



CORROSION RESISTANCE of DIFFERENT MATERIALS

SUGGESTED METAL SHEATHS									
COMPOUND	IRON AND STEEL	CAST IRON NI RESIST	300 SERIES STAINLESS	MONEL	INCONEL INCOLOY	COPPER	LEAD	ALUMINUM	NICKEL
Acetic Acid, Crude	X	C	F	F	C	F	X	F	F
Pure		X		A	C	F	F	A	F
Vapors		X		F	C	F	X	C	F
150 psi; 400°F.				F	C	F	X	C	F
Acetone	C	F	A						
Alboloy Process	A								
Alodine 200°F.			A-347 A-316						
Aluminum Sulphate	X	C	F	F		F	A	C	C
Ammonia Gas, Cold	A	A	A	A		C	A	A	
Hot	C	C	C	C		X	X		
Ammonia and Oil	A								
Ammonium Chloride	C	A	F	F		X	A	X	F
Ammonium Hydroxide	A	A	A	C	A	X	A	F	
Ammonium Nitrate	A	C	A	C		X	X	F	
Ammonium Sulphate	A	A	A	A		F	A		
Amyl Alcohol				A		A			
Anhydrous Ammonia	A					X			
Aniline, Aniline Oil	A		A	A		X		X	
Aniline, Dyes			A	A					
Anodizing Solutions 10% Chromic Acid 96°F.	C		A						
Sulphuric Acid 70°F.							A		
Sodium Hydroxide Alkaline	A								
Nigrosine Black Dye				A					F
Nickel Acetate				A			C		F
Barium Chloride			F-304 X-316					X	A
Barium Hydroxide			A			X	X	X	A
Barium Sulphide			A	A		X	A		
Bleaching Solution 1½ Lb. Oxalic Acid per Gallon of H ² O at 212°F.				A					F
Bonderizing	C	F	A						
Cadmium Plating					A				
Carbolic Acid, Phenol	C	C	A	A	A	X	A	A	
Carbon Dioxide, Dry	A	A	A	A	A	A	A	A	
Wet	F	C	A	A	A	F	X	F	
Carbon Tetrachloride	C	C	C	A	A	C	F	C	
Castor Oil	A		A	A	A			A	
Chloroacetic Acid	X		X			X	X	X	F
Chlorine, Dry	A	A	A	A		A	A	A	
Wet	X	X	X	X		X	F	X	
Chromic Acid	C	C	A	F	C	X	A	X	
Chrome Plating							A		
Citric Acid	X	C	A	A	A	A	A	A	
Cobalt Acetate 130°F				A	A				
Cocconut Oil				F					A

RESISTANCE RATINGS:
 A = GOOD
 B = FAIR
 C = DEPENDS ON CONDITIONS
 X = UNSUITABLE

BLANK SPACES REPRESENT ABSENCE OF DATA OR
 SOME OTHER METAL IS ENTIRELY SUITABLE AND
 LESS COSTLY.

NOTE: While all of the foregoing charts in this section on Heat Loss Information have been prepared as accurately as possible varying circumstances can effect the accuracy of any figures obtained from these charts. They should be used as a guide only in determining your electrical heating element requirements.



CORROSION RESISTANCE of DIFFERENT MATERIALS

SUGGESTED METAL SHEATHS									
COMPOUND	IRON AND STEEL	CAST IRON NI RESIST	300 SERIES STAINLESS	MONEL	INCONEL INCOLOY	COPPER	LEAD	ALUMINUM	NICKEL
Copper Chloride	F		X	F		C	A	X	
Copper Cyanide	A								
Copper Plating	A								
Copper Sulphate	X	C	A	A	A	C	A	X	
Creosote	A	A	A	A		A		A	
Deoxidine			A						
Deoxylyle			A						
Diphenyl 300°—350°	A								
Di Sodium Phosphate 25% 180°F.	A								
Diversey No. 99	A								
Dowtherm	A								
Ethers	A			A	A	A	A	A	
Ethyl Chloride	A		A	A		A			A
Ethylene Glycol 300°F.			A	A					
Ferric Chloride	X	X	X	X	X	X	X	X	X
Ferric Sulphate	X	X	F-304 A-316	X	C	X	A	X	X
Formaldehyde	F	F	A	A	A	F	X	F	
Formic Acid	X		F	C	C	F	X	X	C
Freon	C	A	C	A		A	A	A	
Fuel Oil	A		A	A		A	A		
Fuel Oil, Acid	C		C	A		C	A		
Gasoline, Sour	C	C	A	A	A	C	A	C	
Gasoline, Refined	A	A	A	A	A	A	A	A	
Glycerin, Glycerol	A	A	A	A		F	A	A	
Holdens 310A Tempering Bath									A
Houghtons Mar Tempering Salt	C								C
Hydrochloric Acid <150°F.	X	X	X	C		X	F	X	C
>150°F.	X		X	C		X	X	X	C
Hydrofluoric Acid, Cold <65%	X	X	X	F		C	F	X	X
>65%	F		X	A		F	C	X	
Hot <65%	X		X	C		X	X	X	X
>65%	C		X	A		F	X	X	
Hydrogen Peroxide	X	X	A	F	A	X	F	A	F
Iridite 1-Part and 5-Parts Water 200°F.							A		
Isopropanol	C			A		F			
Kerosene	A		A	A	A	A	A		
Kolene									A
Lacquer Solvents	C	A	A	A		C		A	
Lard	F								
Linseed Oil	A		A	A	A	A	A	A	
Magnesium Chloride	F	F	F	F		F	X	X	F
Magnesium Hydroxide	A	A	A	A		X		X	A
Magnesium Sulphate	A	A	A	A		A		C	
Mercuric Chloride	C	C	X	X	X	X		X	X
Mercury	A	A	A	A	A	X		X	
Methyl Alcohol, Methanol	A		A	A		A	A	A	

RESISTANCE RATINGS:

- A = GOOD
- B = FAIR
- C = DEPENDS ON CONDITIONS
- X = UNSUITABLE

BLANK SPACES REPRESENT ABSENCE OF DATA OR SOME OTHER METAL IS ENTIRELY SUITABLE AND LESS COSTLY.

NOTE: While all of the foregoing charts in this section on Heat Loss Information have been prepared as accurately as possible varying circumstances can effect the accuracy of any figures obtained from these charts. They should be used as a guide only in determining your electrical heating element requirements.



CORROSION RESISTANCE of DIFFERENT MATERIALS

SUGGESTED METAL SHEATHS									
COMPOUND	IRON AND STEEL	CAST IRON NI RESIST	300 SERIES STAINLESS	MONEL	INCONEL INCOLOY	COPPER	LEAD	ALUMINUM	NICKEL
Methyl Chloride	A			A		A	A		A
Mineral Oils	A		A	A	A	A	A	A	
Naphthalene	A								
Nickel Chloride			F	C		X		X	
Nickel Plating, Bright							A		
Nickel Plating, Dull							A		
Nickel Sulphate			A	C	X	X		X	
Nitric Acid, Crude	X		C	X	X	X	X	C	X
Concentrated	X		F	X	X	X	X	A	X
Diluted	X		A	X	X	X	X	X	X
Nitrobenzene	A		A			F			
Oakite No. 20	A								
Oakite No. 23	A								
Oakite No. 24	A								
Oakite No. 30	A								
Oakite No. 32									
Oakite No. 33			A-347						
Oakite No. 36									
Oakite No. 51	A								
Oakite No. 90 @ 180°F.	A								
Oleic Acid	C	C	A	A	A	X	X	A	A
Oxalic Acid	C	C	C	A		C	X	A	
Paraffin	A								
Parkerizing	C	F	A						
Perchlorethylene			A						
Permachlor			A						
Petroleum Oils, Crude <500°F.	A	A	A	C		C	C	A	C
>500°F.	A	A	A	X		X	X	A	X
>1000°F.	X		C	X		X	X	X	X
			A-347						
Phenol 85%, 120°F.	C		A						A
Phosphoric Acid, Crude	C		C	X		X	C	X	X
Pure <45%	X		A	F		F	A	C	C
>45% Cold	X		A	F		F	A	X	C
Hot	X		X-304 C-316	C		C	X	X	
Photo Fixing Bath			A	C					
Picric Acid Water Solution	C		A	C		X	X	X	X
Potassium Chloride	A	A	A	A		A	A	C	A
Potassium Cyanide	A		A	A		X	X	X	
Potassium Dichromate 208°F.			A-347						
Potassium Hydroxide	C	A	F	A		X	X	X	A
Potassium Sulphate	A	A	F	A		A	A	A	A
Prestone 350°F.	A			A					
R5 Bright Dip for Copper Polish @ 180°F.			A-316						
Soap Solutions	A	A	A	A		C	A		
Sodium Carbonate <20%	A								

RESISTANCE RATINGS:
 A = GOOD
 B = FAIR
 C = DEPENDS ON CONDITIONS
 X = UNSUITABLE

BLANK SPACES REPRESENT ABSENCE OF DATA OR SOME OTHER METAL IS ENTIRELY SUITABLE AND LESS COSTLY.

NOTE: While all of the foregoing charts in this section on Heat Loss Information have been prepared as accurately as possible varying circumstances can effect the accuracy of any figures obtained from these charts. They should be used as a guide only in determining your electrical heating element requirements.



CORROSION RESISTANCE of DIFFERENT MATERIALS

SUGGESTED METAL SHEATHS									
COMPOUND	IRON AND STEEL	CAST IRON NI RESIST	300 SERIES STAINLESS	MONEL	INCONEL INCOLOY	COPPER	LEAD	ALUMINUM	NICKEL
Sodium Chloride	A	A	F-304 A-316	A	A	F	A	X	A
Sodium Cyanide	A	C	A-316	F		X	X	X	
Sodium Hydroxide	A	A	F	A	A	X	F	X	A
Sodium Hypochlorite	X	C	X	C		C	X	X	C
Sodium Nitrate	A	A	F-304 A-316	A	A	F	A	A	A
Sodium Peroxide	C	A	A	A				A	A
Sodium Silicate	A	A	A-316	A		C	X	X	A
Sodium Sulphate	A	A	A	A	A	A	A	C	A
Sodium Sulphide	A	A	A	F	A	X	A	X	F
Soybean Oil			A						
Steam <500°F.	A		A	A	A	A	C	A	A
500-1000°F.	C		A	C	A	C	X	C	C
>1000°F.	X		A	X	A	X		X	X
Stearic Acid	C	C	A	A	A	C	A	C	A
Sulphur	A	C	F	X	A	X		A	X
Sulphuric Acid <10% Cold	X		F	C		C	A	C	C
Hot	X		F-316 X-304	C		X	A	C	X
10-75% Cold	X		X-304 F-316	C		X	A	C	C
Hot	X		X	C		X	A	X	X
75-95% Cold	C		A	C		X	A	C	C
Hot	F		X	C		X	A	X	X
Fuming	C	F	C-304 F-316	X		X	A	C	X
Sulphurous Acid	A		C-316 X-304	X		C	A	C	X
Tannic Acid			F	A		A	X	X	A
Tar	A		A		A			A	
Tartaric Acid			C-304 A-316	C			A	A	C
Tetrachlorethylene	A								
Thermail Granodine	F								
Therminall Fr. 1— 8-12W/SQ. In. 640°F.	A								
Tin Plating									A
Toluene	A			A			A	A	
Triad Solvent	C								
Trichloroethylene	C	C	C	A		C	F	C	
Turco No. 2623	A								
Turpentine	C	A	A	A		C	A	A	
Urea Ammonia Liquor 48°F.	A								
Vegetable Oil			A						
Vinegar	C		F-304 A-316	A				C	

RESISTANCE RATINGS:
 A = GOOD
 B = FAIR
 C = DEPENDS ON CONDITIONS
 X = UNSUITABLE

BLANK SPACES REPRESENT ABSENCE OF DATA OR SOME OTHER METAL IS ENTIRELY SUITABLE AND LESS COSTLY.

NOTE: While all of the foregoing charts in this section on Heat Loss Information have been prepared as accurately as possible varying circumstances can effect the accuracy of any figures obtained from these charts. They should be used as a guide only in determining your electrical heating element requirements.



CORROSION RESISTANCE of DIFFERENT MATERIALS

SUGGESTED METAL SHEATHS									
COMPOUND	IRON AND STEEL	CAST IRON NI RESIST	300 SERIES STAINLESS	MONEL	INCONEL INCOLOY	COPPER	LEAD	ALUMINUM	NICKEL
Water, Acid Mine Containing Oxidizing Salts	X	C	A	X		C	C	C	C
No Oxidizing Salts	C	A	X	A				A	
Water, Fresh	C	A	A	A	A	A	A	A	
Distilled, Lab. Grade	X	X	A	C	A	X	X	A	A
Return Condensate	A	A	A	A	A	A	A	A	
Water, Sea Water	C	A	F	A	F	C	A	X	
Whiskey and Wines	X	C	F-304 A-316	A	A	A			
X Ray Solution			A						
Zinc Chloride	C	C	X	A		X	A	X	
Zinc Plating	A								
Zinc Sulphate	C	A	A	A	A	X		C	

RESISTANCE RATINGS:

A = GOOD

B = FAIR

C = DEPENDS ON CONDITIONS

X = UNSUITABLE

BLANK SPACES REPRESENT ABSENCE OF DATA OR SOME OTHER METAL IS ENTIRELY SUITABLE AND LESS COSTLY.

NOTE: While all of the foregoing charts in this section on Heat Loss Information have been prepared as accurately as possible varying circumstances can effect the accuracy of any figures obtained from these charts. They should be used as a guide only in determining your electrical heating element requirements.