/a
Oils: turbine		В	n/a	n/a
Oils: walnut		Α	n/a	n/a
Oleic acid	100%	Α	F	Χ
Oleum	25%	Χ	Χ	Χ
Oleum	100%	Χ	X	Χ
Optical brighteners (can be stress cracking agents)		Α	Α	n/a
Oxalic acid	Saturated solution	Α	F	Χ
Oxygen, gas		F	Χ	Χ
Ozone, gas		В	Χ	Χ
Palmitic acid	10%	В	В	Χ
Palmitic acid	70%	В	В	X
Palmitic alcohol		Α	Α	n/a
Palm-kernel oil		Α	F	Χ



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Paraffin		А	А	n/a
Paraffin oil		Χ	Χ	Χ
Paraformaldehyde		Α	n/a	n/a
Peanut oil		Α	Α	n/a
Pentane		Χ	Χ	Χ
Pentanol		Α	n/a	n/a
Peppermint oil		Α	n/a	n/a
Perchloric acid (aqueous)	less than 20%	Α	Α	n/a
Perchloric acid (aqueous)	70%	F	Χ	Χ
Perchloroethylene		Χ	Χ	Χ
Perfume oils		F	Χ	Χ
Petrolatum		Χ	Χ	Χ
Petroleum (refined)		В	В	Χ
Petroleum (sour)		В	F	Χ
Petroleum ether (ligroin or ligroine)		F	F	Χ
Phenol (carbolic acid)	5%	В	В	Χ
Phenol (carbolic acid)	10%	В	Χ	Χ
Phenolic resin molding materials		Α	Α	n/a
Phenyl sulphonate		Α	Α	n/a
Phenylethyl alcohol		Α	n/a	n/a
Phenylhydrazine		F	F	Χ
Phenylhydrazine hydrochloride		В	Χ	Χ
Phosgene gas		F	F	Χ
Phosgene liquid		Χ	Χ	Χ
Phosphates (aqueous)	All	Α	А	n/a
Phosphine, gas		Α	Α	n/a
Phosphoric acid	S40%	Α	Α	Α
Phosphoric acid	50%	Α	Α	Α
Phosphoric acid	up to 85%	Α	А	Α
Phosphoric acid	80% to 100%	Α	n/a	n/a
Phosphoric acid, crude		В	Χ	Χ
Phosphoric acid, molten		Χ	Χ	Χ
Phosphoric acid anhydride		Α	А	Α
Phosphorus		Α	Α	Α
Phosphorus oxychloride		F	F	Χ
Phosphorus oxychloride	100%	F	Χ	X



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Phosphorus pentoxide		Α	А	n/a
Phosphorus trichloride		Α	n/a	n/a
Photographic developer		Α	Α	Α
Photographic solutions		Α	A to 120°F (48°C)	Х
Phthalic acid		Α	n/a	n/a
Phthalic acid (aqueous)	50%	Α	Α	n/a
Phthalic acid ester		В	F	Χ
Phthalic anhydride		Χ	Χ	Χ
Picric acid (aqueous)	Saturated solution	Α	n/a	n/a
Pine needle oil		Α	Α	n/a
Pineapple juice		Α	Α	n/a
Plasticizers		В	F	Χ
Plating Solutions, Antimony Plating		Α	A to 130°F (54°C)	n/a
		A	A to 110°F	II/a
Plating Solutions, Arsenic Plating		Α	(43°C)	n/a
Plating Solutions, Brass Plating: High-Speed Brass Bath		Α	A to 110°F (43°C)	n/a
Disting Colutions Dusco Disting Daniel Dusco Dath			A to 100°F	II/a
Plating Solutions, Brass Plating: Regular Brass Bath		Α	(38°C)	n/a
Plating Solutions, Bronze Plating: Cu-Cd Bronze Bath R.T.		Α	n/a	n/a
Plating Solutions, Bronze Plating: Cu-Sn Bronze Bath		Α	A to 160°F (71°C)	n/a
Plating Calutions Drawn Plating Cv. 7a Drawn Bath			A to 100°F	II/a
Plating Solutions, Bronze Plating: Cu-Zn Bronze Bath		Α	(38°C)	n/a
Plating Solutions, Cadmium Plating: Cyanide Bath		Α	A to 90°F (32°C)	n/a
Distinct Colutions Codesium Distinct Flushousts Dath			A to 100°F	II/a
Plating Solutions, Cadmium Plating: Fluoborate Bath		Α	(38°C)	n/a
Plating Solutions, Chromium Plating: Barrel Chrome Bath		۸	A to 95°F (35°C)	n/a
Distinct Orbitisms Observing Distinct Distinct Dist		Α	A to 115°F	II/a
Plating Solutions, Chromium Plating: Black Chrome Bath		Α	(46°C)	n/a
Plating Solutions, Chromium Plating: Chromic-Sulfuric		•	A to 130°F	,
Bath		Α	(54°C) A to 130°F	n/a
Plating Solutions, Chromium Plating: Fluoride Bath		Α	(54°C)	n/a
Plating Solutions, Chromium Plating: Fluosilicate Bath		Χ	X	Χ
Plating Solutions, Gold Plating: Cyanide		۸	A to 150°F	n/a
Plating Solutions, Indium Sulfamate Plating R.T.		A	(66°C)	n/a
i lating solutions, multim suitamate Flating N.T.		Α	n/a	n/a



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Plating Solutions, Iron Plating: Ferrous Am Sulfate Bath		Α	A to 150°F (66°C)	n/a
Plating Solutions, Iron Plating: Ferrous Chloride Bath		F	F to 190°F (88°C)	Х
Plating Solutions, Iron Plating: Ferrous Sulfate Bath			A to 150°F	
Plating Solutions, Iron Plating: Fluoborate Bath		Α	(66°C) A to 145°F	n/a
		Α	(63°C) A to 140°F	n/a
Plating Solutions, Iron Plating: Sulfamate		Α	(60°C)	n/a
Plating Solutions, Iron Plating: Sulfate-Chloride Bath		Α	A to 160°F (71°C)	n/a
Plating Solutions, Lead Fluoborate Plating		Α	n/a	n/a
Plating Solutions, Nickel Plating: Electroless		Χ	Χ	Χ
Plating Solutions, Rhodium Plating		Α	A to 120°F (49°C)	n/a
Plating Solutions, Tin-Fluoborate Plating		٨	A to 100°F	n/a
Disting Colutions Tip Load Disting		Α	(38°C) A to 100°F	n/a
Plating Solutions, Tin-Lead Plating		Α	(38°C)	n/a
Plating Solutions, Zinc Plating: Acid Chloride		Α	A to 140°F (60°C)	n/a
Plating Solutions, Zinc Plating: Acid Fluoborate Bath R.T.		Α	n/a	n/a
Plating Solutions, Zinc Plating: Acid Sulfate Bath		Α	A to 150°F (66°C)	Х
Plating Solutions, Zinc Plating: Alkaline Cyanide Bath R.T.		Α	n/a	n/a
Polyalkylene glycol (PAG)		В	В	В
Polyalphaolefins (PAO)		Χ	X	Χ
Polyester plasticizers		Α	n/a	n/a
Polyester resins		F	Χ	X
Polyglycols		Α	Α	n/a
Polyolester (POE)		Χ	X	Χ
Potash alum (aqueous)		Α	Α	Α
Potassium bicarbonate (potash)	Saturated solution	Α	Α	Α
Potassium bisulfate (aqueous)	All	Α	Α	Α
Potassium borate	Saturated solution	Α	Α	n/a
Potassium borate (aqueous)	1%	Α	Α	n/a
Potassium bromate	Up to 10%	Α	Α	n/a
Potassium bromide (aqueous)	All	Α	Α	Α
Potassium carbonate (aqueous)	All	Α	Α	n/a
Potassium chlorate (aqueous)	All	Α	Α	Α



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Potassium chloride (aqueous)	All	Α	А	А
Potassium chlorite	Saturated solution	Α	Α	n/a
Potassium chromate (aqueous)	All	Α	Α	Α
Potassium cyanide (aqueous)	All	Α	Α	n/a
Potassium cyanide solutions		Α	n/a	n/a
Potassium dichromate (aqueous)	All	Α	Α	Α
Potassium ferricyanide (aqueous)	All	Α	Α	n/a
Potassium ferrocyanide (aqueous)	All	Α	Α	n/a
Potassium fluoride (aqueous)	All	Α	Α	n/a
Potassium hydroxide (caustic potash)	Up to 50%	Α	Α	Α
Potassium iodide	Saturated solution	А	A to 120°F (48°C)	Х
Potassium nitrate	Saturated solution	Α	Α	n/a
Potassium perchlorate	up to 10%	Α	Α	n/a
Potassium permanganate	(2 N) 30%	Α	F	Χ
Potassium persulfate (aqueous)	All	Α	Α	n/a
Potassium salts		Α	Α	n/a
Potassium sulphate	Saturated solution	Α	Α	n/a
Potassium sulfide		Α	Α	n/a
Potassium sulfite		Α	Α	n/a
Potassium thiosulphate		Α	Α	n/a
Propane, gas	100%	Α	F	Χ
Propane (liquified)		Α	n/a	n/a
Propargyl alcohol (aqueous)	7%	Α	Α	n/a
Propionic acid (aqueous)	All	Α	Α	n/a
Propyl alcohol		Α	n/a	n/a
Propylene dichloride	100%	X	X	Χ
Propylene glycol		Α	A to 120°F (48°C)	Х
Propylene oxide		В	F	Χ
Pyridine	100%	F	F	Х
Pyrogallic acid		Α	n/a	n/a
Quinone		Α	Α	n/a
Resorcinol		А	A to 120°F (48°C)	Х
Rosins		А	A to 120°F (48°C)	Х
Rubber dispersions (latexes)		Α	Α	n/a



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Rum		А	n/a	n/a
Rust inhibitors		Α	n/a	n/a
Sagrotan®		В	F	Χ
Salad dressings		Α	n/a	n/a
Salicylaldehyde		Α	F	Χ
Salicylic acid		Α	F	Χ
Salt brine (NaCl saturated)		Α	n/a	n/a
Saturated steam condensate		Α	Α	n/a
Sauerkraut		Α	А	Α
Seawater		Α	Α	Α
Sewage (residential)		Α	А	Χ
Shellac (bleached)		Α	n/a	n/a
Shellac (orange)		Α	n/a	n/a
Silicic acid (aqueous)	All	Α	Α	n/a
Silicone oil		Α	А	Α
Silver nitrate	Saturated solution	Α	Α	F
Silver salts		Α	А	n/a
Soap solutions (can be stress cracking agents)		Α	n/a	n/a
Soda ash (sodium carbonate)		Α	n/a	n/a
Sodium acetate (aqueous)	All	Α	Α	Α
Sodium aluminum sulphate		Α	Α	n/a
Sodium benzoate	35%	Α	F	Χ
Sodium bicarbonate	Saturated solution	Α	Α	Α
Sodium bisulfate		Α	Α	Α
Sodium bisulfate (aqueous)	All	Α	Α	n/a
Sodium bisulfite		Α	n/a	n/a
Sodium borate (borax)	Aqueous solution	Α	Α	n/a
Sodium bromide		Α	Α	n/a
Sodium carbonate (soda ash)	up to 50%	Α	Α	F
Sodium chlorate	Saturated solution	Α	Α	n/a
Sodium chloride (aqueous)	Saturated solution	Α	Α	Α
Sodium chlorite	2%	Α	F	Χ
Sodium chlorite	20%	Α	F	Χ
Sodium chromate		Α	Α	n/a
Sodium cyanide		Α	А	n/a
Sodium dichromate	Saturated solution	Α	Α	Α



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Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Sodium dichromate, acid		Α	Α	А
Sodium dodecylbenzene sulfonate		Α	Α	n/a
Sodium ferrocyanide		Α	Α	n/a
Sodium fluoride		Α	Α	n/a
Sodium hexacyanoferrate		Α	Α	n/a
Sodium hydrogen carbonate	Saturated solution	Α	Α	Α
Sodium hydrogen phosphate		Α	Α	n/a
Sodium hydrogen sulphate	Saturated solution	Α	Α	n/a
Sodium hydrogen sulfite	Saturated solution	Α	n/a	n/a
Sodium hydroxide (solid and aqueous)	All	Α	Α	Α
Sodium hypochlorite	5%	Α	F	Χ
Sodium hypochlorite	10% to 15%	Α	F	Χ
Sodium hypochlorite	20%	Α	F	Χ
Sodium hypochlorite	100%	В	Χ	Χ
Sodium metaphosphate	Aqueous solution	Α	n/a	n/a
Sodium metasilicate		Α	n/a	n/a
Sodium nitrate		Α	n/a	n/a
Sodium nitrate (aqueous)	Saturated solution	Α	Α	n/a
Sodium perborate (aqueous)	All	Α	Α	Α
Sodium peroxide		В	Χ	Χ
Sodium phosphate (neutral, aqueous)	Saturated solution	Α	Α	А
Sodium polyphosphate		Α	n/a	n/a
Sodium salts (aqueous)		Α	Α	n/a
Sodium silicate	Aqueous solution	Α	Α	n/a
Sodium sulfate		Α	Α	Α
Sodium sulfate	Saturated solution	Α	Α	n/a
Sodium sulfide	Saturated solution	Α	Α	n/a
Sodium sulfite	40%	Α	Α	Α
Sodium thiosulphate (hypo)	Saturated solution	Α	n/a	n/a
Sodium thiosulphate (solid and aqueous)		Α	Α	n/a
Soft soap		Α	Α	n/a
Sorghum syrup		Α	Α	А
Soybean oil		Α	F	n/a
Stannic chloride		Α	Α	n/a
Stannous chloride		Α	Α	n/a
Starch (aqueous)	All	Α	A to 120°F (48°C)	n/a



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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 Saturated solution A A n/a Sugar (liquids) A n/a n/a n/a Sulfite (liquors) A A A A n/a Sulfite (liquors) A A A A A A n/a	Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Stoddard solvent F X X Styrene B X X Succinic acid 50% A A n/a Succinic acid Saturated solution A A n/a Sugr (liquids) A A n/a n/a Sulfite (liquors) A A n/a n/a Sulfite (liquors) A A A A Sulfite (liquors) A	Stearic acid	50%	А		n/a
Styrene B X X Succinic acid \$50% A A A n/a Succinic acid \$aturated solution A A A n/a Sugar (liquids) A A n/a n/a Sulfate (liquors) A A A n/a Sulfur A A A A A Sulfur acid (sulphacid) 10% to 30% A A A A Sulfur chloride F X X X Sulfur dioxide (dry) A A A n/a Sulfur dioxide (dry) A A A n/a Sulfur toxide (dry) A A A n/a Sulfur toxide (dry) X X X X Sulfur toxide (dry) X X X X Sulfur toxide (dry) X X X X Sulfuric acid 10% to 50% A F X	Stoddard solvent	3070		` ,	
Succinic acid 50% A A n/a Succinic acid Saturated solution A A n/a Sugar (liquids) A n/a n/a Sulfate (liquors) A A A n/a Sulfite (liquors) A A A N Sulfur (liquors) A A A A Sulfur (liquors) A A A A Sulfur (liquors) A A A A Sulfur colid (sulphacid) 10% to 30% A A A n/a Sulfur choride F X X X X X Sulfur choride (dry) A A A n/a					
Succinic acid Saturated solution A A n/a Sugar (liquids) A n/a n/a Sulfate (liquors) A A n/a Sulfite (liquors) A A A Sulfur (liquors) A A A Sulphur A A A Sulphur acid (sulphacid) 10% to 30% A A Sulfur chloride F X X Sulfur dioxide (dry) A A A Sulfur dioxide (wet) A A A n/a Sulfur trioxide (dry) X X X X Sulfur trioxide (dry) X X X X Sulfur trioxide (dry) X X X X Sulfuric acid Up to 10% A A A A Sulfuric acid To 50% A F X X Sulfuric acid To 60% A X X X	•	50%			
Sugar (liquids) A n/a n/a Sulfate (liquors) A n/a n/a Sulfiter (liquors) A A A n/a Sulphur A A A A A Sulphur acid (sulphacid) 10% to 30% A A A n/a Sulfur chloride F X X X SUlfur trioxide (dry) A A A n/a Sulfur dioxide (wet) A A A n/a n/a N n/a N n/a	Succinic acid				
Sulfiate (liquors) A n/a n/a Sulfite (liquors) A A A A Sulphur acid (sulphacid) 10% to 30% A A A Sulfur chloride F X X Sulfur dioxide (dry) A A A n/a Sulfur trioxide (wet) A A A n/a Sulfur trioxide (dry) X X X X Sulfur trioxide (dry) X X X X Sulfur trioxide (dry) X X X X Sulfur cacid Up to 10% A A A A Sulfuric acid 50% A F X <td< td=""><td>Sugar (liquids)</td><td></td><td></td><td></td><td></td></td<>	Sugar (liquids)				
Sulfite (liquors) A A A Sulphur A A A Sulphur acid (sulphacid) 10% to 30% A A A Sulfur chloride F X X Sulfur chloride (dry) A A A n/a Sulfur dioxide (wet) A A A n/a Sulfur trioxide F X X Sulfur trioxide (dry) X X X X Sulfuric acid Up to 10% A A A Sulfuric acid 10% to 50% A F X Sulfuric acid 50% A F X Sulfuric acid over 90% F X X Sulfuric acid (cold concentrated) X X X Sulfuric acid (fot concentrated) X X X Sulfuric acid (fot concentrated) X X X Sulfuric acid Y X X X Sulfuri					
Sulphur A A A Sulphur acid (sulphacid) 10% to 30% A A n/a Sulfur chloride F X X Sulfur dioxide (dry) A A A n/a Sulfur dioxide (wet) F X X X Sulfur trioxide F X X X Sulfur trioxide (dry) X X X X Sulfuric acid Up to 10% A A A Sulfuric acid 50% A F X Sulfuric acid 70% to 90% B X X Sulfuric acid (cold concentrated) A A X Sulfuric acid (hot concentrated) X X X Sulfuric acid (hot concentrated) A A A n/a Sulfuryl chloride X X X X Syrups and sugars A A A A A A A A A A<					
Sulfur chloride 10% to 30% A A A Sulfur chloride F X X Sulfur dioxide (dry) A A A n/a Sulfur dioxide (wet) A A A n/a Sulfur trioxide F X X Sulfur trioxide (dry) X X X Sulfuric acid Up to 10% A A A Sulfuric acid 10% to 50% A F X Sulfuric acid 50% A F X Sulfuric acid 70% to 90% B X X Sulfuric acid (cold concentrated) X X X Sulfuric acid (hot concentrated) X X X Sulfurous acid Up to 30% A A n/a Sulfurous acid Up to 30% A A n/a Sulfurous acid Up to 30% A A A n/a Sulfurous acid A A <t< td=""><td></td><td></td><td></td><td>А</td><td></td></t<>				А	
Sulfur dioxide (dry) A A A n/a Sulfur dioxide (wet) A A A n/a Sulfur trioxide F X X Sulfur trioxide (dry) X X X Sulfuric acid Up to 10% A A A Sulfuric acid 10% to 50% A F X Sulfuric acid 50% A F X Sulfuric acid 70% to 90% B X X Sulfuric acid (cold concentrated) A X X Sulfuric acid (hot concentrated) X X X Sulfuric acid (hot concentrated) X X X Sulfurous acid Up to 30% A A A n/a Sulfuryl chloride X	· ·	10% to 30%		А	
Sulfur dioxide (wet) A A A N/a Sulfur trioxide F X X Sulfur trioxide (dry) X X X Sulfuric acid Up to 10% to 50%	Sulfur chloride		F	Х	Х
Sulfur trioxide F X X Sulfur trioxide (dry) X X X Sulfuric acid Up to 10% A A A Sulfuric acid 10% to 50% A F X Sulfuric acid 50% A F X Sulfuric acid 70% to 90% B X X Sulfuric acid (cold concentrated) A X X Sulfuric acid (hot concentrated) X X X Sulfuric acid (hot concentrated) X X X Sulfuric acid (hot concentrated) X X X Sulfurous acid Up to 30% A A A Sulfuryl chloride X X X X Syrups and sugars A A A A Tallow A A A A Tannic acid A A A A Tanning liquors A A A A	Sulfur dioxide (dry)		Α	А	n/a
Sulfur trioxide (dry) X X X Sulfuric acid Up to 10% A A A Sulfuric acid 10% to 50% A F X Sulfuric acid 50% A F X Sulfuric acid 70% to 90% B X X Sulfuric acid (cold concentrated) A X X Sulfuric acid (hot concentrated) X X X Sulfuric acid (hot concentrated) X X X Sulfurous acid Up to 30% A A A Sulfurous acid Up to 30% A A A Sulfuryl chloride X X X X Syrups and sugars A A A A Tallow A A A A Tannic acid A A A A Tanning liquors A A A A Tartaric acid (aqueous) A A A <t< td=""><td>Sulfur dioxide (wet)</td><td></td><td>Α</td><td>А</td><td>n/a</td></t<>	Sulfur dioxide (wet)		Α	А	n/a
Sulfuric acid Up to 10% to 50% A A A Sulfuric acid 10% to 50% A F X Sulfuric acid 50% A F X Sulfuric acid 70% to 90% B X X Sulfuric acid (cold concentrated) A X X Sulfuric acid (hot concentrated) X X X	Sulfur trioxide		F	Χ	Х
Sulfuric acid 10% to 50% A F X Sulfuric acid 50% A F X Sulfuric acid 70% to 90% B X X Sulfuric acid (cold concentrated) A X X Sulfuric acid (hot concentrated) X X X X Sulfuric acid (hot concentrated) X X X X Sulfuric acid (hot concentrated) F X X Sulfuric acid (buffer (diethyl ether)) F X X Sulfuric acid (buffer (diethyl ether)) F X X Tallow A A A A A Tallow A A A A A A A A	Sulfur trioxide (dry)		Х	Χ	Х
Sulfuric acid 50% A F X Sulfuric acid 70% to 90% B X X Sulfuric acid (cold concentrated) over 90% F X X Sulfuric acid (hot concentrated) X X X X Sulfuric acid (hot concentrated) F X X Sulfuric acid (hot concentrated) F X X Sulfurous acid Up to 30% A A A n/a Sulfuryl chloride X	Sulfuric acid	Up to 10%	Α	Α	Α
Sulfuric acid 70% to 90% B X X Sulfuric acid over 90% F X X Sulfuric acid (cold concentrated) A X X Sulfuric acid (hot concentrated) X X X Sulfuric ether (diethyl ether) F X X Sulfurous acid Up to 30% A A A n/a Sulfuryl chloride X X X X X X Syrups and sugars A	Sulfuric acid	10% to 50%	Α	F	Х
Sulfuric acid over 90% F X X Sulfuric acid (cold concentrated) A X X Sulfuric acid (hot concentrated) X X X Sulphuric ether (diethyl ether) F X X Sulfurous acid Up to 30% A A A n/a Sulfuryl chloride X	Sulfuric acid	50%	Α	F	Х
Sulfuric acid (cold concentrated) A X X Sulfuric acid (hot concentrated) X X X Sulphuric ether (diethyl ether) F X X Sulfurous acid Up to 30% A A A n/a Sulfuryl chloride X	Sulfuric acid	70% to 90%	В	Χ	Х
Sulfuric acid (hot concentrated) X X X Sulphuric ether (diethyl ether) F X X Sulfurous acid Up to 30% A A A Sulfuryl chloride X X X X Syrups and sugars A A A A Tallow A A to 120°F X Tannic acid A n/a n/a Tanning liquors A n/a n/a Tartaric acid Saturated solution A A n/a Tetrabromoethane X X X X Tetrachloroethylene X X X X	Sulfuric acid	over 90%	F	Χ	Х
Sulphuric ether (diethyl ether) Sulfurous acid Up to 30% A A A A Sulfuryl chloride X X X Syrups and sugars A Tallow Tannic acid Tanning liquors Tanning liquors Tartaric acid Saturated solution Tartaric acid (aqueous) Tetrabromoethane X X X X X X X X X X X X A A	Sulfuric acid (cold concentrated)		Α	Χ	X
Sulfurous acid Up to 30% A A A n/a Sulfuryl chloride X X X X Syrups and sugars A A A A Tallow A A to 120°F A <	Sulfuric acid (hot concentrated)		X	X	X
Sulfuryl chloride X X X X Syrups and sugars A A A A A Tallow A to 120°F A (48°C) X Tannic acid A n/a n/a Tanning liquors A n/a n/a Tartaric acid Saturated solution A A n/a Tartaric acid (aqueous) A A n/a Tetrabromoethane X X X X Tetrachloroethylene F X X Tetrachloroethylene	Sulphuric ether (diethyl ether)		F	Χ	Х
Syrups and sugars Tallow Tallow Tannic acid A n/a n/a Tanning liquors A n/a n/a Tartaric acid Saturated solution A A n/a Tetratracic acid (aqueous) A A A n/a Tetrabromoethane X X X Tetrachloroethylene X X X X	Sulfurous acid	Up to 30%	Α	Α	n/a
Tallow A to 120°F A (48°C) X Tannic acid A n/a n/a Tanning liquors A n/a n/a Tartaric acid Saturated solution A A n/a n/a Tartaric acid (aqueous) A A A n/a Tetrabromoethane X X X Tetrachloroethylene X X X X	Sulfuryl chloride		X	Χ	Х
Tannic acid A (48°C) X Tannic acid A n/a n/a Tanning liquors A n/a n/a Tartaric acid A n/a n/a Tartaric acid Saturated solution A A n A n/a Tartaric acid (aqueous) A A A n/a Tetrabromoethane X X X Tetrachloroethane F X X Tetrachloroethylene X X X	Syrups and sugars		Α		Α
Tannic acid A n/a n/a Tanning liquors A n/a n/a Tartaric acid A n/a n/a Tartaric acid Saturated solution A A n n/a Tartaric acid (aqueous) A A n/a Tetrabromoethane X X X Tetrachloroethane F X X Tetrachloroethylene X X X	Tallow		Α		Χ
Tartaric acid Saturated solution A A n/a Tartaric acid (aqueous) A A A n/a Tetrabromoethane X X X Tetrachloroethane F X X Tetrachloroethylene X X X	Tannic acid			` ,	
Tartaric acid (aqueous) A A A n/a Tetrabromoethane X X X Tetrachloroethane F X X Tetrachloroethylene X X X	Tanning liquors		Α	n/a	n/a
Tetrabromoethane X X X Tetrachloroethane F X X Tetrachloroethylene X X X	Tartaric acid	Saturated solution	Α	Α	n/a
Tetrachloroethane F X X Tetrachloroethylene X X X	Tartaric acid (aqueous)		Α	Α	n/a
Tetrachloroethylene χ χ	Tetrabromoethane		X	X	X
	Tetrachloroethane		F	X	X
Tetraethyl lead A n/a n/a	Tetrachloroethylene		X	X	Χ
	Tetraethyl lead		Α	n/a	n/a



ver 14-Sep-2021

Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Tetrahydronaphthalene (Tetralin®)		X	X	Х
Tetrahydrofuran	100%	F	Χ	Χ
Tetralin	100%	Χ	Χ	Χ
Thiophene	100%	F	Χ	Χ
Thread cutting oil		Α	F	Χ
Tin (IV) chloride	Aqueous solution	Α	Α	n/a
Tin (II) chloride	Saturated solution	Α	Α	n/a
Tin salts		Α	n/a	n/a
Titanium tetrachloride		Α	Α	n/a
Toluene (toluol)	100%	F	Χ	Χ
Tomato juice		Α	n/a	n/a
Transformer oil		В	F	Χ
Tri-B-chloroethyl phosphate		Α	n/a	n/a
Tributyl citrate		F	Χ	Χ
Trichloroacetic acid	up to 50%	Α	F	Χ
Trichloroacetic acid	Pure	А	Χ	Χ
Trichloroethane		F	n/a	n/a
Trichloroethylene	100%	Χ	Χ	Χ
Tricresylphosphate (tricresyl phosphate)		В	F	Χ
Triethanolamine	Aqueous solution	Α	F	Χ
Triethylamine		Χ	X	Χ
Triethylene glycol		Α	А	n/a
Trimethylolpropane (aqueous)		Α	Α	n/a
Trisodium phosphate		Α	Α	n/a
Tributyl phosphate		Α	Α	n/a
Turpentine		Χ	Χ	Χ
Tutogen U®		Α	Α	n/a
Tween 20 and 80®		Α	Α	n/a
Two-stroke engine oil		Α	n/a	n/a
Urea	Saturated solution	А	А	n/a
Uric acid		Α	n/a	n/a
Urine		Α	Α	n/a
Varnish		Α	n/a	n/a
Vaseline		А	F	Χ
Vegetable oils		Α	А	n/a
Vinegar		Α	А	n/a



ver 14-Sep-2021

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 A Water, deionized A A A A A Water, distilled A A A A A A Water, mine salt A	Chemical or product	Concentration	68°F 20°C	140°F 60°C	212°F 100°C
Water, acid, mine A n/a n/a Water, brackish, mineral, potable A A A A Water, deionized A A to 120°F (48°C) n/a Water, distilled A A A A Water, fresh A A A A A Water, salt A<	Vinyl acetate		В	F	Х
Water, brackish, mineral, potable A	Walnut oil		Α	n/a	n/a
Water, deionized A to 120°F (48°C) n/a Water, distilled A A A A A Water, fresh A A A A A Water, mine salt A A A A A Water, salt A A A A A Wax alcohols F X X Waxes A F X X Whey A A A A N/a Whiskey A A A A N/a White liquor (pulp mill) A N/a N/a Wines A N/a N/a Xylene 100% X X Xylene 100% X X Xylencarbonate A A A A A Zinc carbonate A A A A A Zinc caltoride Saturated solution A A A A Zinc salts (aqueous) All A A A All A A A A	Water, acid, mine		Α	n/a	n/a
Water, deionized A (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 A n/a Whiskey A 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 A n/a Xylene 100% X X X Yeast Aqueous solution A A A Zinc carbonate A A A A Zinc chloride Saturated solution A A A Zinc salts (aqueous) <t< td=""><td>Water, brackish, mineral, potable</td><td></td><td>Α</td><td></td><td>Α</td></t<>	Water, brackish, mineral, potable		Α		Α
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 A n/a Whiskey A A A n/a n/a White liquor (pulp mill) A n/a n/a n/a White water (paper mill) A n/a n/a n/a Wines A A A n/a n/a Xylene 100% X X X X Yeast Aqueous solution A A A A Zinc carbonate A A A A n/a Zinc chloride Saturated solution A A A A Zinc salts (aqueous) All A A n/a Zinc salts (aqueous) All A A A	Water, deionized		Α		n/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 A n/a Whiskey A 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 A n/a Xylene 100% X X X Yeast Aqueous solution A A A n/a Zinc carbonate A A A n/a n/a Zinc solutice Saturated solution A A A n/a Zinc salts (aqueous) All A A n/a Zinc stearate A A A A	Water, distilled		Α	Α	Α
Water, salt A A A Water, tap A A A Wax alcohols F X X Waxes A F X Whey A A A n/a Whiskey A 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 A n/a Xylene 100% X X X Yeast Aqueous solution A A A n/a Zinc carbonate A A A n/a n/a Zinc chloride Saturated solution A A A n/a Zinc salts (aqueous) All A A n/a Zinc sludge A A A A Zinc stearate A A A A	Water, fresh		Α	Α	Α
Water, tap A A A Wax alcohols F X X Waxes A F X Whey A A A n/a Whiskey A A A n/a White liquor (pulp mill) A n/a n/a n/a White water (paper mill) A A A n/a Wines A A A n/a Xylene 100% X X X Yeast Aqueous solution A A A Zinc carbonate A A A n/a Zinc chloride Saturated solution A A A Zinc salts (aqueous) All A A n/a Zinc salts (aqueous) All A A n/a Zinc stearate A A A A A	Water, mine salt		Α	Α	Α
Wax alcohols F X X Waxes A F X Whey A A A n/a Whiskey A A A n/a White liquor (pulp mill) A n/a n/a n/a White water (paper mill) A A A n/a Wines A A A n/a Xylene 100% X X X Yeast Aqueous solution A A A Zinc carbonate A A A n/a Zinc chloride Saturated solution A A A Zinc oxide A A A A Zinc salts (aqueous) All A A n/a Zinc sludge A A A A Zinc stearate A A A A	Water, salt		Α	Α	Α
Waxes A F X Whey A A A n/a Whiskey A 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 A n/a Xylene 100% X X X X Yeast Aqueous solution A A A A Zinc carbonate A A A n/a A A n/a Zinc chloride Saturated solution A A A A A Zinc salts (aqueous) All A A A n/a Zinc sludge A A A A A Zinc stearate A A A A A	Water, tap		Α	Α	Α
Whey A A A n/a Whiskey A 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 A n/a Xylene 100% X X X Yeast Aqueous solution A A A A Zinc carbonate A A A n/a Zinc chloride Saturated solution A A A n/a Zinc salts (aqueous) All A A n/a Zinc sludge A A A A A Zinc stearate A A A A A	Wax alcohols		F	Χ	Χ
Whiskey A A A n/a n/a White liquor (pulp mill) A n/a n/a n/a White water (paper mill) A n/a n/a Wines A A A n/a Xylene 100% X X X X Yeast Aqueous solution A A A A Zinc carbonate A A A n/a Zinc chloride Saturated solution A A A n/a Zinc oxide A A A A A Zinc salts (aqueous) All A A n/a Zinc stearate A A A A	Waxes		Α	F	Χ
White liquor (pulp mill) White water (paper mill) A n/a n/a Wines A A A n/a Xylene 100% X X X Yeast A A A A A A Zinc carbonate A A A A A Zinc carbonate Saturated solution A A A A A Zinc oxide A A A A Zinc salts (aqueous) A A A A Zinc sludge Zinc stearate A A A A A A A A A A A A A A A	Whey		Α	Α	n/a
White water (paper mill) Wines A A A A A A A A A A A A A A A A A A A	Whiskey		Α	Α	n/a
Wines A A A n/a Xylene 100% X X X Yeast Aqueous solution A A A Zinc carbonate A A A n/a Zinc chloride Saturated solution A A A n/a Zinc oxide A A A A A Zinc salts (aqueous) All A A n/a Zinc sludge A A A A Zinc stearate A A A A	White liquor (pulp mill)		Α	n/a	n/a
Xylene 100% X X X Yeast Aqueous solution A A A Zinc carbonate A A A n/a Zinc chloride Saturated solution A A A n/a Zinc oxide A A A A Zinc salts (aqueous) All A A A n/a Zinc stearate A A A A A Zinc stearate	White water (paper mill)		Α	n/a	n/a
Yeast Aqueous solution A A A A A A A A A A A A A A A A A A A	Wines		Α	Α	n/a
Zinc carbonate Zinc chloride Saturated solution A A n/a Zinc oxide A Zinc salts (aqueous) A A A A A A A A Zinc salts (aqueous) A Zinc stearate A A A A A A A A A A A A A	Xylene	100%	Χ	X	Χ
Zinc chloride Saturated solution A A A n/a Zinc oxide A Zinc salts (aqueous) A I A A A A A A Cinc salts (aqueous) A Cinc sludge A Cinc stearate A A A A A A A A A A A A A A A A A A A	Yeast	Aqueous solution	Α	Α	Α
Zinc oxide A A A Zinc salts (aqueous) AII A A n/a Zinc sludge A A A n/a Zinc stearate A A A A	Zinc carbonate		Α	Α	n/a
Zinc salts (aqueous)AIIAAn/aZinc sludgeAAAn/aZinc stearateAAA	Zinc chloride	Saturated solution	Α	Α	n/a
Zinc sludgeAAn/aZinc stearateAAA	Zinc oxide		Α	Α	Α
Zinc stearate A A A	Zinc salts (aqueous)	All	Α	Α	n/a
, A A	Zinc sludge		Α	Α	n/a
Zinc sulfate Saturated solution A A A	Zinc stearate		Α	Α	Α
	Zinc sulfate	Saturated solution	Α	Α	Α

