Chemical Resistance Guide
I-Rod® Thermoplastic (for pipe supports)

Glossary of Terms

A <10% swelling, <15% loss of tensile strength, little or no chemical attack.
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Chemical / Exposure	I-Rod Performance
ACETATE SOLVENTS CRUDE	A to 70°F
ACETATE SOLVENTS PURE	A to 70°F
ACETALDEHYDE	A to 70°F
ACETIC ACID	B to 70°F NR 20% at 140°F A 5% to 70°F
ACETIC ACID GLACIAL	B to 70°F NR at 140°F
ACETIC ANHYDRIDE	NR Boiling
ACETONE	AB to 120°F (-50% modulus)
ACETYLENE	A to 70°F
ACID MINE WATER	A to 100°F
ADIPIC ACID	A to 70°F C at 140°F
ALCOHOLS GENERAL	A to 70°F AB to 180°F
ALCOHOL AMYL	A to 140°F (-30% modulus)
ALCOHOL BUTYL (BUTANOL)	A to 70°F AB to 140°F
ALCOHOL ETHYL (ETHANOL)	AB to 140°F
ALCOHOL, 2 AMINOETHANOL	NR at 70°F
ALUMINUM CHLORIDE 10%	B 20% to 70°F
ALUMINUM CHLORIDE 10% Boiling	NR
ALUMINUM FLUORIDE	NR at 70°F
ALUMINUM POTASSIUM SULFATE (ALUM)	A at 10% to 70°F
ALUMINUM SULFATE 100%	B to 70°F
ALUMINUM SULFATE 10%	A 5% to 70°F
ALUMINUM SULFATE <10% BOILING	NR
ALUMINUM SULFATE >10% BOILING	NR
AMINES AC to 70°F	A/NR at 140°F
AMMONIA 100% ANHYDROUS	NR at 70°F
AMMONIA AQUEOUS	AB to 140°F
AMMONIUM CHLORIDE SATURATED	B to 70°F
AMMONIUM CHLORIDE 10%	A to 140°F
AMMONIUM CHLORIDE <10% BOILING	NR
AMMONIUM CHLORIDE >10% BOILING	NR
AMMONIUM HYDROXIDE	A/NR to 140°F
AMMONIUM NITRATE	B to 70°F NR to 150°F

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AMMONIUM PHOSPHATE, DIBASIC	B 5% to 70°F
AMMONIUM SULFATE SATURATED	B to 70°F
AMMONIUM SULFATE 10%	A to 70°F
AMMONIUM SULFATE 10% BOILING	NR
AMMONIUM SULFITE	NR Boiling
AMYL CHLORIDE	A to 70°F
AMYL ACETATE	NR to 70°F
ANILINE	A to 70°F BC at 140°F
AQUA REGIA	NR at 70°F
ASPHALT	B to 70°F
BARIUM CHLORIDE SATURATED	A to 70°F
BARIUM CHLORIDE 30%	A to 70°F
BARIUM CHLORIDE 5%	A to 70°F
BARIUM NITRATE	B to 70°F
BARIUM SULFATE	B to 70°F
BEER	A to 70°F
BEET SUGAR LIQUOR	B to 70°F
BENZENE	A to 70°F
BENZENE HOT	AB to 140°F (-50% modulus).
BENZOIC ACID	AB to 70°F C/NR at 140°F
BENZYL CHLORIDE	A to 70°F
BORAX	AB to 140°F C at 150°F
BORIC ACID 10%	AC sat'd. to 140°F
BROMINE DRY GAS	NR at 70°F
BROMINE MOIST GAS	NR at 70°F gas
BUTANE	B to 70°F
BUTYRIC ACID 5%	NR conc. at 70°F
BUTYRIC ACID CONCENTRATED	NR at 70°F
BUTYL ACETATE	B to 70°F
BUTYL AMINE	C at 70°F NR at 140°F
CALCIUM BISULFITE	NR at 70°F
CALCIUM CARBONATE	A 10% to 150°F
CALCIUM CHLORIDE SATURATED	NR at 70°F
CALCIUM CHLORIDE DILUTE	BC 10% at 150°F A 5% to 150°F
CALCIUM HYDROXIDE 10% BOILING	A to 150°F NR Boiling
CALCIUM HYDROXIDE 20% BOILING	NR
CALCIUM HYDROXIDE 30% BOILING	NR
CALCIUM HYPOCHLORITE 100%	A to 150°F
CALCIUM HYPOCHLORITE 2% BOILING *	NR
CARBOLIC ACID (PHENOL)	NR 6-75% at 70°F
CALCIUM NITRATE *	NR at 70°F
CALCIUM SULFATE *	NR at 70°F

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CARBON DIOXIDE	A to 140°F dry BC to 70°F wet
CARBON DISULFIDE	B to 70°F
CARBON MONOXIDE	B to 140°F
CARBON TETRACHLORIDE WET	AB to 70°F C to 140°F
CARBON TETRACHLORIDE DRY	AB to 140°F (-44% modulus).
CARBONIC ACID	AB to 140°F
CAUSTIC POTASH (KOH)	BC to 70°F
CAUSTIC SODA (NaOH)	NR conc. at 70°F AC 60% to 176°F A 10% to 150°F
CELLOSOLVES *	A to 70°F
CHLORIC ACID *	NR at 70°F
CHLORINATED WATER *	NR at 70°F
CHLORINE DRY	NR at 70°F
CHLORINE WET	NR at 70°F gas or dry liquid
CHLOROACETIC ACID	NR at 70°F
CHLOROBENZENE	A to 70°F
2 CHLOROETHANOL	C at 70°F NR at 125°F
CHLOROFORM	AB to 70°F
CHLOROPHENOL *	AB to 70°F
CHLOROSULFONIC ACID	NR at 70°F
CHLOROSULFONIC ACID DILUTE *	AB to 70°F
CHROMIC ACID DILUTE	NR 5% at 70°F
CHROMIC ACID CONCENTRATED	NR at 70°F
CHROMIC ACID <10% BOILING	NR
CHROMIC ACID >10% BOILING	NR
CITRIC ACID CONCENTRATED	AB to 70°F C to 150°F
CITRIC ACID DILUTE	AB 15% to 150°F
COPPER NITRATE	A to 70°F
COPPER SULFATE	A to 70°F
COTTONSEED OIL *	AB to 70°F
CREOSOTE HOT (WOOD & COAL TAR) *	NR at 70°F
M CRESOL (CRUDE)	NR at 70°F
CRUDE OIL *	AB to 70°F
CRESYLIC ACID	NR 50% at 70°F
CRESYLDIPHENYL PHOSPHATE *	NR at 70°F
CUPRIC CHLORIDE <2%	B/NR to70°F
CUPRIC CHLORIDE	B/NR 5% to 70°F
CYCLOHEXANE *	A to 70°F
CYCLOHEXANONE *	A to 70°F
DETERGENTS GENERAL	A to 70°F A/NR to 150°F
DIACETONE ALCOHOL (ACETOL)	A to 70°F
DICHLOROETHANE *	A to 70°F

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DIESEL FUEL	A to 150°F
DIETHYL ETHER	A to 70°F
DIMETHYL FORMAMIDE	AC to 140°F
DIMETHYL SULFOXIDE *	A to 70°F
DIOXANE	A to 140°F (-59% modulus)
EPICHLOROHYDRIN DRY *	A to 70°F
ETHANE	A to 70°F
ETHANOLAMINE *	NR at 70°F
ETHERS	A to 70 °F
ETHYL ACETATE	A to 120°F (-40% modulus) A 10% to 200°F
ETHYL BENZENE	A to 70°F
ETHYL CHLORIDE WET	A to 70°F
ETHYL ETHER	A to 70°F AB to 140°F
ETHYLENE CHLOROHYDRIN	C at 70°F NR at 125°F
ETHYLENE CHLORIDE	A to 70°F
ETHYLENE DIAMINE	A to 70°F
ETHYLENE DICHLORIDE	AB to 70°F C to 180°F
ETHYLENE GLYCOL (DIHYDROXYETHANE)	AB to 180°F (-50% yield strength)
FATTY ACIDS	A to 95°F
FERRIC CHLORIDE CONCENTRATED	A to 70°F
FERRIC CHLORIDE <1%	A to 70°F
FERRIC CHLORIDE >1%	A to 70°F
FERRIC CHLORIDE <1% BOILING	NR
FERRIC CHLORIDE >1% BOILING	NR
FERRIC NITRATE *	A to 70°F
FERRIC SULFATE	B conc. to 70°F
FERROUS CHLORIDE	B to 70°F A 5% to 70°F
FERROUS SULFATE	B to 70°F
FLUORINE GAS DRY	AB to 70°F
FLUORINE GAS DRY 300°F	NR
FORMALDEHYDE (FORMALIN)	A to 70°F B to 150°F
FORMIC ACID	NR 100% at 70°F AB 3% to 70°F
FREON DRY	AB to 140°F
FREON WET	AB to 140°F
FUEL OILS	BC to 70°F
FURFURAL (FURFURALDEHYDE)	B to 70°F
GELATIN	B to 70°F
GLUCOSE	A to 70°F
GLUE	B to 70°F
GLYCERINE (GLYCEROL)	A to 70°F
GLYCOL (ETHYLENE GLYCOL)	AB to 180°F (-50% yield strength)

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HELIUM	A to 70°F
HEPTANE	A to 70°F AB to 140°F
HEXANE	AC to 140°F
HEXANOL TERTIARY	A to 70°F
HYDRAZINE	B to 70°F
HYDRAULIC FLUID (PETROLEUM)	BC to 70°F
HYDRAULIC FLUID (SYNTHETIC)	BC to 70°F
HYDROBROMIC ACID	NR 37% at 70°F
HYDROCHLORIC ACID >20%	NR at 70°F
HYDROCHLORIC ACID 1-20%	NR 2% at 70°F
HYDROCHLORIC ACID <1%	NR at 70°F
HYDROCHLORIC ACID 1% 175°F	NR
HYDROCHLORIC ACID 0.5% to 2% 175°F	NR
HYDROCHLORIC ACID >2% 175°F	NR
HYDROCHLORIC ACID <0.25% BOILING	NR
HYDROCHLORIC ACID <1%% BOILING	NR
HYDROCHLORIC ACID >1%% BOILING	NR
HYDROCYANIC ACID	NR at 70°F
HYDROFLUORIC ACID <40%	NR 4% at 70°F
HYDROFLUORIC ACID 35%	NR at 70°F
HYDROFLUORIC ACID >40%	NR at 70°F
HYDROFLUORIC ACID BOILING	NR any concentration
HYDROGEN GAS	BC to 140°F
HYDROGEN PEROXIDE	NR 30% at 70°F A 3% to 70°F
HYDROGEN SULFIDE DRY	A to 70°F
HYDROGEN SULFIDE WET	C sat'd. at 70°F
ISOBUTYL ALCOHOL	A to 70°F
ISOPROPYL ALCOHOL	A to 70°F
JET FUEL (JP3, JP4, JP5)	A to 70°F
KEROSENE	A to 140°F
KETONES	A to 70°F AB to 120°F B to 140°F
LACTIC ACID	C to 100% at 70°F B/NR 10% to 150°F
LACQUERS AND LACQUER SOLVENTS	B to 70°F
LPG (PROPANE)	A to 140°F
LARD	B to 70°F
LATEX	BC to 130°F
LEAD ACETATE	A to 70°F
LEAD MOLTEN >600°F	NR
LINSEED OIL	A to 150°F
LITHIUM CHLORIDE	A 40% to 140°F
LITHIUM HYDROXIDE	NR 10% at 200°F

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LUBRICATING OIL	A to 150°F
LYE (CALCIUM HYDROXIDE)	NR conc. at 70°F
LYE (POTASSIUM HYDROXIDE)	AC 50% to 70°F
LYE (SODIUM HYDROXIDE)	NR 10-30% boiling, A 10% to 70°F
LIME (CALCIUM OXIDE)	NR at 70°F
MAGNESIUM CARBONATE	A to 70°F
MAGNESIUM CHLORIDE	B conc. To 70°F A 10% to 70°F
MAGNESIUM HYDROXIDE	A to 70°F
MAGNESIUM SULFATE	A to 70°F
MANGANESE SULFATE	A to 70°F
MECURIC CHLORIDE	B to 70°F
MECURY	AC to 70°F
METHANE	A to 70°F
METHYL ACETATE	B to 70°F
METHYL ALCOHOL (METHANOL)	A to 140°F (-41% modulus)
METHYL CHLORIDE WET	B to 70°F
METHYL CHLORIDE DRY	B to 70°F
METHYL ETHYL KEYTONE	B to 140°F
METHYLENE CHLORIDE	A to 70°F
MILK	A to 150°F
MINERAL OIL	A to 140°F
MOLASSES	B to 70°F
MOTOR OIL	A to 160°F
MUSTARD	A to 70°F
MONOCHLOROBENZENE	A to 70°F
MONOETHANOLAMINE *	NR at 70°F
MONOCHLOROACETIC ACID	NR at 70°F
NAPHTHA	A to 70°F
NAPHTHALENE	A to 70°F AB to 150°F
NICKEL CHLORIDE	B to 70°F
NICKEL SULFATE	B to 70°F
NITRIC ACID	NR 0.1% at 70°F
NITRIC ACID FUMING >70%	NR at 70°F
NITRIC ACID BOILING	NR any concentration
NITROBENZENE	B to 70°F
NITROGEN	A to 70°F
OILS CRUDE	A to 70°F
OILS MINERAL	A to 140°F
OILS OLIVE	A to 150°F
OILS VEGETABLE	A to 70°F
OLEIC ACID (RED OIL)	AB to 70°F AC to 95°F A 10% to 150°F
OXALIC ACID	NR conc. at 70°F C 10% at 70°F

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OXYGEN	A to 70°F
PARAFFIN	A to 70°F
PERCHLOROETHYLENE	A to 70°F A to 140°F (-43% modulus)
PERCHLORIC ACID	C 10% at 70°F
PETROLEUM	A to 140°F
PETROLEUM ETHER	A to 70°F
PHOSPHORIC ACID AERATED	NR conc. at 70°F C 10% at 70°F NR 10% at 140°F
PHOSPHORIC ACID AIR FREE	NR conc. at 70°F C 10% at 70°F NR 10% at 140°F
PHOSPHORIC ACID BOILING	NR any concentration
PHOTOGRAPHIC SOLUTIONS	AC 100% to 70°F C 100% at 140°F A 26%
PHOTOGRAPHIC SOLUTIONS (DEVELOPERS)	AC 100% to 70°F C 100% at 140°F A 26% to 140°F
PHOTOGRAPHIC SOLUTIONS (HYPO ACID FIXING BATHS)	B conc. To 70°F A 5% to 70°F
POTASSIUM ALUMINUM SULFATE (ALUM)	A to 70°F
POTASSIUM BICHROMATE	BC to 70°F
POTASSIUM CARBONATE	B to 70°F
POTASSIUM CHLORATE	B to 70°F
POTASSIUM CHLORIDE	B to 70°F
POTASSIUM CYANIDE	BC to 70°F
POTASSIUM DICHROMATE	BC to 70°F
POTASSIUM FERRICYANIDE	B to 70°F
POTASSIUM FERROCYANIDE	B to 70°F
POTASSIUM HYDROXIDE	BC to 70°F
POTASSIUM NITRATE	B 10% to 70°F
POTASSIUM PERMANGANATE	A 10% to 140°F
POTASSIUM SULFATE	B to 70°F
PROPANE	A to 140°F
PROPYL ALCOHOL (PROPANOL)	A to 140°F
PROPYLENE GLYCOL	A to 70°F
PYRIDINE	A to 140°F (-57% modulus)
PYROGALLIC ACID	C at 70°F
PYROLIGNEOUS ACID	C/NR at 70°F NR at 140°F AB 10% to 150°F
ROSIN	B to 70°F
SALT BRINE (SODIUM CHLORIDE SOLUTION)	A to 70°F B to 150°F A 10% to 150°F
SEA WATER	A to 150°F NR at 176°F
SHELLAC	B to 70°F bleached or orange

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SILVER NITRATE	A to 70°F
SOAP SOLUTIONS	A to 140°F
SODIUM ACETATE	A to 70°F
SODIUM BICARBONATE	NR 100% at 70°F A 50% to 70°F
SODIUM BISULFATE	B conc. to 70°F A 5% at 70°F
SODIUM BISULFITE	NR 5% at 70°F
SODIUM BORATE (BORAX)	AC to 140°F
SODIUM CARBONATE (SODA ASH)	A to 140°F A 20% to 180°F
SODIUM CHLORATE	B conc. to 70°F A 10% to 70°F
SODIUM CHLORIDE	A to 70°F B to 150°F A 10% to 180°F
SODIUM CYANIDE	BC conc. to 70°F A 10% to 70°F
SODIUM HYDROXIDE (CAUSTIC SODA)	NR conc. at 70°F AC 50% to 150°F A 10% to150°F
SODIUM HYDROXIDE MOLTEN >604°F	NR
SODIUM HYPOCHLORIDE	NR 5-15% at 70°F
SODIUM METAPHOSPHATE	B to 70°F
SODIUM METASILICATE	B to 70°F
SODIUM NITRATE	A 50% to 70°F
SODIUM NITRATE MOLTEN >586°F	NR
SODIUM PERBORATE	B to 70°F
SODIUM PEROXIDE	NR at 70°F
SODIUM SULFIDE	A 5% to 70°F
SODIUM SULFITE	A 5% to 70°F
SODIUM THIOSULFATE (HYPO)	B 100% to 70°F C 100% at 140°F A 26% to 140°Fto 140°F
SODIUM TETRABORATE (BORAX)	AC to 140°F
SOY BEAN OIL	B to 70°F
STARCH	B to 70°F
STEARIC ACID	C at 70°F
STEAM A to 250°F 15 min.	NR at 300°F
STODDARD SOLVENT	A to 140°F
SUGAR JUICE	AB to 140°F
SULFUR	A to 70°F
SULFUR MOLTEN 266°F	NR
SULFUR DIOXIDE GAS WET	C at 70°F
SULFUR DIOXIDE GAS DRY	B 100% to 70°F
SULFURIC ACID AIR FREE	NR 2-5% at 70°F NR 1% at 95°F
SULFURIC ACID AERATED	NR 2-5% at 70°F NR 1% at 95°F
SULURIC ACID BOILING	NR any concentration
SULFURIC ACID FUMING OLEUM	NR at 70°F
SULFUROUS ACID	NR conc. at 70°F C 10% at 70°F
TALLOW	C at 70°F

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TANNIC ACID	NR conc. at 70°F NR 10% at 150°F
TANNING LIQUOR (ALUM SOLUTION)	NR at 70°F
TAR & TAR OIL	A to 70°F
TARTARIC ACID	NR conc. at 70°F A 5% to 70°F
TETRACHLOROETHANE	A to 70°F A to 140°F (-43% modulus)
TETRAHYDROFURAN	A to 150°F
TETRAPHOSPHORIC ACID	NR at 70°F
THIONYL CHLORIDE	B to 70°F
TIN MOLTEN >449°F	NR
TOULENE (TOLUOL)	AB to 70°F AC at 140°F (-40% modulus)
TRANSFORMER OIL	BC to 70°F
TRICHLOROETHYLENE	B to 70°F
TRIETHANOLAMINE	AB to 140°F
TRIETHYLAMINE	A to 140°F (-41% modulus)
TURPENTINE	A to 140°F
UREA	A to 70°F
URINE	C at 70°F
VINEGAR	BC to 70°F
WATER, ACID MINE	A to 100°F
WATER, DISTILLED	A to 150°F NR at 176°F
WATER, DEMINERALIZED	AB to 140°
WATER, SALT (SEE ALSO SEAWATER)	A to 150°F NR at 176°F
WAX	A to molten
WHISKEY	B to 70°F
WHITE SPIRIT	A to 70°F
WINE	B to 140°F
XYLENE (XYLOL XYLOLE)	A to 70°F AB to 140°F
ZINC CHLORIDE	B to 70°F
ZINC MOLTEN	NR
ZINC SULPHATE	B to 70°F
ATMOSPHERE, RURAL	A

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