

CORROSION
R E S I S T A N C E
OF METALS IN VARIOUS
CHEMICAL MEDIA

INCLUDING

316 Stainless Steel

Inconel

Monel

Alloy C

Alloy B

Titanium

Zirconium

Niobium

Tantalum

TITAN

METAL FABRICATORS INC.

835 FLYNN ROAD • CAMARILLO, CALIFORNIA 93012 • PHONE 805.487.5050 • FAX 805.487.5047 • WWW.TITANME.COM

600 PROJECT MANAGEMENT
 TITAN's unique project management system gives the responsibility for the sales estimate, design and engineering management, procurement and supervision of the actual manufacturing process to one person. The system fosters an intimate knowledge of each project's design, quality and delivery requirements, ensuring that it meets the expectations of each individual customer.

SALES ENGINEERING
 Our experienced sales engineers give their full attention to customers' processes and applications. Concentrating on the way design details reflect customers' needs is a crucial element in the success of any project. TITAN utilizes custom designed estimating software to quickly prepare accurate cost estimates and custom proposals to meet your project needs.

ENGINEERING AND DESIGN
 As one of the world leaders in the design and fabrication of corrosion resistant heat transfer equipment for use in extremely hostile process environments, TITAN utilizes state-of-the-art computer software to thermally, mechanically and graphically design its heat exchangers to the applicable ASME, PED or TEMA standards.

TITAN

METAL FABRICATORS INC.

Founded in 1998 by industry experts with decades of experience in the design and fabrication of corrosion resistant equipment, TITAN is dedicated and uniquely qualified to give you the confidence and peace of mind that you made the right decision.

MANUFACTURING
 Extensive industry experience allows TITAN to pay particular attention to the specific details involved in the manufacture of reactive metal equipment. Knowing how to machine, form and weld tantalum, niobium, zirconium and titanium is imperative. Our comprehensive knowledge of manufacturing preparations and procedures allows TITAN to fabricate reactive metal equipment in the most efficient way possible.

QUALITY ASSURANCE
 TITAN pays particular attention to quality. In addition to our own stringent inspection process, we use AWS, ASTM, ASME, PED and TEMA standards as fabrication guidelines, allowing the equipment we manufacture to meet or exceed our customers' highest expectations. We encourage customers to personally inspect our workmanship at our plant during the fabrication process.

RESEARCH AND DEVELOPMENT
 Whether it's an innovative new welding process to increase quality while decreasing fabrication time, or extensive testing to find the material that best suits your particular application, TITAN is constantly striving to produce the most rugged, cost-effective equipment possible. We have the dedication, expertise, flexibility and resources to develop whatever technology is necessary to increase quality and reduce costs for our customers.

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Corrosion Resistance of Metals in Various Chemical Media

The information enclosed in this must be used as a general suggestion and not as a guarantee. The final selection of a material must be based on the actual evaluation of the metal in the corrosive medium under study.

Legend		
A	Fully Resistant	* Subject to pitting at air line or when allowed to dry
B	Slightly Resistant	
C	Unsatisfactory	+ May attack when sulfuric acid is present

Salts											
Chemical	Concentration	Temperature °F	Tantalum	Niobium	Zirconium	Titanium	Alloy B	Alloy C	Monel	Inconel	316 SS
Acetyl Chloride		Cold & Boiling							AB		B
Aluminum Acetate	Saturated		A				A	A	AB	AB	B
Aluminum Chloride	5%	Room	A	A	A	A	A	A	AB		C
Aluminum Fluoride	5%	Room	C	C	C	C	A	A	AB		B
Aluminum Hydroxide	Saturated		A						AB		A
Aluminum Oxalate							A	A	AB		
Aluminum Potassium Sulfate	2%	Room	A						AB		A
Aluminum Potassium Sulfate	10%	Room	A					A	AB		A
Aluminum Potassium Sulfate	10%	Boiling	A						C		A
Aluminum Potassium Sulfate	Saturated	Boiling	A						C		B
Aluminum Sulfate	10%	Room	A		A		A	A	AB		A
Aluminum Sulfate	10%	Boiling	A		A		A	A	C		A
Aluminum Sulfate	Saturated	Room	A				A	A	AB		A
Aluminum Sulfate	Saturated	Boiling	A						C		A
Ammonia (Anhydrous Dry)							A	A	AB	A	A
Ammonium Alum			A				A	A		AB	A
Ammonium Alum (Slightly Ammoniacal)			A				A	A		AB	A
Ammonium Bicarbonate		Hot	A						AB	A	A
Ammonium Bromide	5%	Room	A				A	A	AB		A
Ammonium Carbonate	All Conc.	Hot & Cold	A				A	A	A	A	A
Ammonium Chloride	1%	Room	A		A	A	A	A	A		A
Ammonium Chloride	10%	Boiling	A		A	A	A	A	AB		A

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Salts											
Chemical	Concentration	Temperature °F	Tantalum	Niobium	Zirconium	Titanium	Alloy B	Alloy C	Monel	Inconel	316 SS
Ammonium Chloride	28%	Boiling	A		A		A	A	AB		A
Ammonium Chloride	50%	Boiling	A		A			A	AB		A
Ammonium Hydroxide					A	A	A	A	C	A	A
Ammonium Monosulfate			A				A	A	AB		A
Ammonium Nitrate	5%	Room	A				C	A		AB	A
Ammonium Oxalate	5%	Room	A				A	A	AB	AB	A
Ammonium Persulfate	5%	Room	A				C	A	C	AB	A
Ammonium Phosphate	5%	Room	A				A	A	AB	AB	A
Ammonium Sulfate	1% to 5% Agitated, Aerated	Room	A		A		A	A	AB		A
Ammonium Sulfate	10%	Boiling	A				A	B	AB		A
Ammonium Sulfate	Saturated	Boiling	A				A	B	AB		A
Ammonium Sulfite	Saturated	Cold & Boiling	A						C	C	A
Amyl Acetate			A				A	A	AB	AB	
Amyl Chloride			A				A	A			
Aniline Hydrochloride	5%	Room	A		A		A	A			C
Antimony Trichloride		Room	A						AB	C	
Barium Carbonate		Room	A				A	A	AB		A
Barium Chloride	5% to Sat.	Room	A		A	A	A	A	AB		A
Barium Chloride	Aqueous Sol.	Hot	A		A				AB		A
Barium Hydrate							A	A	AB	AB	A
Barium Nitrate	Aqueous Sol.	Hot	A							AB	A
Barium Sulfate		Room	A						AB		A
Butyl Acetate			A				A	A	AB		
Calcium Carbonate		Room	A				A	A	A	A	A
Calcium Chlorate	Dilute	Hot or Cold	A					A	AB	AB	A
Calcium Chloride	Dil. Or Conc.	Room	A		A	A	A	A	AB	AB	A
Calcium Hydroxide	10% to 20%	Boiling	A				A	A	A	A	A
Calcium Hydroxide	50%	Boiling					A	A	A	A	B
Calcium Hypochlorite	2%	Room			B	A	C	A	C	C	A
Calcium Sulfate	Saturated	Room	A						AB		A
Carbon Bisulfide		Room	A						AB	AB	A
Carbon Tetrachloride	Pure	Room	A		A	A	A	A	A	A	A
Carbon Tetrachloride	5% to 10% Aqueous Sol.	Room			A	A	A	A	A		B
Chlorebenzene(Pure)	Concentrated	Room							A		A

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Salts											
Chemical	Concentration	Temperature °F	Tantalum	Niobium	Zirconium	Titanium	Alloy B	Alloy C	Monel	Inconel	316 SS
Copper Acetate	Saturated	Room	A				A	A		AB	A
Copper Carbonate	Sat. Sol.		A				A	A		AB	A
Copper Chloride	1% Agitated & Aerated	Room	A				A	A	C	C	A
Copper Carbonate	Sat. Sol.		A				A	A		AB	A
Copper Chloride	1% Agitated & Aerated	Room	A				A	A	C	C	A
Copper Chloride	5% Agitated	Room	A				A	A	C	C	B
Copper Chloride	5% Aerated	Room	A				A	A	C	C	C
Copper Cyanide	Saturated	Boiling	A				A	A	C	C	A
Copper Nitrate	1% to 5%	Room	A				C	A	C	B	A
Copper Nitrate	50% Aqueous	Room	A				C	A	C	C	A
Copper Sulfate	5%	Room	A			A	A	A	B	B	A
Copper Sulfate	Saturated	Boiling	A			A	C	A	C	C	C
Cupric Chloride		105 F	A		C	A	C	A	C	C	C
Cupric Nitrate			A				C	A	C	C	A
Ethyl Acetate			A				A	A	A	A	
Ethyl Chloride	5%	Room	A				A	A	AB		A
Ethylene Chloride		Room	A		AB				AB		A
Ferric Chloride	1% Still	Room	A		C	A	C	A	C	C	A
Ferric Chloride	1% Still	Boiling	A		C	A	C	A			C
Ferric Chloride	5% Still	Room	A		C	A	C	A	C	C	C
Ferric Chloride	5% Agitated	Room	A		C	A	C	A			C
Ferric Chloride	5% Aerated	Room	A		C	A	C	A	C	C	C
Ferric Hydroxide		Room	A				C	A	AB	A	A
Ferric Nitrate	1% to 5%	Room	A				C	A	C	C	A
Ferric Sulfate	1% to 5%	Room	A				C	A	C	C	A
Ferrous Chloride		Room	A				A	A	C	C	
Ferrous Sulfate	Dilute	Room	A				A	A	C	C	A
Ferrous Ammonium Citrate			A				A	A		AB	
Hydrogen Peroxide		Room	A		A	A	B	A	AB	AB	+A
Hydrogen Peroxide		Boiling	A			A	B	A			+A
Hydrogen Sulfide	Dry	Room	A			A	B	A	AB	AB	A
Hyposulfite Soda(Hypo)			A						AB	AB	A
Lactic Acid Salts			A				A	A	AB	AB	A
Lead Acetate			A				A	A	AB		A
Manganese Carbonate			A						AB	AB	A

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Salts											
Chemical	Concentration	Temperature °F	Tantalum	Niobium	Zirconium	Titanium	Alloy B	Alloy C	Monel	Inconel	316 SS
Manganese Chloride	10% to 50% Aqueous Sol.	Boiling	A			A			AB	AB	A
Magnesium Carbonate			A				A	A	AB	AB	A
Magnesium Chloride	1% to 5% Still	Room	A		A	A	A	A	AB	AB	A
Magnesium Chloride	1% to 5% Still	Hot	A		A	A	A	A	AB	AB	B
Magnesium Hydroxide	Thick Suspension	Room	A				A	A	A	A	A
Magnesium Nitrate			A				C	A		AB	A
Magnesium Sulfate	5%	Hot	A				A	A	A	A	A
Methylene Chloride	40%	Room to Boiling					A	A	AB		A
Mercuric Bichloride	0.07%	Room	A				C	C			A
Mercuric Chloride	Dilute	Room	A		A	A	C	A	AB	AB	C
Mercuric Cyanide			A				C	A		AB	A
Mercurous Nitrate			A				C	A			A
Nickel Chloride		Room	A		AB	A	C	A	AB		A
Nickel Nitrate	10%	Room	A				Ab	A	C	C	A
Nickel Sulfate	10%	Room	A				A	A	AB	AB	A
Nitrous Oxide	Dry		A				C	A	C	C	A
Phosphoric Anhydride	Dry	Room	A								A
Phosphorous Trichloride			A				C	A			A
Potassium Bichromate	Neutral	Room	A				C	A		AB	A
Potassium Bromide	5%	Room	A				A	A	AB		A
Potassium Carbonate	1%	Room	A				A	A	AB	AB	A
Potassium Chlorate			A				C	A	AB	AB	A
Potassium Chloride	1% to 5%	Room	A			A	A	A	AB		A
Potassium Chloride	1% to 5%	Boiling	A				C	A	AB		A
Potassium Cyanide			A				A	A	AB		A
Potassium Dichromate	Neutral		A				A	A		AB	A
Potassium Ferricyanide	5%	Room	A				A	A	AB		A
Potassium Ferrocyanide	5%	Room	A				A	A	A	A	A
Potassium Hydrate							A	A	A	A	A
Potassium Hydroxide	5%	Room	A		A		A	A	A	A	A
Potassium Hydroxide	27%	Boiling	C		A		A	A	A	A	A
Potassium Hydroxide	50%	Boiling	C				A	A	A	A	A
Potassium Hypochlorite							C	A	C	C	C

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Salts											
Chemical	Concentration	Temperature °F	Tantalum	Niobium	Zirconium	Titanium	Alloy B	Alloy C	Monel	Inconel	316 SS
Potassium Iodide			A				A	A	AB		A
Potassium Nitrate	5%	Room	A				C	A	AB		A
Potassium Oxalate			A				A	A			A
Potassium Permanganate	Neutral		A				C	A	AB	AB	A
Potassium Sulfate	1% to 5%	Room	A				A	A	AB		A
Potassium Sulfate	1% to 5%	Hot	A						AB		A
Potassium Sulfide (Salt)			A								A
Quinine Bisulfate (Dry)			A				A	A	AB		A
Quinine Sulfate (Dry)			A				A	A	AB		A
Silver Bromide			A				A	A	AB		A
Silver Chloride			A				C	A			C
Silver Cyanide			A				A	A	AB		A
Silver Nitrate			A				AB	AB		AB	A
Sodium Acetate (Moist)	5%	Room	A				A	A	AB		A
Sodium Benzoate			A				A	A	AB		
Sodium Bicarbonate	All Conc.	150	A				A	A	A	A	A
Sodium Bichromate	Neutral		A				C	A		AB	A
Sodium Bisulfate			A				A	A	AB		A
Sodium Borate			A				A	A	AB		A
Sodium Bromide	5%	Room	A				A	A	AB		A
Sodium Carbonate	All Conc.	Room	A			A	A	A	A	A	A
Sodium Chlorate	25%		A			A	C	A		AB	A
Sodium Chloride	5% Still	Room to 150	A		A	A	A	A	A		A
Sodium Chloride	20% Aerated	Room	A			A	A	A	A		A
Sodium Chloride	Saturated	Room	A			A	A	A	A		A
Sodium Chloride	Saturated	Boiling	A			A	A	A	A		A
Sodium Citrate			A				A	A		AB	A
Sodium Ferricyanide			A				A	A	AB	AB	A
Sodium Ferrocyanide			A								
Sodium Fluoride	5%	Room	C				A	A	AB		B
Sodium Hydrosulfite			A				B	A	AB	AB	
Sodium Hydroxide	10%	Room	C		A	B	A	A	A	A	A
Sodium Hypochlorite	5%	Room			B	B	C	A	C	C	A
Sodium Hyposulfite	Dilute	Room	A				A	A	AB	AB	A
Sodium Lactate			A				A	A	AB		A
Sodium Nitrate	All Conc.	Room	A			A	C	A	AB	AB	A
Sodium Nitrite			A								A

Salts											
Chemical	Concentration	Temperature °F	Tantalum	Niobium	Zirconium	Titanium	Alloy B	Alloy C	Monel	Inconel	316 SS
Sodium Peroxide		212	C				C	A	AB	AB	A
Sodium Phosphate	5%	Room	A			A	A	A	AB		A
Sodium Silicate			A				A	A	AB		A
Sodium Sulfate	5% Still	Room	A				A	A	AB	AB	A
Sodium Sulfate	Concentrated	Room	A				A	A	AB		A
Sodium Sulfide	Saturated	Room	A				A	A		AB	A
Sodium Sulfite	5%	Room	A				C	A	B		A
Stannic Chloride	5%	Room	A		A	A	A	A	C	C	C
Stannous Chloride	5%	Room	A				A	A	AB	AB	B
Sulfur Chloride	Dry		A				A	A	AB		C
Sulfur Dioxide	Dry	Room	A			A	C	A	A	A	A
Sulfur Dioxide	Moist	Room	A			A	C	A	C	C	A
Titanium Tetrachloride			A				C	A	AB		
Zinc Chloride	5% Still	Room	A		A	A	A	A	AB		B
Zinc Chloride	5% Still	Boiling	A		A	A	AB	AB	AB		B
Zinc Sulfate	5%	Room	A				A	A	AB	AB	A
Zinc Sulfate	Saturated	Room	A				A	A	AB		A
Zinc Sulfate	25%	Boiling	A				A	A	AB		A

The information enclosed in this must be used as a general suggestion and not as a guarantee. The final selection of a material must be based on the actual evaluation of the metal in the corrosive medium under study.

Acids											
Chemical	Concentration	Temperature °F	Tantalum	Niobium	Zirconium	Titanium	Alloy B	Alloy C	Monel	Inconel	316 SS
Acetic Acid	5% Un aerated	Room	A		A	A	A	A	AB	AB	A
Acetic Acid	20% Un aerated	Room	A		A	A	A	A	AB	AB	A
Acetic Acid	50% Un aerated	Room	A		A	A	A	A	AB	AB	A
Acetic Acid	50% Un aerated	Boiling	A		A	A	A	A	AB		B
Acetic Acid	100% Un aerated	Room	A		A	A	A	A	AB	AB	A
Acetic Acid	100% Un aerated	Boiling	A		A	A	A	A	AB	C	B
Acetic Anhydride	Un aerated	Room			A	A	A	A		AB	A
Acetic Anhydride	Un aerated	Boiling			A	A	A	A	B	B	A
Acetic Vapors	100% Un aerated	Hot					A	A	AB	AB	C
Arsenic Acid	90%	225°								B	B
Benzoic Acid	5%	Room	A				A	A	AB	AB	A
Boric Acid	5%	Boiling	A				A	A	AB		A
Butyric Acid	5%	Room	A				A	A		AB	A
Carbonic Acid			A				A	A	AB	AB	A
Carbolic Acid, C.P.		Room	A			A	A	A			A
Chloroacetic Acid		Room	A		A	A	A	A	AB	AB	C
Chloric Acid		Room									C
Chlorosulfonic Acid	10%		A				A	A	AB	AB	C
Chromic Acid	5%	Room	A	A		A	C	A		AB	A
Chromic Acid, C.P.	10%	Boiling	A	A		A	C	A	C	C	B
Chromic Acid	50%	Boiling	A	A		B	C	B	C	C	C
Citric Acid	5% Still	150°	A		A	A	A	A	AB	AB	A
Citric Acid	15%	Room	A		A	A	A	A	AB	AB	A
Citric Acid	15%	Boiling	A		A	A	A	A		AB	A
Citric Acid	Concentrated	Boiling	A		AB	A	A	A			B
Fatty Acids			A				A	A	AB	AB	
Formic Acid	5% Still	Room to 150°	A		A		A	A	AB	AB	A
Gallic Acid	5%	Room to Boiling					A	A		AB	A
Hydrobromic Acid		Boiling	A				A	B	C	C	C
Hydrochloric Acid	5% Un aerated	Room	A	A	A	B	B	A	AB		C
Hydrochloric Acid	10% Un aerated	Room	A		A	B	A	A	B	C	C

Acids											
Chemical	Concentration	Temperature °F	Tantalum	Niobium	Zirconium	Titanium	Alloy B	Alloy C	Monel	Inconel	316 SS
Hydrochloric Acid	20% Unaerated	Room	A		A	C	A	A			C
Hydrochloric Acid	All	100°	A		A	C	A	A			C
Hydrochloric Acid	All	122°	A		A	C	B	B			C
Hydrochloric Acid	All	160°	A		A	C	A	B			C
Hydrochloric Acid Fumes	Concentrated	100°A	A		C	C					C
Hydrocyanic Acid			A				A	A	AB		A
Hydrofluoric Acid	All	All	C	C	C	C	A	A	AB		C
Hydrofluoric Acid Vapor		212°	C	C	C	C	A	A	AB		C
Hydrofluosilicic Acid	5%	70°	C	C		C	A	A	AB		C
Hydrofluosilicic Acid Vapors		212°							AB		C
Lactic Acid	5%	Room	A	A	A	A	A	A	AB	AB	A
Lactic Acid	5%	150°	A	A	A	A	A	A			A
Lactic Acid	10%	150° to Boiling	A		AB	A	A	A			B
Malic Acid		Cold & Hot	A				A	A	AB	AB	A
Molybdic Acid	5%	Room	A				A	A			A
Muriatic Acid		Room	A				A	A			C
Nitric Acid	5%	Room	A	A	A	A	C	A	C	C	A
Nitric Acid	20%	Room	A	A	A	A	C	A	C	C	A
Nitric Acid	50%	Room	A	A	A	A	C	A	C	AB	A
Nitric Acid	50%	Boiling	A	A	A	A	C	C	C	C	A
Nitric Acid	65%	Boiling	A	A	A	A	C	C	C	C	B
Nitric Acid	95%	Room	A	A	A	A	C	A			
Nitric Acid	Concentrated	Room	A	A	A	A	C	A			A
Nitric Acid	Concentrated	Boiling	A	A	A	A	C	C			B
Nitric Acid	Fuming	Room			A	A	C	A			A
Nitrous Acid	5%	Room	A								A
Oleic Acid		Room	A			A	A	A	AB	AB	A
Oleic Acid	5%	Cold & Hot	A			C	A	A	AB		A
Oleic Acid	10%	Room	A		AB	A	A	A	AB		A
Oleic Acid	10%	Boiling	A		AB	C	B	A	AB		C
Phosphoric Acid	1%	Room	A		A	A	A	A	AB		+A
Phosphoric Acid	5%	Room	A	A	A	A	A	A	AB		A
Phosphoric Acid	10% Still	Room	A	A	A	A	A	A	AB	AB	A
Phosphoric Acid	10% Agitated	Room	A	A	A	A	A	A	AB		A
Phosphoric Acid	10% Aerated	Room	A	A	A	A	A	A			A
Picric Acid	Concentrated	Room					A	A	AB		A

Acids											
Chemical	Concentration	Temperature °F	Tantalum	Niobium	Zirconium	Titanium	Alloy B	Alloy C	Monel	Inconel	316 SS
Pyrogallic Acid							A	A			A
Salicylic Acid			A				A	A	AB		
Stearic Acid	Concentrated	200°	A			A	A	A	AB	AB	A
Succinic Acid		Molten					B	B		AB	
Sulfuric Acid	5%	Room	A		A	B	A	A	AB	AB	B
Sulfuric Acid	5%	Boiling	A		A	C	A	B	C	C	C
Sulfuric Acid	10%	Room	A		A	B	A	A	AB		B
Sulfuric Acid	10%	Boiling	A		A	C	A	B	C	C	C
Sulfuric Acid	50%	Room	A		A	B	A	A	AB		C
Sulfuric Acid	50%	Boiling	A		A	C	A	C	C	C	C
Sulfuric Acid	Concentrated	Room	A		C	C	A	A	AB		A
Sulfuric Acid	Concentrated	Boiling	C	C	C	C	C	C	C	C	C
Sulfuric Acid	Concentrated	300°	C	C	C	C	C	C	C	C	C
Sulfuric Acid	Fuming	Room	C				A	B	C	C	B
Sulfuric Anhydride	Dry	Room	C				A	A	C	C	
Sulfurous Acid	Saturated	375°	C		B		C	A	C	C	B
Sulfurous Spray		Room	A				C	A	C	C	C
Tannic Acid	10%	Room	A	A	A	A	A	A	AB	AB	A
Tannic Acid		150°	A	A	A	A	A	A	AB	AB	A
Tartaric Acid	10%	Room	A		B	A	A	A	AB		A
Tartaric Acid		150°	A		B	A	A	A	AB		A
Trichloroacetic Acid		Room	A			A	A	A			A
Uric Acid	Concentrated						A	A		AB	A

The information enclosed in this must be used as a general suggestion and not as a guarantee. The final selection of a material must be based on the actual evaluation of the metal in the corrosive medium under study.

Miscellaneous Solutions											
Chemical	Concentration	Temperature °F	Tantalum	Niobium	Zirconium	Titanium	Alloy B	Alloy C	Monel	Inconel	316 SS
Acetone		Boiling	A	A			A	A	A	A	A
Alcohol – Methyl, Propyl, Butyl, Ethyl		Room	A	A	A	A	A	A	A	A	A
Alkaform		Room					A	A			A
Aluminum		Molten	C	C	C	C	C	C	C	C	C
Aniline	Concentrated	Room	A				A	A			A
Baking Oven Gases			A				A	A		AB	A
Beer			A				A	A	AB		A
Benzene		Room	A			A	A	A	AB	AB	A
Benzol		Hot	A				A	A	AB	AB	A
Bleaching Powder	Solution	Hot	C				C	A	C	C	AB
Blood (Meat Juices)		Cold	A			A	A	A	A	A	A
Borax		Fused	C				A	A	AB		A
Bromine	Dry		A				C	A	A	A	C
Bromine Water		Room	A		C		C	A	C	C	C
Buttermilk		Room	A	A			A	A		A	A
Camphor		Room	A				A	A			A
Carbonated Beverages			A	A			A	A	AB	AB	A
Carbon Monoxide Gas		900°	C	C	C	C	A	A	A	A	A
Cadmium		Molten	A				C	C	C	C	C
Caustic Lime			A	A	A	A	A	A	A	A	A
Caustic Soda			C				A	A	A	A	A
Chlorinated Water	Saturated	Room	A		C	A	C	A	C	C	B
Chlorine Gas Dry		Room	A		B	C	A	A	A	A	C
Chlorine Gas Moist		Room	A		C	A	C	A			C
Chlorine Gas Moist		212°	A			A	C	C	C	C	C
Chloroform		Room	A	A	A	A	A	A	A	A	A
Chromium Plating Bath		Room	A						C	C	AB
Cider		Room	A	A	A	A	A	A	A	A	A
Coffee		Boiling	A				A	A	AB		A
Copal Varnish			A				A	A	AB		A
Cream of Tartar			A								A
Creosote		Hot	A							A	A
Crude Oil			A				A	A	AB		+A
Developing Solutions		Room	A				A	A		A	A
Distillery Wort			A								A
Dyewood, Liquor			A								A
Ether		Room	A			A	A	A	AB	AB	A

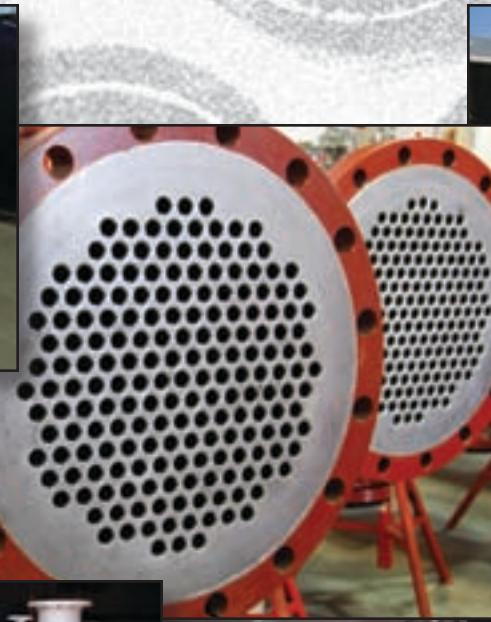
Miscellaneous Solutions											
Chemical	Concentration	Temperature °F	Tantalum	Niobium	Zirconium	Titanium	Alloy B	Alloy C	Monel	Inconel	316 SS
Flue Gases			A				B	A		AB	AB
Fluorine			C	C	C	C			A	A	C
Food Pastes			A				A	A	AB	AB	A
Formaldehyde		Room	A	A		A	A	A	B	AB	*A
Fuel Oil		Hot	A				A	A	AB	AB	A
Fuel Oil (w/ H ₂ SO ₄)			A				A	A	AB	AB	A
Fruit Juices		Room	A	A			A	A	AB	AB	A
Furfural			A		A		A	A	AB		A
Gasoline			A	A			A	A	AB	AB	A
Glauber's Salt	Solution		A				A	A	AB		A
Glue (Dry)			A	A	A	A	A	A	A	A	A
Glue (Solution Acid)		Hot	A				A	A		AB	A
Glycerine		Room	A				A	A	AB		A
Gypsum			A								A
Hydrocarbons			A				A	A	AB	AB	
Ink			A	A	A	A	A	A	AB	AB	A
Iodine											
Iodoform			A								A
Kerosene		Room	A	A			A	A	AB		A
Ketchup		Room	A	A			A	A	AB		A
Lard		Room	A	A			A	A			A
Lead		Molten	A				A	A	C	C	C
Linseed Oil			A				A	A	AB	A	A
Lye (Caustic)	34%	230°	C	C			A	A	A	A	A
Lysol		212°	A	A	A	A	A	A	A	A	A
Mayonnaise		Cold & Hot	A	A			A	A	AB	AB	A
Meats (Unsalted)		Room	A				A	A			A
Mash		Hot	A				A	A			A
Mercury			A				A	A	AB	A	A
Milk		Hot or Cold	A	A			A	A	A	A	A
Mine Water – Acid			A				A	A	C	C	A
Molasses			A				A	A	A	A	A
Mustard		Room	A				A	A	AB		A
Naptha			A	A			A	A	AB	AB	A
Nitre Cake		Fused	C	C	C	C					A
Oils – Crude		Hot & Cold	A	A			A	A	AB		*A
Oils – Mineral or Vegetable		Hot & Cold	A				A	A	AB	AB	A
Parafin		Molten	A	A			A	A	AB		A

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Miscellaneous Solutions

Chemical	Concentration	Temperature °F	Tantalum	Niobium	Zirconium	Titanium	Alloy B	Alloy C	Monel	Inconel	316 SS
Paragoric Compound			A				A	A			A
Petroleum Ether			A	A			A	A			A
Phenol			A	A	A	A	A	A	A	A	A
Phenolic Resins			A	A			A	A			A
Pine Tar Oil			A				A	A	AB		A
Potash	Solution	Hot	C	C			A	A	A	A	A
Resin		Molten	A				A	A		AB	A
Sal Ammoniac	20%	Boiling	A				A	A	AB		B
Salt	Saturated	Room	A	A	A	A	A	A	A	A	*A
Salt Brine	Saturated	Hot	A				A	A	AB	AB	*A
Sea Water			A	A	A	A	A	A	AB	AB	*A
Sewage			A								+A
Soaps		Room	A				A	A	AB		A
Soy Bean Oil			A				A	A	AB		A
Soda Pulp							A	A	A	A	
Starch	Solution		A								A
Steam		212°	A	A					A	A	A
Sugar Juice			A	A			A	A	A	A	A
Sulfur – Dry		Molten	A				A	A	C	C	A
Sulfur – Wet			A						C	C	A
Tin		Molten	A				A	A	C	C	C
Tomato Juice		Room	A	A			A	A	AB	AB	*A
Turpentine Oil			A	A			A	A	AB		A
Tung Oil			A				A	A		AB	A
Varnish			A				A	A	AB	AB	A
Vegetable Juices		Room	A	A			A	A	AB	AB	A
Vinegar – Still		Room	A		A		A	A	AB	AB	A
Vinegar – Agitated		Room	A				A	A		AB	A
Vinegar – Aerated		Room	A	A			A	A		AB	A
Vinegar – Fumes			A				A	A		AB	*A
Vinegar & Salt			A				A	A		AB	
Water			A	A	A	A	A	A	A	A	A
Water		Hot	A	A	A	A	A	A	A	A	A
Water – Salt			A	A	A	A	A	A	AB	AB	*A
Water – Sea			A	A	A	A	A	A	AB	AB	*A
Whiskey			A	A					A	A	A
Zinc		Molten	A				C	C	C	C	C



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