

Circle Seal Controls Corrosion Resistance Guide



CORROSION CHART

DISCLAIMER

The data presented is of value when the user is aware of the numerous variables involved in dealing with corrosion. Among the important variables are temperature, concentration, pressure, agitation, aeration, and impurities. The corrosion problem is made more complex by these and other variables.

The precise rate of attack under a prescribed set of conditions can only be achieved by actual performance tests under such conditions. Understanding these limitations, data obtained from this table is offered only as a basic guide to the user for the selection of materials of construction.

Note that it is the sole responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation and maintenance of these products. Material compatibility, product ratings, and application details should be considered in the selection. Unless otherwise indicated, all information is based on atmospheric pressure and ambient temperature conditions. Data presented is based on tests believed to be reliable, however they cannot be guaranteed.

GUIDE TO SELECTION

- A** - Substantial Resistance - Preferred material of construction
- B** - Moderate Resistance - Satisfactory for use under most conditions; very slight swelling for elastomers
- C** - Questionable Resistance - Use with caution
- D** - Inadequate Resistance - Not recommended
- Blank** - No data available

NOTES:

- 1 - To 220° F (100° C)
- 2 - To 150° F (66° C)
- 3 - Subject to stress corrosion at high temperatures and in concentrated solutions
- 4 - B rating for Amyl, Ethyl, Methyl, and Propyl Alcohols at 70° F (21° C)
- 5 - Subject to pitting at air solution line when solution is allowed to dry on the metal surface
- 6 - Water presumed absent
- 7 - to 20%
- 8 - to 30%
- 9 - to 50%

Special Note: The chemicals listed in this guide highlighted in **YELLOW** are experimental carcinogens, according to the ninth edition of Sax' Dangerous Properties of Industrial Materials. Chemicals highlighted in **GRAY** are listed as suspected carcinogens, experimental carcinogens at low doses, and other other materials which pose a lesser risk of cancer.

	Aluminum	Brass Yellow	Carbon Steel	Carpenter 20Cb3	Hasteloy B-2	Hasteloy C-276	Haynes #25	Inconel 600	Inconel 625	Monel	Nickel	Stainless 316	Stainless 416	Stainless 17-4PH	Stainless XM-19	Titanium	Zirconium	Euna N	PCTFE	Nylon	Teflon	Viton
Acetaldehyde 100%	B	D	C	A	A	A		B	A	A	B	A	A	A	A	B	A	D	A	B	A	C
Acetate Solvents Crude	A	C3	D	A		A		A	A	B	B	A	B	A	A	A	A	D	A	A	A	D
Acetate Solvents Pure	A	A	C	A		A		A	A	A	A	A	A	A	A	A	A	D	A	A	A	D
Acetic Acid 95%	B	D	D	B	A	A	A	C	A	B	B	A	C	B	A	A	A	D	A	D	A	C
Acetic Acid Vapors 100% Hot	C	D	D	B	A	A	A	B	A	B	C	B	D	D	B	A	A	D	C	D	A	D
Acetic Anhydride Boiling	D	D	D	A	B	A		B	A	B	A	B	D	B	B	A	A	D	C	D	A	D
Acetone	A	A	B	A	A	A		A	A	A	B	A	A	A	A	A	A	D	A	B	A	D
Alcohols	B	B	B	A	A	A		A	A	A	A	B	A	A	B	A	B4	A	A	A	A	C
Alum. Potassium 10%	C	D	D	B	C	B		C	B	C	C	B	D	C	B	A	A	A	A	D	A	A
Aluminum Chloride 10%	D	D	D	B	A	A		B	B	B	B	C	D	D	C	A	A	A	A	A	A	A
Aluminum Chloride 10% Boiling	D	D	D	B	A	A		C	C	C	B	D	D	D	D	D	A	C	A	D	A	A
Aluminum Sulfate 10%	D	D	D	A	A	A		B	A	B	B	B	D	C	B	A	A	A	A	A	A	A
Aluminum Sulfate <10% Boiling	D	D	D	A	B	B		B	A	B	B	B	D	C	B	A	A	B	A	D	A	A
Aluminum Sulfate >10% Boiling	D	D	D	B	B	B		D	B	C	C	B	D	D	B	A	A	D	A	D	A	A
Amines	B	B	B	A	A	A		A	A	A	A	A	A	A	A	B		D	A	A	A	D
Ammonia Anhydrous	A	D	B	A	A	A		A	A	A	A	A	A	A	A	A	A	B	A	A	A	D

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	Aluminum	Brass Yellow	Carbon Steel	Carpenter 20Cb-3	Hastelloy B-2	Hastelloy C-276	Haynes #25	Incone L600	Incone L625	Monel	Nickel	Stainless 316	Stainless 416	Stainless 17-4PH	Titanium	Zirconium	Buna N	PC/PE	Nylon	Teflon	Viton	
Ammonia Aqueous	A	D	A	A	A	A		A	A	A	A	A	A	A	A	A	B	A	A	A	D	
Ammonium Chloride 10%	D	D	C	A	A	A		A	A	B	B	A	C5	B5	A	A	A	B	A	A	A	A
Ammonium Chloride <10% Boiling	D	D	D	A	B	B		B	B	B	B	C5	D	D	C	A	A	D	A	D	A	A
Ammonium Chloride >10% Boiling	D	D	D	B	B	B		B	B	B	B	C5	D	D	C	A	A	D	A	D	A	A
Ammonium Hydroxide Hot	D	D	D	A	B	B		B	B	D	D	B	B	B	B	A	A	B2	A	A	A	C
Ammonium Nitrate	B	D	B	A	C	B		B	A	D	C	A	B	A	A	A	A	A	B	A	A	A
Ammonium Persulfate 5%	D	D	D	B	D	B		B	B	D	D	A	C	B	A	A		A	A	D	A	A
Ammonium Phosphate Dibasic 5%	B	D	D	B	B	A		B	A	B	C	B	B	B	A	A	A	A	C	A	A	A
Ammonium Sulfate <10%	D	D	D	B	B	B		B	B	B	B	C	C	B	A	A	A	A	D	A	A	A
Ammonium Sulfate >10% Boiling	D	D	D	B	B	B		B	B	B	B	B5	D	C5	B	A	A	B2	A	D	A	A
Ammonium Sulfite Boiling	D	D	D	A	B	A		D	B	D	D	B	D	C	B			B2	A	D	A	A
Aniline Hydrochloride	D	D	D	B	B	D		C	C	D	D	C	D	D	C	A	A	D	A	D	A	B
Antimony Trichloride	D	D	D	B	B	B		B	B	B	B	D	D	D	B			B	A	D	A	B
Barium Chloride 5%	D	D	C	A	B	A		B	B	B	B	B	C	B	B	A	A	A	A	A	A	A
Barium Chloride >5% Hot	D	D	D	B	B	A		B	B	B	B	B5	D	D	B	A	A	B	A	A	A	A
Barium Hydroxide	D	D	B	A	A	A		A	A	A	A	A	B	B	A	A	A	B	A	A	A	A
Barium Nitrate	B	D	C	B	B	B		B	B	C	C	B	B	B	B	A	A	B	A	A	A	A
Beer 160° F	A	B	C	A	A	A		A	A	A	A	A	C	A	A	A	A	B2	A	D	A	A
Beet Sugar Liquor Hot	A	C	C	A				A	A	A	A	B	A	A	A	A		A	A	C	A	A
Benzene Hot	B	B	B	A	B	B		B	B	B	B	A	B	A	A	A	A	D	B	D	A	D
Benzoic Acid	B	B	B	B	A	B		B	B	B	B	B	B	B	B	A	A	D	A	D	A	A
Blood	A		D	A	A			A	A	A	A	A	A	A5	A	A	A	C	A		A	A
Borax Hot	D	C	B	A	A	A		B	B	B	B	B	B	B	B	A		B2	A	A	A	A
Boric Acid 5% Hot	C	D	D	B	A	A		B	B	B	B	B	B	B	B	A	A	B2	A	A2	A	B
Bromine Dry Gas	D	D	D	A	A	A		B	A	A	A	D	D	D	D	D		D	A	D	A	A
Bromine Moist Gas	D	D	D	D	B	A		D	B	C	C	D	D	D	D	D	A	D	A	D	A	A
Butyric Acid Dilute	C	D	C	B	A	A		B	B	B	B	B	C	B	B	A	A	D	A	B	A	B
Butyric Acid Hot Concentrated	B	D	D	A	A	A		C	C	B	C	D	D	C	B	A	A	D	A	D	A	C
Calcium Bisulfite Hot	D	D	D	B	B	B		D	D	D	D	B	D	C	B	A		B2	A	A2	A	B
Calcium Chloride Dilute	D	C	C	A	A	A		A	A	A	A	B5	C5	B5	B	A	A	B	A	A	A	A
Calcium Hydroxide 30% Boiling	D	D	D	B	A2	A		A	A	B	B	B	C	C	B	A	A	B2	A	A2	A	A
Calcium Hypochlorite 100%	D	D	C	B	B7	B7		B	B	D	C	D	D	D	D	A	A	C	A	A	A	A
Carbolic Acid 90%	B	C	C	A	A	A		A	A	B	A	B	B5	B5	B	B	A	D	A	D	A	A
Carbon Dioxide Dry	A	A	A	A	A	A		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Carbon Disulphide	A	C	B	A	A	A		A	A	B	B	A	B	B	A	A		D	A	B	A	A
Carbon Tetrachloride Dry Hot	D	B	C	A	A	A		A	A	A	A	B5	C	B5	B5	A	A	D	D	A	A	A
Carbonic Acid Saturated	B	C	D	A	A	A		A	A	A	A	A	B	A	A	A	A	B	A	D	A	A
Chloric Acid	D	D	D	A		A		C	B	D	D	D	D	D	D	A		D	A	D	A	B
Chlorinated Water Saturated	D	D	D	A		A		C	B	C	C	C5	D	C5	C5	A	A	C	A	D	A	A
Chlorine Dry Gas	D	C	D	A	B	A		B	A	A	A	B	D	A	B	D	A	D	D	D	A	A
Chlorine Moist Gas	D	D	D	B	A	A	A	D	D	B	C	C	D	D	C	B	D	D	B2	D	A	C
Chloroacetic Acid	D	D	D	C	B	B		B	B	B	B	D	D	D	D	A	A	D	A	D	A	B
Chlorosulfonic Acid Dilute	D	D	D	B	A	A		C	B	C	C	B	D	D	D	A	D	D	A	D	A	B
Chromic Acid Dilute	D	D	D	B	A	A	A	B	B	B	B	B	C	C	B	A	A	D	A	D	A	A
Chromic Acid <10% Boiling	D	D	D	D	D	A	B	C	C	C	C	D	D	C	D	B	A	D	A	D	A	C
Chromic Acid >10% Boiling	D	D	D	D	D	D	D	C	C	D	D	D	D	D	D	B	A9	D	A2	D	A	C
Citric Acid Dilute	B	C	D	A	A	A		B	B	B	B	A	C	B	A	A	A		A	B	A	A
Citric Acid Hot Concentrate	C	D	D	B	A	A		B	B	B	B	D	B	C	B	B	A	B	A2	D	A	A
Copper Nitrate Hot Concentrate	D	D	D	B	C	B		D	D	D	D	B	B	B	B	A	D	B	A	D	A	A
Copper Sulfate Hot Concentrate	D	D	D	B	B	A		C	C	C	C	B	B	B	B	A	D	B	A	D	A	A
Cupric Chloride <2%	D	D	D	B	B	A	A	C	C	B	B	B5	C5	B5	B5	A	D	B	A	B	A	A
Cupric Chloride 5%	D	D	D	B	B	A	A	D	D	D	D	C5	D	D	C5	A	D	B	A	B	A	A
Dichlorethane Boiling	C	D	A	B	B		B	B	A	A	B		B	B	C			D	C	D	A	B
Ethyl Acetate	B	B	B	A	A	A		B	B	A	B	B	B	B	A	A	D	B2	A2	A	D	
Ethyl Chloride Wet	B	B	D	A	B	B		A	A	A	A	A	D	B	A	A	A	A	A	A	A	A
Ethylene Glycol	B	B	B	A	A	A		A	A	A	A	A	B	A	A	A	A	A	A	B	A	A
Fatty Acids 212° F	A	C	C	A	A	A		B	A	B	B	A	B	B	A	B		B	B	C	A	A
Ferric Chloride <1%	D	D	D	A	B	A	A	B	B	C	C	B5	C5	C5	A	A	A	A	A	A	A	A
Ferric Chloride >1%	D	D	D	C	D	B	A	D	C	D	D	D	D	D	B	D	D	A	A	C	A	A
Ferric Chloride <1% Boiling	D	D	D	D	D	D	A	D	D	D	D	C5	D	D	B5	C	C	B	A	D	A	B

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	Aluminum	Brass Yellow	Carbon Steel	Carpenter 20Cb-3	Hastelloy B-2	Hastelloy C-276	Haynes #25	Inconel 600	Inconel 625	Monel	Nickel	Stainless 316	Stainless 416	Stainless 17-4PH	Stainless XM-19	Titanium	Zirconium	Buna N	PC/FE	Nylon	Teflon	Viton
Ferric Chloride >1% Boiling	D	D	D	D	D	A	D	D	D	D	D	D	D	C5	D	D	B	A	D	A	B	
Ferric Nitrate 5%	D	D	D	A	B	B	C	B	D	D	B	B	B	B	A		B	A	D	A	A	
Ferric Sulfate 5%	D	D	D	A	B	A2		B	B	C	D	A	B5	B5	A	A	A	B	A	D	A	A
Ferrous Chloride	D	C	D	B5	B	B		D	D	D	D	B5	D	D	B5	A	A9	A	B	D	A	A
Ferrous Sulfate 10%	C	C	C	B	B	B		B	B	B	B	B	B	B	A	A	A	A	A	D	A	A
Fluorine Dry Gas	B	C	C	A	B	A		A	A	A	A	A	A	A	A	D	D		D	D	A	A
Fluorine Dry 300° F	B	D	D	A				A	A	A	A	A	A	A	A	D	D	D	D	D	A	A
Fluorine Moist Gas	D	D	D	D				B	B	A	B	D	D	D	D	D	D	D	A	O	A	B
Formaldehyde 40%	B	C	C	A	B	B		A	A	A	A	A	B	A	A	A	A	A	A	C	A	A
Formic Acid <50%	C	C	D	A	A	A	A	A	A	B	B	A	C	A	A	C	A	B	B	D	A	C
Formic Acid >50%	D	D	D	A	B	A	A	B	B	B	B	A	D	A	A	A	A	C	B	D	A	C
Formic Acid <50% Hot	D	D	D	B	B	B	A	B	B	B	B	C	D	D	C	D	A	D	C	D	A	D
Formic Acid >50% Hot	D	D	D	B	B	B	A	C	C	B	B	C	D	D	C	A	A	D	C	D	A	D
Freon 12	A	A	A	A	A	A		B	B	B	B	A	A	A	A	A		B	A	A	A	C
Freon 22	A	A	A	A				A	A	A	A	A	A	A	A	A		D	A	D	A	D
Freon 113	B	B	A	A	A	A		A	A	B	A	A	A	A	A	A		A	D	A	A	C
Freon Wet	B	A	D	A	A	A		B	B	A	A	C	C	A	C	A		B	A	D	A	D
Fuel Oil 140° F	A	B	A	A	A	A		A	A	B	B	A		A	A	A		A	A	B	A	A
Furfural	B	C	B	B	B	B		B	B	B	B	B	B	A	A	A		D	B	A	A	D
Gasoline Refined	A	A	A	A	A	A		A	A	A	A	A	A	A	A	A		A	A	A	A	A
Glycerine	A	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Hydrobromic Acid	D	D	D	D	B	A2		D	D	D	D	D	D	D	A2	D	D	A	D	A	A	A
Hydrochloric Acid <1%	D	D	D	A	A	A	A	B	B	B	B	D	D	D	D	A	A	B	A	A	A	A
Hydrochloric Acid 1-20%	D	D	D	C	B	B	D	C	C	D	C	D	D	D	C	A	B	A	A	A	A	A
Hydrochloric Acid >20%	D	D	D	D	A	B	B	D	D	D	D	D	D	D	D	A	C	A	D	A	A	A
Hydrochloric Acid <1/2% 175° F	D	D	D	D	B	A		C	C	D	B	D	D	D	D	A	A	D	A	D	A	B
Hydrochloric Acid 1/2 - 2% 175° F	D	D	D	D	B	A		D	D	D	C	D	D	D	D	C	A	D	A	D	A	B
Hydrochloric Acid >2% 175° F	D	D	D	D	B8	C8	D	D	D	D	D	D	D	D	D	D	A	D	A	D	A	D
Hydrochloric Acid <¼% Boiling	D	D	D	A	A	B		C	C	D	B	D	D	D	D	B	A	D	A	D	A	B
Hydrochloric Acid ¼-1% Boiling	D	D	D	A	A	B		C	C	D	C	D	D	D	D	C	A	D	A	D	A	B
Hydrochloric Acid >1% Boiling	D	D	D	D	C7	D	D	D	D	D	D	D	D	D	D	A8	D	A9	D	A9	D	D
Hydrofluoric Acid <40%	D	D	D	B	B	A	C	D	D	B	B	D	D	D	D	D	D	C	A	D	A	A
Hydrofluoric Acid >40%	D	D	D	B	B	B	C9	D	D	B	D	D	D	D	D	D	D	D	A	D	A	B
Hydrofluoric Acid Boiling	D	D	D	D	D	B		D	D	B	C	D	D	D	D	D	D	A9	D	A	C	
Hydrofluosilicic Acid	D	D	D	B	B	B		B	B	A	B	B7	D	D	B7	D	D	B	A	D	A	A
Hydrogen Chloride Dry	D	B	A	A	A	A		A	A	A	A	A	D	A	A	D	D	C	B		A	A
Hydrogen Chloride Moist	D	A	A	B	A			D	D	A	A	B	D	C	B	D	D	C	A		A	A
Hydrogen Fluoride Dry	B	B	C	A	A	A		A	A	A	B	A	C	B	A	D	D	B7	B	D	A	A
Hydrogen Peroxide Boiling	A	D	D	B	D	A		B	B	B	B	B	C	C	B	B	A	D	A	D	A	B
Hydrogen Sulfide Dry	A	B	B	B	A	A		A	A	B	A	A	C	B	A	A		B	A	C	A	D
Hydrogen Sulfide Moist	B	D	C	A	A	A		A	A	C	B	B	C	C	B	A		D	A	D	A	D
Iodine Dry	B	B	D	B	A	A		A	A	A	A	B	C	B	B	D		B	A	D	A	A
Kerosene	A	A	A	A	A	A		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Lactic Acid 50%	B	D	D	B	A	A		B	B	B	A	B	B	B	A	A	A	B	A	D	A	A
Lead Acetate Hot	D	D	D	B	B	B		B	B	B	C	B	B	B	B	B		B2	A	B	A	B2
Magnesium Chloride Hot 5%	D	D	D	B	A	A		A	A	B	A	B5	D	C5	B5	A	A	A	A	A	A	A
Magnesium Hydroxide	D	C	B	A	A	A		A	A	A	A	A	B	B	A	A		B	A	B	A	A
Magnesium Sulfate	B	B	B	A	A	A		B	B	B	B	A	B	A	A	A	A	A	A	A	A	A
Magnesium Sulfate, Boiling	B	C	B	A	A	B		B	B	B	B	A	B	A	A	A	A	B	A	D	A	A
Manganese Chloride	D	D	D	A	B	A		D	D	B	B	B	D	C	B	A	A	A	A	A	A	A
Mercuric Chloride <2%	D	D	D	D	C	B		D	D	D	D	D	D	D	D	A	A	A	C	A	A	A
Mercuric Chloride <1/2% Boiling	D	D	D	D	C	B		D	D	D	D	D	D	D	D	A	A	D	A	D	A	C
Mercuric Cyanide	D	D	D	A	D	A		B	B	D	B	B	D	B	B	A		A	A	D	A	A
Mercury	D	D	B	A	A	A		A	A	D	A	A	A	A	A	A		A	A	A	A	A
Methyl Chloride Dry	D	B	D	A	B	A		A	A	A	A	A	B	A	A	A		D	A	A	A	B
Methylene Chloride	C	A	B	A	A	A		B	B	A	B	A	B	A	A	A		D	A	B	A	B
Milk	A	D	D	A	A	A		A	A	C	D	A	B	A	A	A		A	A	A	A	A
Molasses	A	B	B	A	A	A		A	A	A	A	A	A	A	A			A	A	A	A	A
Naphtha	A	B	B	A	B	A		A	A	A	A	A	A	A	A			A	A	A	A	A
Nickel Chloride	D	D	D	B	A	A8		B	B	B	B5	C5	D	B5	A	A	A	A2	A	C	A	A

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Nickel Sulfate Boiling	D	C	D	B	B	B		B	B	B	A	B	D	B	B	B	A	B	A	D	A	A
Nitric Acid 20%	D	D	D	A	A	B		B	B	D	D	A	B	A	A	A	D	A	D	A	A	A
Nitric Acid Fuming >70%	D	D	D	A	A	B		B	B	D	D	A	A	A	B	A	D	A	D	A	D	D
Nitric Acid Boiling 20%	D	D	D	A	D	D		C	C	D	D	A	B	A	A	A	D	A	D	A	B	B
Nitric Acid Boiling 65%	D	D	D	B	D	D		D	D	D	D	B	D	B	B	B	A	D	A	D	A	C
Nitrous Acid	D	D	D	B		A		C	C	D	D	B	B	B	B		D	A	D	A	A	A
Oxalic Acid <10%	B	B	C	A	A	A		A	A	B	A	A	B	B	A	A	A	B	A	B	A	A
Oxalic Acid 10%	B	B	C	A	A	A		A	A	B	A	A	B	B	A	A	B	A	B	A	A	A
Oxalic Acid Boiling 10%	D	D	D	B8		A		A	C	B	D	D	D	D	D	A	D	A	D	A	A	A2
Oxalic Acid Boiling 50%	D	D	D	C	B	B		B	B	D	C	D	D	D	D	D	A	D	A	D	A	A2
Phosphoric Acid (Ortho) <10%	D	D	D	A	B	A	A	A	A	B	B	A	D	B	B	A	A	B	A	D	A	A
Phosphoric Acid (Ortho) 10-50%	D	D	D	A	B	A	A	B	B	B	B	A	D	C	A	B	A	B	A	D	A	A
Phosphoric Acid (Ortho) <20%175 °F	D	D	D	B	B	A	A	B	B	B	D	B	D	B	B	D	B	D	A	D	A	A
Phosphoric Acid (Ortho) >20%175 °F	D	D	D	B	B	B	A	B	B	B	D	B	D	C	B	D	C	D	A	D	A	B
Phosphoric Acid (Ortho) <10% Boiling	D	D	D	B	C	A	A	B	B	C	D	C	D	D	C	D	B	D	A	D	A	B
Phosphoric Acid (Ortho) 85% Boiling	D	D	D	B	B	C	D	D	D	D	D	D	D	D	D	D	D	A	D	A	C	C
Picric Acid	C	D	C	B	A	B		D	D	D	D	B	B	B	B		B7	A	D	A	A	A
Plating Solutions Chrome	D	B	D	A		A		A	A	C	C	A	A7	A	A	C	D	D	A	D	A	A
Potassium Bromide	B7	B	C	A	A	A		B	A	B	B	B5	C	B5	B5	A	A	A	A7	A	A	A
Potassium Carbonate	D	C	B	A	A	A		B	A	A	B	B	B	B	B	A	B	A	D	A	A	A
Potassium Chlorate	D	B	C	B	B	B		A	A	C	B	B	B	B	B	A		B	A	D	A	A
Potassium Chloride	D	C	D	A	A	A		A	A	A	A	A5	B5	A5	A5	A	A	A	B	A	A	A
Potassium Chloride Hot	D	D	D	A9	B	B		B	A9	B	B	B5	D	C5	B5	A	A	B	A	D	A	A
Potassium Cyanide	D	D	B	B	B	B		B	A	B	B	B	B	B	B	A		A	A	A	A	A
Potassium Dichromate Concentrate	A	B	B	A	B	B		B	A	B	B	A	B	A	A	A	A	A	D	A	A	A
Potassium Ferricyanide 5%	B	B	C	B	B	B		B	B	A	B	B	B	B	B	A		D	A	B	A	A
Potassium Ferrocyanide 5%	A	B	A	B	B	B		B	B	B	B	B	B	B	B	A	C	A	B	A	A	A
Potassium Hydroxide 50%	D	D	B	B	B	B		B	B	A	A	B3	B3	B3	B3	A	A	B	A	A	A	A
Potassium Hydroxide 30% 175°F	D	D	C	B	B	B		B	B	A	A	B3	C3	B3	B3	D	A	D	A	D	A	B
Potassium Hydroxide 50% 175°F	D	D	C	B	B	B		B	B	A	A	B3	C3	B3	B3	D	A	D	A	D	A	C
Potassium Hydroxide 50% Boiling	D	D	C	B	B	B		B	B3	A	A	D	C	D	D	D	A	D	B	D	A	D
Potassium Hypochlorite Dilute	D	D	D	A	A	A		C	B	C	C	B5	D	C5	B5	A		B	A		A	A
Potassium Permanganate Dilute	A	B	B	A	A	A		B	A	B	B	A	B	B	A	A		C	A	D	A	A
Potassium Sulfate Dilute	A	B	B	A	A	A		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Potassium Sulfate, Dilute Boiling	A	B	D	A	A	A		B	A	A	B	A	B	A	A	A	B	A	D	A	B	B
Potassium Sulfide saturated	D	D	C	B		B		B	B	C	C	B	B	B	B	A	A	A	A	A	A	A
Propane Liquid & Gas	A	A	A	A	A	A		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Pyrogalllic Acid	B	B	B	B	B	B		B	A	B	B	A	A	A	A	A		C	A		A	A
Rosin Molten	B	C	C	A	A	A		A	A	A	A	A	B	B	A			A	A	D	A	A
Salicylic Acid	D	A	D	B	B	A		B	B	B	B	B	B	B	A		B	A	A	A	A	A
Silver Bromide	D	D	D	A	B	A		C	B	B	C	A5	D	B5	A5			A	A		A	A
Silver Chloride	D	D	D	B	D	B		C	B	B	C	D	D	D	A		A	A		A	A	A
Silver Nitrate	D	D	D	A	B	A		A	A	C	D	A	B	B	A	A	B	A	A	A	A	A
Skydrol 500 & 7000	C	C	A									A	A	A	A		D		C	A	D	D
Sodium Acetate	B	B	C	A	A	A		B	A	A	B	B	B5	B	B	A	A	B	A	B	A	D
Sodium Bichromate	B	D	C	A	B	A		B	A			A	A	A	A			B	A	A	A	A
Sodium Bisulfate	C	C	D	A	B	B		B	A	B	B	B	B	B	A	A	A	A	A	A	A	A
Sodium Bisulfate 140°F	D	D	D	A	B	B		C	B	B	B	B5	D	B5	B5	A	A	B	A	C	A	A
Sodium Bisulfate	D	B	D	B	B	B		B	B	B	B	A	B	B	A	A		A		B	A	A
Sodium Bromide Dilute	C	B	D	B	B	B		B	B	B	B	B5	C5	B5	B5	A	A	A	A	A	A	A
Sodium Carbonate 5% Hot	D	D	B	A	A	A		A	A	A	A	A	A	A	A	A	B	A	D	A	A	A
Sodium Chloride Dilute	B	B	C	A	A	A		A	A	A	A	B	B	B	B	A	A	A	A	A	A	A
Sodium Chloride Saturated Boiling	C	D	D	B	A	A		A	A	A	B	C5	C5	C5	C5	A	A	C	A	C	A	A
Sodium Cyanide	D	D	B	A	A	A		B	B	D	B	A	A5	B5	A	A	A	A	A	A	A	A
Sodium Fluoride 5%	B	B	D	A	A	A		B	B	A	A	A5	C5	B5	A5	A	A	A		A	A	A
Sodium Hydroxide 50%	D	B	B	A	A	A	A	A	A	A	A	A	B	B	A	A	B	A	A	A	B	B
Sodium Hydroxide 40-80% 175° F	D	D	D	B	A	B		A	A	A	A	B3	D	C3	B3	B	B	B9	A	D	A	D
Sodium Hydroxide <30% Boiling	D	D	D	B	A	B		B	B	A	A	C3	D	C3	C3	B	B	D	B	A	A	D
Sodium Hydroxide >30% Boiling	D	D	D	B	C3	B		B	B	B	B	C3	D	D	C3	C	B	D	C	D	A	D
Sodium Hypochlorite (Still) 5%	D	D	D	A	A	A		C		C	C	B5	D	C5	B5	A	A	B	A	D	A	A

Circle Seal Controls Corrosion Resistance Guide

	<i>Aluminum</i>	<i>Brass Yellow</i>	<i>Carbon Steel</i>	<i>Carpenter 20Cb-3</i>	<i>Hasteloy B-2</i>	<i>Hasteloy C-276</i>	<i>Haynes #25</i>	<i>Incone L600</i>	<i>Incone L625</i>	<i>Monel</i>	<i>Nickel</i>	<i>Stainless 316</i>	<i>Stainless 416</i>	<i>Stainless 17-4PH</i>	<i>Stainless XM-19</i>	<i>Titanium</i>	<i>Zirconium</i>	<i>Buna N</i>	<i>PC-IFE</i>	<i>Nylon</i>	<i>Teflon</i>	<i>Viton</i>
Sodium Hyposulfite	D	D	D	A	B	B		B	B	A	A	B	C	B	B			A	A		A	A
Sodium Nitrate	A	C	B	A	B	B		A	A	B	A	A	B	B5	A	A		B	A	A	A	A
Sodium Perborate	D	D	C	A	B	B		B	A	B	B	A	B	A	A	B		B	A	B	A	A
Sodium Peroxide	D	D	C	A	B	B		A	A	B	B	A	B	A	A		A	B	A	A	A	A
Sodium Phosphate Tribasic	D	B	C	A	B	A		A	A	A	A	A	B	B	A	A	A	A	A	A	A	A
Sodium Silicate	C	B	B	A	B	B		A	A	A	A	A	B	A	A	A	A	A	A	A	A	A
Sodium Sulfate (All Concentrations)	B	B	B	A	A	A		B	B	B	A	A	B	B	A	A	A	A	A	A	A	A
Sodium Sulfate Hot	B	B8	B8	B	B	B		B	B	B	B	B	C3	B	B	A	A	B	A	A	A	A
Sodium Sulfide Saturated	D	D	C	A	B	B		B	A	B	B	B8	C5	B5	B8	A		A	A	A	A	A
Sodium Sulfite Hot	D	B	D	B	D	B		B	B	B	C	B	D	B	B	A		B	A	D	A	B
Sodium Thiosulfate	A	D	D	A	B	B		B	B	A	B	A	B	C	A	A	B	B	A	A7	A	A
Stannic Chloride <5%	D	D	D	A	B	B		D	B	B	B	B	D	D	B	A	A	A	A	D	A	A
Stannic Chloride >5%	D	D	D	A	B	B		D	B	C	D	D	D	D	D	A	A	A	A	D	A	A
Stannic Chloride SG 1.21 Boiling	D	D	D	A	B	B		D	B	D	D	D	D	D	D	A	A8	B	A	D	A	B
Stannous Chloride saturated	D	D	D	A	B	B		B	B	B	B	B	C	C	B	A	B	A	A	D	A	A
Steam 212° F	B	A	A	A	A	A		A	A	A	A	A	A	A	A	A	A	D	A	A	A	A
Steam 600° F	D	D	C	A	A	A		A	A	A	A	A	B	A	A	A	A	D	D	D	D	D
Sulfite Liquors	D	D	D	B		B		D	D	C	D	B	D	B2	B			B	A		A	A
Sulfur Molten 266° F	A	D	B	A	B	A		A	A	B	A	A5	A5	A5	A	A		D	A	D	A	A
Sulfur Chloride	D	D	D	B	A	A		B	B	C	B	C5	D	C5	C5	D		D	A	A	A	A
Sulfur Dioxide 250°F Dry	B	C	B	B	B	B		B	B	B	B	A	B	A	A	A		D	A	D	A	A
Sulfur Dioxide Moist	C	D	D	B	D	B		D	D	D	D	B	D	C	B	A		D	A	C	A	A
Sulfuric Acid <2%	B	B	D	A	A	A	A	B	B	B	B	B	D	B	B	B	B	A	A	D	A	A
Sulfuric Acid 2-40%	D	B8	D	A	A	A	A	B	B	B	C	D	D	D	D	C	D	C	A	D	A	A
Sulfuric Acid 40-60%	D	D	D	B	B	A	A	D	D	D	B	C	D	D	D	C	B	D	A	D	A	A
Sulfuric Acid Concentrated	D	D	B	B	A	A	A	D	D	D	D	B	C	C	B	D	C	D	A	D	A	A
Sulfuric Acid <10% Boiling	D	D	D	D	A	C	D	C	C	B	D	D	D	D	D	D	B	D	A	D	A	B
Sulfuric Acid 10-60% Boiling	D	D	D	D	B	D	D	D	D	D	D	D	D	D	D	D	C	D	A	D	A	B
Sulfuric Acid Concentrated Boiling	D	D	D	B	B	D	D	D	D	D	D	D	D	D	D	D	D	D	A	D	A	D
Sulfurous Acid Saturated	C	D	D	A	B	B		D	D	D	B	D	C	B	A	A	C	A	D	A	A	A
Tannic Acid 10%	C	B	D	A	B	B		A	A	A	A	A	B	B	A	A	A	A	A	D	A	A
Tartaric Acid 120° F	D	D	D	B	B	B		A	A	B	C	B9	C	B9	B9	B	A	A	A	B	A	A
Toluene	A	A	A	A	A	A		A	A	A	A	A	A	A	A		D	B2	C	A	A	A
Trichlorethylene	A	B	A	B	A	A		A	A	A	A	A	B	A	A	A	A	D	B2	C	A	A
Turpentine	A	C	B	A	A	A		B	B	B	B	A	B	A	A	A	A	A	A	A	A	A
Uric Acid	D	B	D	B	B	B		B	B	B	B	B	B	A	A	A				A	A	
Varnish Hot	A	C	C		A	A		A	A	A	A	A	A	A	A			D	A	D	A	
Vegetable Oils	B	D	B	A	A	A		A	A	A	A	A	B	A	A			A	A	A	A	A
Vinegar	B	D	C	A	A	A		A	A	A	B	A	B	B	A	A	A	B	A	D	A	A
Water Acid Mine	C5	D	D	A	A	A		B	B	C	D	A5	C5	A5	A5	A	A	A	A	A	A	A
Water Boiler Feed	D	C	B	A				A	A	A	A	A	A	A	A					A		A
Water Distilled	A	D	D	A	A	A		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Water Salt Sea	B	B	D	A	A	A		C5	C	B5	B5	A5	C5	C5	A5	A	A	A	A	A	A	A
Whiskey Boiling	C	B	D	A2				A	A	C	B	A	C	A	A			D	A	D	A	A
Wine	C	B	D	A				A	A	C	B	A	C	A	A			A	A	B	A	A
Xylene Boiling	A	A	B	A	B	A		A	A	A	B	A	A	A	A	A	A	D	D	D	A	A2
Zinc Chloride 5%	D	D	D	A	B	A		B	B	B	B	B5	D	C5	B5	A	B	A	A	B	A	A
Zinc Chloride 5% Boiling	D	D	D	B	B	A		D	D	C	C	D	D	D	D	A	B	B	A	D	A	A
Zinc Sulfate Boiling	C	D	D	B	B	B		B	B	B	C	B	C	B	B	A	A	B2	A	D	A	A