CORROSION RESISTANCE CHART

Warning: Corrosion rates may vary widely with factors such as concentration, temperature, abrasion and impurities of product. Serious injury may occur with contact of incompatible liquids with solids.

Compatibility Ratings

A = Excellent B = Good C = Fair to poor D = Poor Recommedation X = Not recommended - = No data available

Temperature Ratings:

1 = OK to 80° F 3 = OK to 95° F
2 = OK to 125° F 4 = OK to 205° F
All others listed at ambient temperature

CHEMICAL	Epoxy		Plastics															Elastomers										Metals										Non-Metals		
	Vinyl Ester VR-1	Epoxy EY-1	ABS Plastic	Acetal (Delrin)	CPVC	Epoxy	Hytrel®	HDPE	LDPE	Nomex®	Nylon	Polycarbonate	Polypropylene	PPS (Rylon)	PTFE (Teflon)	PVC	PVDF (Kynar®)	Buna N (Nitrile)	EPDM	Hypalon®	PCTFE	Natural rubber	Neoprene	Santoprene	Silicone	Tygon® (R-3603)	Viton®	304 stainless steel	316 stainless steel	Aluminum	Brass	Bronze	Carpenter 20	Cast iron	Copper	Hastelloy-C®	Titanium	Carbon graphite	Ceramic Al_2O_3	Ceramic magnet
Ferric Chloride; Hydrochloric Acid	A^2	A^2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D	-	-	-	D	-	-	B	D	-	-	-
Ferric Hydroxide	-	-		A	-	-	-	-	-	-	-	-	-	-	A	-	-	B	A	-	A	-	-	-	-	-	C	-	A	-	-	-	-	-	-	B	-	-	-	-
Ferric Nitrate	A^4	A^4	A^2	A	A	A	-	-	A^2	A^2	A^1	A^1	A	A	A	A	A	A	A	A	A	A	A	A	C	-	A	B	B	D	D	C	D	X	D	A	A	A	-	-
Ferric Sulfate	A^4	A^4	A^2	A	A	A	-	-	A^2	A^2	A^1	A^1	A	A	A	A	A	A	A	A	A	A	A	A	B	-	A	B^1	A	C	D	C	D	D	D	A^1	A^1	A	A	-
Ferrous Chloride	A^4	A^4	A^2	A	A	A	X	A	A^2	A^2	D	D	A	A	A	A	A	A	A	A	A	A	A	A	-	-	A	D	B/20%	D	D	C^1	C	D	B	B^1	A	A	-	A
Ferrous Sulfate	A	A	A^1	A	A	A	-	-	A^2	A^2	D	A^1	A	A	A	A	A	A^2	A	B	A	B	A	A	-	-	A	B	B	A/10%	B^1	B	D	C	B	A	A^1	A	A	A
Fertilizer 8-8-8	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-	-	-	A	-	-	-	-	-	-	-
Fertilizer, Ures-Ammonium Nitrate Composition	A^2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	B	A	-	-	-
Fluoboric Acid	A^4	A^4	A^2	A^1	A^2	D	-	A	A^2	A1	D	-	A	A	A	A	A^1	A	A^2	A	B	A	A	-	-	-	B	B	B	D	-	B^1	D	D	-	A^1	D	A	C	A
Fluoride Salts & HCl	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorine	-	-	A^1	D	D	A^1	-	D	D	-	D	C	D	D	D	D	A^1	D	A^1	-	A	C	-	D	D	D	C	C	A	A	A	C	D	D	C	B^1	D	C	-	A
Fluorobenzene	-	-	-	A	-	-	-	-	-	-	-	-	X	-	A	-	-	X	X	-	A	-	X	C	-	-	A	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluosilicic Acid	A^2	A^4	A^2	A^1	A	C	-	B	A^2	A^2	D	A^1	A	A	A	D	A^1	A	A^2	A	C	A	A	A	-	A	A	C	A/212°	D	B^1	B^2	D	D	D	B	D	A	C	A
Formaldehyde (Formalin)	-	-	-	A	-	-	C/40°	-	-	-	-	-	A	A	A	-	A/120°	B	A	-	A	-	C	A	-	-	A	-	A/90%	-A	-	-	-	C	-	A	-	-	-	-
Formaldehyde 100%	-	-	B	A	A	A	-	A	B	A	D	A^2	C	B	A	A	A	C	A	C	A	C	C	A	B	D	D	C	A	A	-	B	A	C	A^2	A	A	-	-	A
Formaldehyde 40%	A_2	A_2	A^2	A^2	A^2	A^2	B	A	D	A	A	A^1	A	A	A	A	A	B	A	B	A	B	B^1	A	-	D	A	A^1	A	B	A	A	A	B	B^2	B	B	A	-	A
Formamide	-	-	-	A	-	-	-	-	-	-	-	-	-	-	A	-	-	A	A	-	A	-	A	-	-	-	X	-	B	A	-	-	-	B	-	B	-	-	-	-
Formic Acid	A_2	A_1	D	A^2	A^2	C^1	B	A	D	A	D	A^1	A^1	A	A	A^1	A	C	A	A^1	A^1	C	A	A	B	A	C	B^1	A^1	A	D	C	C	D	C	A	C^1	A	-	A
Freon® 11	-	A_1	D	A	A^2	A	A	A	C	B	D	-	A	A	A	A^2	A	B	D	B	A	D	C	B	D	A	B	A	A	B	-	-	A	A	B	A	B	-	A	A
Freon® 113	-	A	-	A	B	A	A/130°	-	-	D	-	B^1	D	A	A	B	A	A	D	A	A	D	A	D	D	-	B	-	A	B	-	-	A	-	A	A	C^1	-	A	A
Freon® 114 (Dichlorotetrafluoroethane)	-	A	-	A	-	-	A	-	-	-	-	-	-	-	A	-	A	A	C	-	A	-	A	X	-	-	A	-	A	B	-	-	-	-	-	-	-	-	-	-
Freon® 114B2 (Dibromotetrafluoroethane)	-	A	-	A	-	-	-	-	-	-	-	-	-	-	A	-	-	B	X	-	A	-	A	X	-	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-
Freon® 115 (Chloropentafluoroethane)	-	A	-	A	-	-	-	-	-	-	-	-	-	-	A	-	-	A	A	-	A	-	A	X	-	-	B	-	-	A	-	-	-	-	-	-	-	-	-	-
Freon® 12	-	A	A^1	A	A^2	A^2	A	-	A^1	D	A^1	-	A^2	A	A	A^2	A	A	B	A	A	C	A	D	D	A	B	B^1	A	B^1	A	B	A	A	A	A	B	-	-	-
Freon® 13 (Chlororfluoromethane)	-	A	-	A	-	-	C	-	-	-	-	-	-	-	A	-	-	A	A	-	A	-	A	X	-	-	A	-	A	A	-	-	-	A	-	A	-	-	-	-
Freon® 13B1 (Bromotrifloromethane)	-	A	-	A	-	-	-	-	-	-	-	-	-	-	A	-	-	A	A	-	A	-	A	-	-	-	A	-	-	-	-	-	-	-	-	-	-	-	-	-
Freon® 14 (Tetrafluoromethane)	-	A	-	A	-	-	-	-	-	-	-	-	-	-	A	-	-	X	B	-	A	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Freon® 21 (Dichlorofluoromethane)	-	A	-	A	-	-	-	-	-	-	-	-	-	-	A	-	A	X	X	-	A	-	B	X	-	-	X	-	-	A	-	-	-	-	-	-	-	-	-	-
Freon® 22	-	A	-	A	B	A	X	-	-	B	B	-	B	A	A	A	A	D	A	B	A	D	A	D	D	A	D	A	A	A	A	-	A	A	B	A	B	-	-	-
Freon® F-21	-	A	-	-	-	-	-	-	-	-	-	-	-	-	A	-	A	-	-	-	-	-	-	-	-	-	-	-	-	-	B	B	B	-	B	-	-	-	-	-
Freon® TF	-	A	-	A	B	A	A	B	-	-	D	-	D	D	A	B	B	A	D	A		D	A	D	D	-	B	A	A	D	-	-	A	A	A	A	B	-	A	A
Freon®, Wet	-	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	C	-	-	-	A	-	-	A	A	-	-	-
Fructose	-	-	-	-	A	-	-	A	A	-	-	-	A	-	A	A	A	-	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-
Fruit Juice	-	-	B	D	A	A	-	-	A	B	A	-	B	-	A	A	A	A	-	B	A	D	A	-	-	A	A	A	A	A	D	-	C	D	A	A	A	-	A	A
Fuel Oils	A_2	-	D	A	-	A^1	-	C	B	B	A^1	B^1	A	A	B	A^2	B	A	D	C	A	D	B	-	D	D	A	A	A	C^1	B	A	A	A	A	A^1	A	A	-	-
Fumaric Acid (Boletic Acid)	-	-		A	-	-	-	-	-	-	-	-	-	-	A	-	-	C	-	-	A	-	B	A	-	-	A	-	-	-	-	-	-	-	-	-	-	-	-	-
Furan Resin	-	-	-	D	-	A^1	-	-	D	-	-	-	D	A	A	A	D	D	C	D	A^1	D	D	A	D	A	D	A^1	A	A	-	-	A	-	-	B	-	-	-	-
Furfural	-	-	D	A	D	A^1	-	A	D	D	B	D	D	A	A	D	B^2	D	D	B	D	D	D	A	D	D	D	A	B	A^1	-	B	A	B	A	B	A	A	-	-
Furfural 100%	-	A_1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	B	-	-	-	B	-	-	B	A	-	-	-
Furfuryl Alcohol	-	-	-	B/100°	-	-	B	-	-	-	-	-	-	A	-	-	-	X	B	-	A	-	-	A	-	-	X	-	A	A	-	-	-	A	-	A	-	-	-	-

Warning: Halogenated solvents such as 1,1,1, Trichloroethane and Methylene Chloride should not be used in Aluminum equipment. A violent explosion could occur with halogenated hydrocarbons such as Carbon Tetrachloride, Chloriform, Dichlorethylene, Methyl Chloride, Methylene Chloride, and Trichlorethylene.

Data shown is based on information that has not been independently verified. We do not guarantee its accuracy or imply or state the accuracy of these charts. Data is limited to the concentrations and temperature specified. Assume ambient temperatures where temperature restrictions are not indicated.