



SERVING THE NEEDS OF MODERN INDUSTRY

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CORROSION RESISTANCE TABLES (FIBERGLASS)

Maximum allowed temperature °F

Chemical	FRP	PP	PVC
Acetic Acid, up to 25%	210	180	140
Acetone, up to 10%	180	120	N.R.
Acrylic Acid, up to 25%	100	-	-
Alum (Aluminum Potassium Sulfate)	220	150	140
Aluminum Chloride	220	180	185
Aluminum Fluoride	*120	180	73
Aluminum Hydroxide	210	150	140
Aluminum Nitrate	180	180	140
Aluminum Potassium Sulfate	210	150	140
Aluminum Sulfate	210	180	140
Ammonia, dry gas	*170	150	140
Ammonium Acetate, up to 65%	100	150	140
Ammonium Carbonate	150	180	140
Ammonium Chloride	210	180	140
Ammonium Fluoride, up to 10%	*150	180	140
Ammonium Hydroxide, up to 10%	150	180	140
Ammonium Nitrate	220	180	140
Ammonium Persulfate	210	150	140
Ammonium Phosphate	210	180	140
Ammonium Sulfate	220	180	140
Ammonium Sulfide	100	180	-
Ammonium Sulfite	110	-	-
Ammonium Thiocyanate, up to 60%	*150	150	140
Amyl Acetate	100	N.R.	N.R.
Amyl Alcohol	210	180	N.R.
Amyl Chloride	100	N.R.	N.R.
Aniline Sulfate	220	150	-
Aqua Regia	80	N.R.	N.R.
Arsenic Acid	180	73	140
Barium Acetate	180	-	-
Barium Carbonate	*220	180	140
Barium Chloride	210	180	140
Barium Hydroxide, up to 10%	*170	180	140
Barium Sulfate	220	180	140
Barium Sulfide	210	180	140
Benzene Sulfonic Acid, up to 10%	210	180	140
Benzoic Acid	210	150	140
Black Liquor Recovery Gasses	220	150	140
Bleach Liquor (Pulp mill)	210	73	140
Borax	210	180	140
Boric Acid	210	180	140
Brine	210	140	140
Bromine, dry gas	140	140	150
Bromine, wet gas	100	140	150
Butyl Acetate	100	N.R.	N.R.
Butyric Acid	100	180	73
Cadmium Chloride	180	180	140
Calcium Bisulfate	200	180	140
Calcium Carbonate	180	180	140
Calcium Chlorate	220	180	140
Calcium Chloride	240	180	140
Calcium Hydroxide	*210	180	140
Calcium Hypochlorite	*150	150	150
Calcium Nitrate	210	180	140

Maximum allowed temperature °F

Chemical	FRP	PP	PVC
Calcium Sulfate	220	180	140
Camphor	80	-	73
Carbon Dioxide, gas	220	150	140
Carbonic Acid	210	180	140
Carbon Monoxide, gas	220	180	140
Carbon Tetrachloride, vapor	200	N.R.	73
Caustic Soda	130	180	140
Chloric Acid, up to 10%	170	N.R.	140
Chlorine, dry gas	210	180	73
Chlorine, wet gas	210	N.R.	N.R.
Chlorinated water	210	180	140
Chloroacetic acid	120	73	73
Chromic Acid, up to 10%	120	150	140
Chromium Sulfate	180	-	-
Chromous Sulfate	200	-	-
Citric Acid	210	180	140
Coconut Oil	220	73	140
Copper Acetate	220	73	73
Copper Chloride	220	180	-
Copper Cyanide	180	-	140
Copper Fluoride	170	180	140
Copper Nitrate, up to 30%	170	150	140
Copper Sulfate	220	120	140
Cresol, up to 10%	80	73	-
Crude Oil	220	73	140
Cyclohexane	110	N.R.	140
Dechlorinated Brine Storage	180	-	-
Diallylphthalate	210	-	-
Diammonium Phosphate, up to 65%	210	-	-
Dibutyl Ether	150	-	-
Dibutyl Phthalate	200	120	N.R.
Diesel Fuel	210	73	140
Diethanolamine	150	-	-
Diethylene Glycol	210	-	-
Dimethyl Phthalate	170	N.R.	-
Dimethyl Sulfoxide	80	-	-
Diocetyl Phthalate	210	N.R.	N.R.
Diphenyl Ether	140	-	-
Dipropylene Glycol	180	-	-
Ethyl Alcohol	120	180	140
Ethylene Chlorohydrin	100	73	N.R.
Ethylene Glycol	210	120	140
Fatty Acids	220	120	140
Ferric Chloride	210	180	140
Ferric Nitrate	210	180	140
Ferric Sulfate	210	180	140
Ferrous Chloride	210	180	140
Ferrous Nitrate	210	180	73
Ferrous Sulfate	210	180	140
Fluoboric Acid	*210	73	140
Fluosilicic Acid	150	120	-
Formaldehyde, up to 50%	170	150	140
Formic Acid	150	150	73

Note : For other chemicals, temperatures and concentrations consult M.K. Plastics Corporation.

Maximum allowed temperature °F

Chemical	FRP	PP	PVC
Fuel Oil	210	-	-
Gallic Acid	*80	73	140
Gasoline	180	N.R.	140
Gluconic Acid, up to 50%	180	-	-
Glucose	240	180	140
Glycerine	210	180	140
Glycolic Acid	200	180	140
Green Liquor, Pulp MILL	200	73	-
Hexachlorocyclopentadiene	100	-	-
Hydraulic Fluid	180	73	73
Hydrobromic Acid, up to 20%	170	140	140
Hydrochloric Acid, up to 37%	180	150	140
Hydrocyanic Acid, up to 10%	170	73	140
Hydrofluoric Acid, up to 20%	*120	120	73
Hydrofluosilicic Acid, up to 30%	*120	140	140
Hydrogen Bromide, gas	180	-	-
Hydrogen Chloride, dry gas	220	-	-
Hydrogen Fluoride	*180	73	N.R.
Hydrogen Peroxide, up to 30%	150	73	140
Hydrogen Sulfide, wet/dry gas	210	150	140
Hydroiodic Acid, up to 10%	150	-	-
Hypochlorous Acid, up to 20%	110	120	140
Iodine (solid, solution and vapor)	170	73	150
Isodecanol	180	-	-
Isopropyl Alcohol	120	150	140
Kerosene	180	73	140
Lactic Acid, up to 25%	210	150	140
Lauric Acid	220	150	140
Lead Acetate	220	180	140
Lead Nitrate	220	180	140
Linoleic Acid	100	180	140
Linseed Oil	220	150	140
Lithium Bromide	220	-	140
Lithium Chloride	210	-	-
Magnesium Bicarbonate	210	-	-
Magnesium Bisulfite	180	-	-
Magnesium Carbonate	180	180	140
Magnesium Chloride	220	180	140
Magnesium Hydroxide	*210	180	140
Magnesium Nitrate	210	180	140
Magnesium Sulfate	220	180	140
Maleic Acid	210	180	140
Mercuric Chloride	210	180	140
Merthyl Ethyl Ketone, up to 10%	80	N.R.	N.R.
Methanol, up to 10%	180	-	-
Monochloroacetic Acid	N.R.	73	140
Nickel Chloride	210	180	140
Nickel Nitrate	210	180	140
Nickel Sulfate	210	180	140

Maximum allowed temperature °F

Chemical	FRP	PP	PVC
Nitric Acid, 30%	140	120	140
Nitrous Acid	73	73	140
Oleic Acid	200	150	140
Oxalic Acid, up to 50%	220	180	140
Palmitic Acid, up to 10%	220	180	140
Perchloroethylene	100	-	-
Perchloric Acid, up to 10%	150	73	73
Phenol, up to 10%	80	-	-
Phenol	170	73	N.R.
Phosphoric Acid, up to 85%	210	180	140
Phthalic Anhydride	210	-	73
Photographic Solution	80	150	140
Picric Acid	170	73	N.R.
Plating Solutions	180	180	140
Potassium Aluminum Sulfate	220	180	140
Potassium Bicarbonate, up to 10%	*170	180	140
Potassium Bromide	120	180	140
Potassium Chloride	210	180	140
Potassium Cy-Amp	220	180	140
Potassium Dichromate	210	180	140
Potassium Ferricyanide	210	180	140
Potassium Ferrocyanide	210	180	140
Potassium Hydroxide, up to 25%	*120	150	140
Potassium Permanganate, up to 10%	210	150	140
Potassium Persulfate	210	120	140
Potassium Sulfate	210	180	140
Sea Water	180	180	140
Sillicic Acid	220	-	140
Silver Cyanide, up to 5%	200	180	140
Silver Nitrate	210	180	140
Sodium Acetate	210	180	140
Sodium Benzoate	180	180	140
Sodium Bisulfate	210	180	140
Sodium Bisulfite	210	180	140
Sodium Borate (Borax)	210	180	140
Sodium Bromide	210	180	140
Sodium Chlorate	210	180	73
Sodium Chloride	210	180	140
Sodium Chlorite	150	N.R.	N.R.
Sodium Cyanide	210	180	140
Sodium Dichromate	210	180	140
Sodium Di-phosphate	210	-	-
Sodium Ferricyanide	210	150	140
Sodium Ferrocyanide	220	150	140
Sodium Fluoride	*180	180	140
Sodium Hydroxide, up to 70%	*210	180	140
Sodium Hypochlorite	*125	120	73
Sodium Hyposulfite, up to 20%	210	-	-
Sodium Lauryl Sulfate	160	-	-
Sodium Mono-phosphate	210	-	-
Sodium Nitrate	210	180	140
Sodium Nitrite	220	180	140
Sodium Silicate, pH>12	*210	180	140

Note : For other chemicals, temperatures and concentrations consult M.K. Plastics Corporation.

Maximum allowed temperature °F

Chemical	FRP	PP	PVC
Sodium Sulfate	210	180	140
Sodium Sulfide	210	180	140
Sodium Sulfite	210	180	140
Sodium Tetraborate	180	-	-
Sodium Thiosulfate	180	150	140
Sodium Tripolyphosphate	210	-	-
Sodium Xylene Sulfonate	160	-	-
Sorbitol Solution	180	-	-
Stannic Chloride	210	150	140
Stannous Chloride	210	150	140
Stearic Acid	210	73	140
Styrene	80	-	-
Slulfamic Acid	210	180	140
Sulfated Detergents	210	120	-
Sulfite Liquors	200	150	140
Sulfonated Detergents	170	-	-
Sulfur Dioxide, dry gas	240	73	140
Sulfur Dioxide, wet gas	240	73	73
Sulfur Troxide	220	-	140
Sulfuric Acid, up to 25%	210	180	140
Sulfuric Acid, up to 50%	220	150	140
Sulfuric Acid, up to 70%	180	120	140
Sulfurous Acid, above 10%	110	150	N.R.
Tall Oil	160	180	140
Tannic Acid	210	180	140
Tartaric Acid	210	150	140
Tetrachloroethylene	100	-	-
Tetrapotassium Pyrophosphate, 60%	150	-	-
Tetrasodium Ethylene Diamine	120	-	-

Maximum allowed temperature °F

Chemical	FRP	PP	PVC
Tetrasodium Pyrphosphate	150	-	140
Toluene	80	73	N.R.
Toluene Di-isocyanate, fumes	80	-	-
Toluene Sulfonic Acid	210	-	-
Trichlorethylene, fumes	170	N.R.	N.R.
Trichloroacetic Acid, up to 50%	210	150	140
Trimethylamine Hydrochloride	210	-	-
Triphenyl Phosphite	140	-	-
Trisodium Phosphate	210	120	-
Turpentine, Pure Gum	150	N.R.	140
Urine / Urea	150	180	140
Vegetable Oils	210	73	140
Vinegar	210	140	230
Water, Distilled / Demineralized	180	180	140
Water, Organic Vapors	175	-	-
Water Sea / Salt	180	180	140
Water, waste	180	180	140
White Liquor, Pulp Mill	180	73	140
Xylene	80	N.R.	N.R.
Zinc Chlorate	210	-	-
Zinc Chloride	220	180	-
Zinc Nitrate	220	180	140
Zinc Sulfite	220	-	-
Zinc Sulfate	220	180	140

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N.R. - indicates "Not Recommended"

- - indicates no information available

* - indicates synthetic fiber surfacing mat recommended

Polypropylene

(PP) Type 1 Polypropylene is a polyolefin which is lightweight and generally high in chemical resistance. Although Type 1 polypropylene conforming to ASTM D-2146 is slightly lower in physical properties compared to PVC, it is chemical resistant to organic solvents as well as acids and alkalis. Generally, polypropylene should not be used in contact with strong oxidizing acids, chlorinated hydrocarbons and aromatics. With a design stress of 1000 PSI at 73°F, polypropylene has gained wide acceptance in the petroleum industry where its resistance to sulfur bearing compounds is particularly useful in salt water disposal lines, crude oil piping and low pressure gas gathering systems. Polypropylene has also proved to be an excellent material for laboratory and industrial drainage where mixtures of acids, bases and solvents are involved. Polypropylene is joined by the thermo-seal fusion process, threading or flanging.

PVC

(Polyvinyl Chloride) Type 1, Grade 1 PVC is the most frequently specified of all thermoplastic materials. It has been used successfully for over 30 years in such areas as chemical processing, industrial plating, chilled water distribution, deionized water lines, chemical drainage, and irrigation systems.

PVC is characterized by high physical properties and resistance to corrosion and chemical attack by acids, alkalis, salt solutions and many other chemicals. It is attacked, however, by polar solvents such as ketones, some chlorinated hydrocarbons and aromatics. Of the various types and grades of PVC used in plastic piping systems, Type 1 Grade 1, PVC (Cell Classification 12454-A) conforming to ASTM properties. The maximum service temperature of PVC is 140°F. With a design stress of 2000 PSI, PVC has the highest long term hydrostatic strength at 73°F of any of the major thermoplastics being used for piping systems. PVC is joined by solvent cementing threading or flanging.

FRP

Fiber Reinforced Polyester or Vinyl Ester are Thermosetting Products that use Polyester or Vinyl Ester resins in junction with glass fibers in fabrication of a wide variety of products. They possess outstanding resistance to corrosion by many different chemicals including both acids and alkalis at room and elevated temperatures. They have high impact resistance, excellent electrical and thermal insulation properties. They require little maintenance repair over a long service life and provide high strength at low weight. Industrial applications include absorption tower, process, vessels, storage tanks, piping hoods, scrubbers, ducts and ventilation equipment.

All M.K. Plastics FRP fans have inherent UV inhibitors and are available in different classes of flame spread.