

Industrial Fiberglass Specialties, Inc.

521 Kiser Street
Dayton, OH 45404-1641
Tel: 937-222-9000
Fax: 937-222-9020

Corrosion Guide Series 2000 & 4000 Epoxy Pipe & Duct

08-13-2003

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Chemical Environment	Concentration %	Maximum Recommended Service Temperature (°F) for Epoxy Pipe & Duct	
		Series 2000	Series 4000
Acetaldehyde	---	100	100
Acetic Acid	≤10	150	150
Acetic Acid	10 - 100	CM	CM
Acetic Anhydride	---	100	120
Acetone	---	120	120
Acetonitrile	---	120	120
Acetophenone	---	120	120
Acrylic Acid	---	CM	CM
Acrylonitrile	---	100	100
Air	---	300	300
Alcohol, Amyl	---	200	200
Alcohol, Butyl	---	200	200
Alcohol, Ethyl (ethanol)	---	180	180
Alcohol, Isobutyl	---	180	180
Alcohol, Isopropyl	---	180	180
Alcohol, Methyl (methanol)	---	150	150
Alcohol, Polyvinyl	---	150	150
Allyl Chloride	---	120	120
Aluminum Acetate	10	250	250
Aluminum Chloride	---	270	270
Aluminum Chlorohydroxide	<50	100	100
Aluminum Hydroxide	---	200	200
Aluminum Nitrate	---	250	250
Aluminum Potassium Sulfate (alum)	---	270	270
Aluminum Sulfate	---	270	270
Ammonia Gas (dry)	---	150	150
Ammonium Bicarbonate	<50	220	220
Ammonium Carbonate	<15	180	180



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		Series 2000	Series 4000
Ammonium Carbonate	15 - <50	180	180
Ammonium Chloride	---	270	270
Ammonium Hydroxide	<20	180	180
Ammonium Hydroxide	20 - <29	150	150
Ammonium Nitrate	---	225	225
Ammonium Persulfate	---	100	100
Ammonium Phosphate	---	200	200
Ammonium Sulfate	---	270	270
Ammonium Thiocyanate	---	150	150
Ammonium Thiosulfate	---	150	150
Amyl Acetate	---	100	100
Amyl Chloride	---	100	100
Aniline	---	100	100
Antimony Pentachloride	---	100	100
Antimony Trichloride	---	220	220
Aqua Regia	---	CM	CM
Arsenic Acid	---	180	180
Barium Acetate	---	180	180
Barium Carbonate	---	200	250
Barium Chloride	---	250	250
Barium Hydroxide	10	220	220
Barium Nitrate	---	200	200
Barium Sulfate	---	225	250
Barium Sulfide	<25	225	225
Beer	---	200	200
Benzaldehyde	---	100	100
Benzene	---	150	150
Benzene Sulfonic Acid	---	220	220



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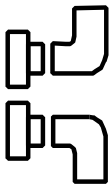
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Chemical Environment	Concentration %	Maximum Recommended Service Temperature (°F) for Epoxy Pipe & Duct	
		Series 2000	Series 4000
Benzoic Acid	---	220	220
Black Liquor	---	150	200
Borax	---	250	250
Boric Acid	---	225	225
Brine (<20% salts)	---	250	250
Bromine (dry)	---	CM	CM
Bromine (liquid)	---	CM	CM
Bromine Water	<4	150	150
Bromine (wet)	---	CM	CM
Butadiene	---	150	150
Butane	---	150	150
Butyl Acetate	---	150	150
Butyl Cellosolve	---	150	150
Butyraldehyde	---	150	150
Butyric Acid	---	200	200
Calcium Bisulfate	---	270	270
Calcium Bisulfite	---	270	270
Calcium Carbonate	---	270	270
Calcium Chlorate	---	150	150
Calcium Chloride	---	270	270
Calcium Hydroxide	---	200	200
Calcium Hypochlorite	---	150	150
Calcium Nitrate	---	250	250
Calcium Phosphate	---	250	250
Calcium Sulfate	---	250	250
Caprylic Acid	---	150	150
Carbon Dioxide (dry)	---	250	250
Carbon Disulfide	---	75	75



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		Series 2000	Series 4000
Carbonic Acid	---	180	180
Carbon Monoxide	---	200	200
Carbon Tetrachloride	---	150	150
Castor Oil	---	220	220
Chloride Dioxide (wet)	---	CM	CM
Chlorine Gas (dry)	---	CM	CM
Chlorine Gas (wet)	---	CM	CM
Chloroacetic Acid	<25	100	100
Chloroacetic Acid	25 - <50	CM	CM
Chlorobenzene	---	100	100
Chloroform	---	CM	CM
Chlorosulfonic Acid	---	CM	CM
Chromic Acid	<30	CM	CM
Chrome Alum	---	200	200
Citric Acid	---	250	250
Copper Acetate	---	180	180
Copper Chloride	---	250	250
Copper Cyanide	---	220	220
Copper Nitrate	---	250	250
Copper Sulfate	---	220	220
Corn Syrup	---	220	220
Cresylic Acid	---	CM	CM
Crude Oil (sweet or sour)	---	250	250
Cupric Fluoride	---	200	250
Cupric Nitrate	---	220	250
Cupric Sulfate	---	220	250
Cyclohexane	---	150	150
Cyclohexanol	---	150	150



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Chemical Environment	Concentration %	Maximum Recommended Service Temperature (°F) for Epoxy Pipe & Duct	
		Series 2000	Series 4000
Detergents	---	180	180
Diallyl Phthalate	---	180	180
Dibutyl Phthalate	---	180	180
Diacetone Alcohol	---	CM	CM
Dicalcium Phosphate	---	150	150
Dichloroacetaldehyde	---	CM	CM
Dichlorobenzene	---	150	150
Dichloroethylene	---	CM	CM
Diesel Fuel	---	250	250
Diethanolamine	---	CM	CM
Diethyl Ketone	---	CM	CM
Diethyl Ether	---	100	100
Diethylene Glycol	---	200	200
Diethylene Triamine	---	CM	CM
Dimethylamine	---	CM	CM
Dimethyl Formamide	---	CM	CM
Dimethyl Phthalate	---	100	100
Diphenyl Ether	---	120	120
Dipropylene Glycol	---	200	200
Disodium Methyl Arsenate	---	220	220
Ethyl Acetate	---	150	150
Ethyl Acrylate	---	120	120
Ethyl Benzene	---	150	150
Ethyl Cellosolve	---	150	150
Ethyl Chloride	---	CM	CM
Ethyl Ether	---	100	100
Ethyl <i>Tert</i> -Butyl Ether (ETBE)	---	120	120
Ethylene Chlorohydrin	---	150	150



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Chemical Environment	Concentration %	Maximum Recommended Service Temperature (°F) for Epoxy Pipe & Duct	
		Series 2000	Series 4000
Ethylene Diamine	---	CM	CM
Ethylene Dichloride	---	CM	CM
Ethylene Glycol (aq.)	---	270	270
Fatty Acids	---	225	225
Ferric Acetate	---	200	200
Ferric Chloride	<20	220	220
Ferric Chloride	20 - <60	205	205
Ferric Nitrate	---	200	200
Ferric Sulfate	---	225	225
Ferrous Chloride	---	220	220
Ferrous Nitrate	---	220	220
Ferrous Sulfate	---	220	220
Fire Fighting Foam	ATC 3 or 6	150	150
Fire Fighting Foam	AFFF 3 or 6	150	150
Fluoboric Acid	---	200	200
Fluorine	---	CM	CM
Fluosilicic Acid	<10	CM	150
Fluosilicic Acid	10 - <25	CM	CM
Formaldehyde	<40	150	150
Formic Acid	<25	CM	CM
Freon	---	CM	CM
Fuel Oil	---	220	220
Furfural	---	CM	CM
Gasoline	---	225	225
Gluconic Acid	<50	180	180
Glucose	---	220	250
Glycerine (aq.)	---	300	300
Glycerine	100	300	300



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		Series 2000	Series 4000
Glyoxal	<30	120	120
Green Liquor	---	180	200
Heptane	---	200	200
Hexane	---	150	150
Hydraulic Oils	---	250	250
Hydrazine	---	CM	CM
Hydrobromic Acid	<48	100	120
Hydrochloric Acid	<10	150	200
Hydrochloric Acid	10 - <20	120	200
Hydrochloric Acid	20 - <37	CM	180
Hydrofluoric Acid	<5	CM	CM
Hydrogen Chloride Gas (dry)	---	150	150
Hydrogen Peroxide	<30	CM	CM
Hydrogen Sulfide (dry)	---	250	250
HydrogenSulfide (wet)	---	180	180
Hydrochlorous Acid	10	120	150
Iodine	---	120	120
<i>n</i> -Isopropyl Acetate	---	150	150
Jet Fuel (JP-A, JP-8 ...)	---	250	250
Juice, Orange	---	250	250
Kerosene	---	250	250
Lactic Acid	---	225	225
Latex	---	225	225
Lauric Acid	---	220	220
<i>n</i> -Lauryl Alcohol	---	220	250
Lead Acetate	---	250	250
Lead Nitrate	---	220	220
Levulinic Acid	---	220	220



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Chemical Environment	Concentration %	Maximum Recommended Service Temperature (°F) for Epoxy Pipe & Duct	
		Series 2000	Series 4000
Lime	---	200	220
Linseed Oil	---	250	250
Lithium Chloride	---	225	225
Lithium Hydroxide	---	150	150
Lube Oil	---	250	250
Magnesium Carbonate	---	220	220
Magnesium Chloride	---	270	270
Magnesium Hydroxide	---	270	270
Magnesium Nitrate	---	250	250
Magnesium Sulfate	---	270	270
Maleic Acid	---	220	220
Maleic Anhydride	---	150	150
Mercuric Chloride	---	220	220
Mercurous Chloride	---	220	220
Mercury	---	270	270
Methacrylic Acid	---	CM	CM
Methyl Chloride	---	CM	CM
Methyl Ethyl Ketone	---	100	100
Methyl Isobutyl Alcohol	---	180	180
Methyl Isobutyl Carbitol	---	120	120
Methyl Isobutyl Ketone	---	150	150
Methyl Methacrylate	---	100	100
Methyl Sulfonic Acid	---	CM	CM
Methyl <i>Tert</i> -Butyl Ether (MTBE)	---	120	120
Methylene Chloride	---	CM	CM
Minerals Oil	---	270	270
Naphtha	---	225	225
Naphthalene	---	200	200



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Chemical Environment	Concentration %	Maximum Recommended Service Temperature (°F) for Epoxy Pipe & Duct	
		Series 2000	Series 4000
Natural Gas	---	250	250
Nickel Chloride	---	270	270
Nickel Nitrate	---	220	220
Nickel Sulfate	---	225	225
Nitric Acid	<1	120	120
Nitric Acid	1 - <10	75	75
Nitric Acid	10 - <20	CM	CM
Nitrogen Solutions	---	150	150
Oil, Sour Crude	---	250	250
Oil, Diesel	---	250	250
Oil, Lubricating	---	220	220
Oleic Acid	---	220	220
Oleum	---	CM	CM
Olive Oil	---	220	250
Oxalic Acid	<10	150	150
Oxalic Acid	10 - <50	CM	CM
Palmitic Acid	---	220	220
Perchloric Acid	---	CM	CM
Perchloroethylene	---	120	120
Petroleum Ether	---	100	100
Phenol	<5	100	100
Phenol	5 - <100	CM	CM
Phosphoric Acid	<85	100	100
Phosphorous Oxychloride	---	CM	CM
Phthalic Anhydride	---	220	220
Pickling Acid (5% H ₂ SO ₄ , 0.25% coal, coal tar inhibitor, water)	---	100	180
Picric Acid	---	100	100



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Chemical Environment	Concentration %	Maximum Recommended Service Temperature (°F) for Epoxy Pipe & Duct	
		Series 2000	Series 4000
Pine Oil	---	150	150
Plating solution (17%NiSO ₄ , 5% NiCl ₂ , 30% H ₃ BO ₃ , water)	---	220	220
Polyvinyl Acetate Emulsion	---	150	150
Polyethylene Glycol (E-200)	---	150	180
Polyethylene Glycol (P-400)	---	150	180
Potassium Bicarbonate	---	220	270
Potassium Bromide	---	220	220
Potassium Carbonate	<50	100	100
Potassium Chloride	---	270	270
Potassium Cyanide	---	225	225
Potassium Dichromate	<10	200	200
Potassium Ferricyanide	---	220	220
Potassium Ferrocyanide	---	220	220
Potassium Fluoride	<30	200	220
Potassium Hydroxide	<75	150	180
Potassium Nitrate	---	270	270
Potassium Permanganate	<10	CM	CM
Potassium Persulfate	---	CM	CM
Potassium Phosphate	---	180	180
Potassium Sulfate	---	250	270
Propane	---	150	150
Propylene Glycol	---	270	270
Quaternary Ammonium Salts	---	120	120
Silver Nitrate	---	220	220
Sodium Acetate	---	220	220
Sodium Aluminum Sulfate	---	220	250
Sodium Benzoate	---	200	200



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Chemical Environment	Concentration %	Maximum Recommended Service Temperature (°F) for Epoxy Pipe & Duct	
		Series 2000	Series 4000
Sodium Bicarbonate	<20	250	250
Sodium Bisulfate	---	250	250
Sodium Bisulfite	---	220	220
Sodium Bromate	---	150	180
Sodium Bromide	---	250	250
Sodium Carbonate	<10	200	200
Sodium Carbonate	10	100	200
Sodium Chlorate	<50	250	250
Sodium Chloride	---	270	270
Sodium Cyanide	6	225	225
Sodium Dichromate	<10	200	200
Sodium Ferricyanide	---	270	270
Sodium Ferrocyanide	---	270	270
Sodium Hydrosulfide	---	120	120
Sodium Hydroxide	<50	150	180
Sodium Hypochlorite	<5-1/4	CM	CM
Sodium Hypochlorite (stable)	<10	CM	CM
Sodium Hypochlorite (stable)	11 - <18	CM	CM
Sodium Nitrate	---	270	270
Sopdium Nitrite	---	250	250
Sodium Silicate	---	220	220
Sodium Sulfate	---	270	270
Sodium Sulfide	<10	200	200
Sodium Sulfite	---	200	200
Sodium Thiocyanate	---	200	200
Sodium Thiosulfate	---	150	150
Stannic Chloride	---	250	270
Stannic Sulfate	---	250	270



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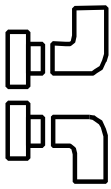
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Chemical Environment	Concentration %	Maximum Recommended Service Temperature (°F) for Epoxy Pipe & Duct	
		Series 2000	Series 4000
Stannous Chloride	---	220	220
Stearic Acid	---	220	220
Strontium Chloride	---	200	200
Styrene	---	100	100
Sugar Solutions	---	220	250
Sulfamic Acid	<25	100	100
Sulfite Liquors	---	150	150
Sulfur Chloride	---	CM	CM
Sulfur Dioxide Gas (dry)	---	180	200
Sulfur Trioxide	---	150	180
Sulfuric Acid	<2	150	180
Sulfuric Acid	2 - <5	125	180
Sulfuric Acid	5 - <20	100	180
Sulfuric Acid	20 - <50	100	150
Sulfuric Acid	50 - <70	100	100
Sulfuric Acid	>70	CM	CM
Sulfurous Acid	---	200	200
Tall Oil	---	200	200
Tannic Acid	---	225	225
<i>Tert</i> -Amyl Methyl Ether (TAME)	---	100	100
Tetrachloroethylene	---	180	180
Tetraethyl Lead	---	120	120
Thionyl Chloride	---	CM	CM
Toluene	---	150	150
Transformer Oil	---	300	300
Trichloroethane (1,1,1-)	---	150	150
Trichloroethylene	---	120	120
Triethanolamine	---	150	150



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		Series 2000	Series 4000
Triethylamine	---	100	100
Triphenyl Phosphite	---	120	120
Trisodium Phosphate	25	200	200
Turpentine	---	150	150
Urea	---	200	200
Vinegar	---	200	200
Vinyl Acetate	---	150	150
Water, Chlorinated	<50ppm	150	150
Water, Chlorinated	50 - <500ppm	125	125
Water, Chlorinated	500 - <2000ppm	100	100
Water, Chlorinated	2000 - <3500ppm	CM	CM
Water, Chlorinated Brine	---	120	120
Water, Dionized	---	250	250
Water, Demineralized	---	250	250
Water, Distilled	---	250	250
Water, Fresh	---	250	250
Water, Salt	---	270	270
Water, Sea	---	270	270
Water, Steam Condensate	---	250	250
White Liquor	---	150	200
Xylene	---	150	150
Zinc Acetate	---	180	180
Zinc Chloride	---	250	250
Zinc Phosphate	---	180	180
Zinc Sulfate	---	200	250

Notes: CM = Consult Manufacturer