



# **General Chemical Resistance Guide**

CORROSION TEST DATA

- A <10% swelling, <15% loss of tensile strength, little or no chemical attack.  
 B <15% swelling, <30% loss of tensile strength, minor chemical attack.  
 C <20% swelling, <50% loss of tensile strength, moderate chemical attack.  
 NR >20% swelling, >50% loss of tensile strength, attacked or dissolved.

\* Entries prefaced with an asterisk are not specifically tested but are estimates based on performance with similar classes of chemicals.

- Note that when boiling is indicated, the boiling temperature varies with the concentration of the corrodent.

- Maximum use temperatures listed are not necessarily upper limits of usability but are limits of data available at time of printing.

	Teflon FEP	Teflon MFA	Halar ECTFE	Kynar PVDF
Acetic Acid	A boiling	A boiling	A 100% to 100°F A 10% to 200°F	A to 122°F B at 158°F C at 212°F A 50% to 212°F
Acetic Acid Vapors	A to 200°F	A to 200°F	A to 200°F	NR at 230°F
Acetic Acid Glacial	A boiling	A boiling	A to 100°F	A to 122°F B at 158°F C at 212°F NR at 230°F
Acetone	A to 200°F	A to 200°F	A to 200°F	C/NR at 100°F NR at 122°F B 50% to 122°F
Ammonium Hydroxide	A to 300°F	A to 282°F	A to 200°F	A to 275°F
Ammonium Nitrate	A to 200°F	A to 200°F	A to 70°F	A to 275°F
Aroclor	*A to 200°F	*A to 200°F		
Aqua Regia	A to 248°F	A to 248°F	A to 100°F	A to 212°F
Asphalt	A to 70°F	*A to 200°F		A to 212°F
Beer	A to 200°F	*A to 200°F		A to 212°F
Benzene	A to 200°F	A to 200°F	A to 200°F	A to 125°F
Boric Acid 5%	A to 100% to 300°F	A to 100% to boiling	A to 100% to 70°F	A to 275°F
Boric Acid 10%	A to 100% to 300°F	A to 100% to boiling	A to 100% to 70°F	A to 275°F
Bromine Dry Gas	A to 200°F	A to 138°F	NR	A to 212°F
Calcium Carbonate	A to 300°F	A to 200°F		A to 275°F
Calcium Chloride Saturated	A to 300°F	A to 300°F	A to 300°F	A to 275°F
Calcium Chloride Dilute	A to 300°F	A to 300°F	A to 300°F	A to 275°F
Caustic Potash (Potassium Hydroxide)	A to 300°F	A to 200°F	A to 50% to 250°F	A to 167°F B to 212°F
Caustic Soda (Sodium Hydroxide)	A to 300°F	A to 50% to 248°F	A to 50% to 200°F	A to 250°F brittle at 250°F

	Teflon FEP	Teflon MFA	Halar ECTFE	Kynar PVDF
Chlorinated Water	A to 300°F	A to 200°F	A to 100°F	AB to 225°F
Chlorine Dry	A to 300°F	A to 248°F	A to 200°F	A to 212°F
Chlorine Wet	A to 300°F	A to 248°F	A to 200°F	A to 212°F AB liquid to 200°F
Chlorosulfonic Acid	A to 304°F	A to 304°F	A 5% to 200°F	C to 70°F NR at 112°F
Chromic Acid Dilute	A to 300°F	A to 248°F	A to 200°F	A to 120°F
Chromic Acid Concentrated	A 50% to 300°F	A to 248°F	A to 200°F	A 50% to 120°F B 50% to 167°F C 50% at 212°F
Chromic Acid <10% Boiling	A	A	A	NR
Chromic Acid >10% Boiling	A to 50%	A to 50%		NR
Creosote Hot (Wood & Coal Tar)	A to 70°F	*A to 200°F	A to 70°F	
Crude Oil	A to 300°F	A to 200°F	A to 200°F	A to 275°F
Diesel Fuel	A to 300°F	A to 200°F	A to 200°F	A to 275°F
Dow Therm	A to 300°F	*A to 200°F	A to 200°F	
Fluorine Gas Dry	A to 70°F B to 125°F	A to 200°F	NR at 200°F	A to 70°F
Fluorine Gas Dry 300°F	NR	*NR	NR	NR
Fluorine Gas Wet	A to 300°F	A to 200°F	NR at 200°F	A to 70°F
Formaldehyde (Formalin)	A to 300°F	A to 200°F	A to 200°F	A to 120°F C at 212°F
Fuel Oils	A to 300°F	A to 200°F	A to 300°F	AB to 275°F
Furfural (Furfuraldehyde)	A to 300°F	A to 200°F	A to 100°F	B to 122°F C at 167°F NR at 212°F
Gasoline Leaded Refined	A to 300°F	A to boiling	A to 200°F	A to 275°F
Gasoline Unleaded Refined	A to 300°F	A to boiling	A to 200°F	A to 275°F
Glucose	A to 300°F	A to 200°F		A to 275°F
Glycol (Ethylene Glycol)	A to 300°F	A to 200°F	A to 200°F	A to 275°F
Hydrazine	A to boiling	A to boiling		A 48% to 275°F
Hydrobromic Acid	A to 300°F	A to 50% to 200°F	A to 300°F	A 37% to 275°F
Hydrochloric Acid >20%	A conc. to 248°F	A to 36% to 248°F	A to 100% to 200°F	A 100% to 275°F
Hydrochloric Acid 1-20%	A to 248°F	A to 248°F	A to 200°F	A to 275°F
Hydrochloric Acid <1%	A to 248°F	A to 248°F	A to 200°F	A to 275°F
Hydrochloric Acid 1% 175°F	A to 248°F	A to 248°F	A to 200°F	A
Hydrochloric Acid 0.5% to 2% 175°F	A to 248°F	A to 248°F	A to 200°F	A to 275°F
Hydrochloric Acid >2% 175°F	A to 248°F	A to 248°F	A to 200°F	A to 275°F
Hydrochloric Acid <0.25% Boiling	A	A	A	A to 275°F
Hydrochloric Acid <1% Boiling	A	A	A	A to 275°F

\* The information above was extracted with written permission from Compass Publications, La Jolle, CA, USA

	Teflon FEP	Teflon MFA	Halar ECTFE	Kynar PVDF
Hydrochloric Acid >1% Boiling	A conc.	A to 36%	A to 50%	A 100% to 275°F
Hydrofluoric Acid <40%	A to 300°F	A to 248°F	A to 300°F	A to 248°F
Hydrofluoric Acid 35%	A to 300°F	A to 248°F	A to 300°F	A to 248°F
Hydrofluoric Acid >40%	A 63% to 73°F A 50% to 300°F	A 100% to 248°F	A 63% to 70°F A 50% to 300°F	A 100% to 212°F AB 60% to 248°F
Hydrofluoric Acid Boiling	A to 50%	A	A to 50%	A
Hydrogen Chloride Gas Dry	A to 300°F	A to 200°F		A to 275°F
Hydrogen Chloride Gas Wet	*A to 300°F	*A to 200°F		A to 275°F
Hydrogen Fluoride Anhydrous	*A to 300°F	*A to 200°F		
Jet Fuel (JP3, JP4, JP5)	A to 300°F	A to 200°F	A to 300°F	A to 212°F
Kerosene	A to 300°F	A to 200°F	A to 300°F	A to 275°F
Mercury	A to 300°F	A to 300°F	A to 70°F	A to 275°F
Methyl Alcohol (Methanol)	A to 300°F	A to 200°F	A to 70°F	A to 275°F
Methyl Ethyl Ketone	A to 300°F	A to 200°F	A to 100°F	C to 150°F NR at 212°F
Methylene Chloride	A to 300°F	A to 200°F		B to 122°F
Milk	A to 212°F	A to 212°F		A to 212°F
Mineral Oil	A to 356°F	A to 356°F	A to 300°F	A to 275°F
Naphtha	A to 300°F	A to 212°F	A to 300°F	A to 275°F
Nitric Acid	A 100% to boiling	A 90% to 75°F A 70% to 248°F	A 70% to 200°F	A conc. to 200°F NR gas at 70°F
Nitric Acid Fuming >70%	A to 248°F	A to 248°F	AB 70% at 212°F	AB to 122°F C/NR anhydrous at 70°F
Nitric Acid Boiling	A 100%	A 70%	NR 70%	C/NR 70°F B 50% A 25%
Oxygen	A to 200°F	A to 200°F	A to 70°F	A to 275°F
Ozone	A to 125°F	A to 200°F		A to 275°F
Perchloroethylene	A to 250°F	A to 250°F	A to 200°F	A to 170°F B to 212°F
Petroleum	A to 200°F	A to 200°F	A to 200°F	A to 270°F
Phosphoric Acid Aerated	A to 100% to boiling	A to 100% to boiling	A to 200°F	A to 100% to 70°F A to 85% to 230°F A 30% to 275°F
Phosphoric Acid Air Free	A to 100% to boiling	A to 100% to boiling	A to 200°F	A to 100% to 70°F A to 85% to 230°F A 30% to 275°F
Phosphoric Acid Boiling	A to 100%	A to 100%		A 85%
Phosphorus	A to 200°F	A to 200°F		
Plating Solutions Brass	A to 300°F	A to 200°F		AB to 200°F
Plating Solutions Cadmium	A to 300°F	*A to 200°F		AB to 200°F
Plating Solutions Chrome	A to 300°F	*A to 200°F		AB to 150°F

	Teflon FEP	Teflon MFA	Halar ECTFE	Kynar PVDF
Plating Solutions Copper	A to 300°F	*A to 200°F		AB to 200°F
Plating Solutions Gold	A to 300°F	*A to 200°F		AB to 200°F
Plating Solutions Lead	A to 300°F	*A to 200°F		AB to 200°F
Plating Solutions Nickel	A to 300°F	*A to 200°F		A to 200°F
Plating Solutions Silver	A to 300°F	*A to 200°F		A to 120°F
Plating Solutions Tin	A to 300°F	*A to 200°F		AB to 200°F
Plating Solutions Zinc	A to 300°F	*A to 200°F		AB to 200°F
Potassium Hydroxide	A to 300°F	A to 200°F	A to 50% to 250°F	A to 167°F B to 212°F C to 230°F
Propyl Alcohol (Propanol)	A to 300°F	A to 200°F	A to 70°F	A to 122°F AB at 158°F AC at 212°F
Propylene Glycol	A to 125°F	*A to 200°F		
Propylene Oxide	A to 300°F	A to 200°F		C/NR at 70°F
Salicylic Acid	A to 300°F	A to 200°F		A to 212°F
Salt Brine (Sodium Chloride Solution)	A to 300°F	A to 200°F	A to 70°F A 10% to 250°F	A to 275°F
Sea Water	A to 250°F	A to 200°F	A to 250°F	A to 275°F
Sewage	*A to 200°F	*A to 200°F		A to 225°F
Sodium Chlorate	A to 200°F	A to 200°F		A to 275°F
Sodium Chloride	A to 300°F	A to 200°F	A sat'd. to 70°F A 10% to 250°F	A to 275°F
Sodium Hypochlorite	A to 300°F	A to 200°F	A to 200°F	A to 13% to 100°F B to 13% to 140°F NR at 13% at 212°F
Sodium Silicate (Water Glass)	A to 300°F	A to 200°F		A to 275°F
Sulfur	A to molten	A to molten	*A to molten	A to 248°F
Sulfur Molten 266°F	A	A	*A	
Sulfuric Acid Air Free	A to 100% to 400°F	A to 100% to 400°F	A to 100% to 300°F	NR 99% at 70°F AC 98% at 70°F A to 96% to 175°F A to 60% to 225°F
Sulfuric Acid Aerated	A to 100% to 400°F	A to 100% to 400°F	A to 100% to 300°F	NR 99% at 70°F AC 98% at 70°F A to 96% to 175°F A to 60% to 225°F
Sulfuric Acid Boiling	A to 80%	A to 80%	A to 65%	NR 40% A 30%
Sulfuric Acid Fuming Oleum	A to 400°F	A to 400°F	A to 300°F	NR at 70°F
Sulfurous Acid	A to 300°F	A to 200°F		A to 212°F

	Teflon FEP	Teflon MFA	Halar ECTFE	Kynar PVDF
Toluene (Toluol)	A to 300°F	A to 230°F	A to 200°F	A to 70°F AB at 122°F AC at 212°F
Vinylidene Chloride (Resin)	A to 125°F	*A to 200°F		*AB to 70°F
Water, Distilled	A to 300°F	A to 200°F	A to 250°F	A to 275°F
Water, Fresh	A to 250°F	A to 200°F	A to 250°F	A to 275°F
Water, Deionized	A to 212°F	A to 200°F	A to 250°F	A to 275°F
Water, Demineralized	A to 300°F	A to 200°F	A to 250°F	A to 275°F
Water, Brackish	A to 212°F	A to 200°F	A to 250°F	
Water, Salt (See Also Sea Water)	A to 300°F	A to 200°F	A to 250°F	A to 275°F
Whiskey	A to 300°F	*A to 200°F		*A to 200°F
Wine	A to 300°F	*A to 200°F		*A to 200°F
Sunlight	no effect	no effect	no effect	slight bleaching
Ultraviolet Light	no effect	no effect	no effect	Excellent

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**Note:** The ratings given are a guide and do not constitute a warranty of any kind, express or implied, with respect to the performance of the products in any specific applications.

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