CHEMICAL RESISTANCE CHART Typical Powder Coatings

Key: E – No attack
F – Some attack, but unseeable in some instances
N – Rapidly attacked
H – Hot, 180°F (82.2°C) or boiling point of solvent
G – Appreciably no attack
P – Attacked, not recommended for use
C – Cold, 70°F (21.1°C)
* – And nitrate and sulfate

Chemical	Epoxy C	Epoxy H
Acids:		
Acetic, 10%	F	N
Acetic, Glacial	N	N
Benzene Sulfonic, 10%	E	E
Benzoic	E	E
Boric	E	E
Butyric, 100%	P	N
Chloracetic, 10%	E	E
Chromic, 5%	F	N
Citric, 10%	E	N
Fatty Acids	E	E
Fluosilicic	N	N
Formic, 90%	E	F
Hydrobromic, 20%	G	G
Hydrochloric, 20%	E	G
Hydrocyanic	E	E
Hydrofluoric, 20%	G	G
Hypochlorous, 5%	F	N
Lactic, 5%	F	N

Chemical	Epoxy C	Epoxy H
Acids (Continued):		
Maleic, 25%	E	E
Nitric, 5%	E	G
Nitric, 30%	G	P
Oleic	E	E
Oxalic	E	E
Phosphoric	G	F
Picric	G	F
Stearic	E	E
Sulfuric, 50%	G	F
Sulfuric, 80%	F	N
Tannic	E	E
Alkalies:		
Ammonium Hydroxide	E	G
Calcium Hydroxide	E	E
Potassium Hydroxide	E	E
Sodium Hydroxide	E	E

Chemical	Epoxy C	Epoxy H
Acid Salts:		
Aluminum Sulfate	E	E
Ammonium Chloride*	E	E
Copper Chloride*	E	E
Iron Chloride*	E	E
Nickel Chloride*	E	E
Zinc Chloride*	E	E
Alkaline Salts:		
Barium Sulfide	E	E
Sodium Bicarbonate	E	E
Sodium Sulfide	E	E
Trisodium Phosphate	E	E
Neutral Salts:		
Calcium Chloride*	E	E
Magnesium Chloride*	E	E
Potassium Chloride*	E	E
Sodium Chloride*	E	E

Chemical	Epoxy C	Epoxy H
Solvents:		
Alcohols	E	E
Aliphatic Hydrocarbons	E	E
Aromatic Hydrocarbons	E	E
Chlorinated Hydrocarbons	F	F
Ketones	F	F
Ethers	F	F
Esters	F	F
Gasoline	E	E
Carbon Tetrachloride	E	E
Organics:		
Aniline	G	P
Benzenc	E	E
Formaldehyde, 37%	E	G
Phenol, 5%	G	F
Mineral Oils	E	E
Vegetable Oils	E	E
Chlorobenzene	G	P

Z1180 and Z1184 CHEMICAL RESISTANCE CHART For Composite Material in Light Acid Concentration Environment Only

Key: E – Excellent Corrosion Resistance G – Good F – Fair P – Poor

Medium	Rating
General Outdoor	E
Marine Outdoor	E
General Industrial	E
Water – Pure	E
Water – Sea	E
Acids:	
Acetic	E
Boric	E
Chromic	E
Citric	E
Fatty	E
Formic	E
Hydrochloric	G
Hydrofluoric	F-P
Nitric	F
Phosphoric	G
Picric	G
Sulfuric	G
Bases:	
Ammonium Hydroxide	E
Potassium or Sodium Hydroxide	F-G
Salts:	
Aluminum Sulfate	E
Ammonium	
Chloride	E
Nitrate	E
Phosphate	E
Sulfate	E
Borax	E

Medium	Rating
Salts (Continued):	
Copper Sulfate	E
Ferric	
Chloride	E
Sulfate	E
Magnesium	
Chloride	E
Sulfate	E
Mercuric Chloride	E
Nickel	
Chloride	E
Sulfate	E
Potassium	
Chloride	E
Sulfate	E
Sodium	
Bicarbonate	E
Bisulfate	E
Chloride	E
Hypochlorite	E
Nitrate	E
Phosphate	E
Silicate	E
Sulfate	E
Thiosulfate	E
Zinc	
Chloride	E
Sulfate	E
Calcium Chloride	E
Sodium Carbonate	E

Medium	Rating
Gases (Wet):	
Ammonia	E
Carbon Dioxide	E
Chlorine	E
Hydrogen Sulfide	E
Nitrogen Dioxide	G-E
Sulfur Dioxide	E
Carbon Disulfide	E
Solvents:	
Acetone	E
Benzene	E
Carbon Tetrachloride	E
Ethyl Acetate	E
Ethyl Alcohol	E
Ethyl Ether	E
Ethylene Dichloride	E
Ethylene Glycol	E
Freon	E
Methyl Alcohol	E
Methyl Ethyl Ketone	E
Methylene Chloride	E
Perchloroethylene	E
Trichloroethylene	E
Toluene	E
Xylene	E

Medium	Rating
Oils, Fuels, and Other:	
ASTM No. 1 Oil	E
ASTM No. 3 Oil	E
Detergents	E
Gasoline	E
Grease	E
Jet Fuel	E
Hydraulic Fluid (Ester)	E
Kerosene	E
Motor Oil	E

CHEMICAL RESISTANCE CHART Typical Corrosion Resistance of Stainless Steel to Various Media

CODE: a – Unaffected. b – Slightly attacked. c – Attacked. m – Complete details concerning the conditions of service must be evaluated.

MEDIUM	TYPE CF8 304	NUMBERS CF8M 316
Organic Substances:		
Acetone	a	a
Benzol	a	a
Carbon tetrachloride	c	c
Ethyl alcohol	a	a
Ethyl chloride	a	a
Ethyl ether	a	a
Food pastes	a	a
Fruit juices	a	a
Ink	m	m
Mustard	b	a
Paregoric cmpd	a	a
Quinine bisulfate	b	a
Quinine sulfate	a	a
Vinegar at 70°F	m	m
Acids:		
Acetic	m	m
Benzoic	a	a
Boric	a	a
Carbolic	a	a
Chromic (50%)	c	c
Citric	a	a
Formic	c	m
Hydrobromic	c	c
Hydrocyanic	a	a
Hydrochloric	c	c
Hydrofluoric	c	c
Lactic	a	a
Nitric (conc.)	a	a
Nitric (conc. plus 2% HCl)	a	–
Nitrous (conc.)	a	a
Oxalic	m	m
Phosphoric	a	a
Phosphoric (10%)	a	a
Picric (conc.)	a	a
Pyrogallic (conc.)	a	a
Pyroligneus (conc.)	a	a
Stearic (conc.)	a	a
Succinic (molten)	c	–
Sulfuric (conc.)	a	a
Sulfuric (dil.)	m	m
Sulfuric 15% (plus 2% potassium dichromate)	a	a
Sulfurous (conc.)	b	a
Tannic (conc.)	a	a
Tartaric (conc.)	a	a
Trichloracetic acid (10%)	a	a
Uric (conc.)	a	a

MEDIUM	TYPE CF8 304	NUMBERS CF8M 316
Salts:		
Aluminum chloride	c	c
Aluminum fluoride	c	b
Aluminum sulfate	a	a
Ammonium alum	a	a
Ammonium bromide	c	a
Ammonium chloride	b	a
Ammonium hydroxide	a	a
Ammonium nitrate	a	a
Ammonium sulfate	a	a
Barium chloride	a	a
Bleaching powder	c	a
Calcium chloride	c	a
Calcium hydroxide or oxide	a	a
Copper chloride	c	c
Copper cyanide	a	a
Copper nitrate	a	a
Copper sulfate (plus 2% sulfuric acid)	a	a
Copper sulfate	a	a
Creosote	c	a
Creosote (plus 3% salt)	c	c
Hydrogen peroxide	b	a
Magnesium carbonate	a	a
Magnesium chloride	m	m
Magnesium sulfate	a	a
Magnesium hydroxide	a	a
Magnesium nitrate	a	a
Phosphorous trichloride	a	a
Potassium bromide	a	a
Potassium carbonate	a	a
Potassium chloride	m	m
Potassium chlorate	a	a
Potassium cyanide	a	a
Potassium dichromate	a	a
Potassium ferricyanide	a	a
Potassium ferricyanide (boiling)	a	a
Potassium hypochlorite	c	m
Potassium iodide	a	a
Potassium iodide (sat. plus 0.1% sodium carbonate evaporated to dryness)	a	a
Potassium hydrate	a	a
Potassium nitrate	a	a
Potassium oxalate	a	a
Potassium permanganate	a	a
Potassium sulfate	a	a
Silver nitrate	a	a

MEDIUM	TYPE CF8 304	NUMBERS CF8M 316
Salts (Continued):		
Silver cyanide	a	a
Sodium bicarbonate	a	a
Sodium borate	a	a
Sodium bromide	a	a
Sodium chloride (2% aerated)	a	a
Sodium citrate	a	a
Sodium fluoride	b	–
Sodium hydroxide	a	a
Sodium nitrate	a	a
Sodium peroxide (212°F)	a	a
Stannic chloride	c	c
Stannous chloride	b	–
Sulfur (molten) 500°F	a	a
Sulfur chloride	b	–
Titanium tetrachloride	a	a
Zinc chloride	c	b
Zinc sulfate	a	a
Miscellaneous:		
Ammonia	a	a
Baking oven gases	a	a
Bromine	c	c
Carbonated beverages	a	a
Chlorine (wet and dry)	c	c
Glycerin	a	a
Hydrogen sulfide (400°F)	b	a
Iodine	c	a
Lead (molten)	c	c
Lysol	m	m
Mercury	a	a
Sauerkraut brine	c	a
Sea water	m	m
Sulfur dioxide	b	b
Vegetable juices	a	a
X-ray developing solution	b	a
Zinc (molten)	c	c