

TABLE FOR CHEMICAL RECOMMENDATION FOR WORKING ENVIROMENT CAUTION !

Because of the different chemical compositions from various manufacturers and each company's process specifications, this chart is to be used ONLY as an aid in the proper sheath selection.

It is the responsibility of the individual company to conduct laboratory tests relating to their particular processes and heater sheath compatibility.

CHECK THIS LIST PRIOR TO INSTALLING YOUR HEATER !!!

BY CHEMICAL NAME		BY SHEATH MATERIAL	
Acetic Acid	Quartz	Brown Oxide (PC Boards)	Titanium (D)
Acid Sulfate	Quartz,Teflon	Grey Nickel	Titanium (D)
Actane 70	Teflon	Black Oxide (PC boards)	Titanium (D)
Actane 80	Teflon	Cobalt Nickel	Titanium (D)
Actane Salt	Teflon	Bright Nickel	Titanium (D)
Alodine	316SS	Nickel Plating	Titanium,Quartz (D)
Alco Bright Dip R5	304SS	Sodium Chlorate	Titanium,Quartz
Alcohol	316SS	Copper Acid	Titanium Quartz
Alcorite	Quartz,Teflon	Chromic Acid(no fluorides)	Titanium,Quartz
Alkaline Soak Cleaner	304SS	Chromium	Titanium,Quartz
Aluminum Cleaner(silicated)	304SS	Sulfurous Acid	Titanium,Quartz
Aluminum Bright Dip	Quartz,Teflon SS guard	Zinc Ammonium Chloride	Titanium,Quartz
Aluminum Chloride	Quartz,Teflon	Sodium Carbonate	Titanium,316SS
Aluminum Sulfate	304SS	Sodium Bisulfate	Titanium,316SS
Ammonia	304SS	Tannic Acid	Titanium,316SS
Ammonium Persulfate	316SS	Sodium Sulfide	Titanium,316SS
Ammonium Bi-fluoride	Teflon	Benzenesulfonic Acid	Titanium
Ammonium Chloride	Titanium	Barium Chloride	Titanium
Ammonium Hydroxide	Titanium	Chlorosulfonic Acid	Titanium
Ammonium Nitrate	316SS	Ferric Nitrate	Titanium
Ammonium Sulfate	Titanium	Ammonium Chloride	Titanium
Ammonium Sulfite	TANTALUM	Boric Acid	Titanium
Aniline	316SS	Barium Sulfate	Titanium
Anodizing(sulfuric)	Quartz	Ferric Chloride	Titanium
ARP 80-Blacking Salts	Quartz,Teflon	Benzaldehyde	Titanium
ARP 28	Teflon	Sodium Cyanide	Titanium
Asphalt (liquid)	304SS (DDD)	Benzene	Titanium
Barium Chloride	Titanium	Magnesium Nitrate	Titanium
Barium Hydroxide	316SS	Citric Acid	Titanium
Barium Sulfate	Titanium	Silver Nitrate	Titanium
Benzaldehyde	Titanium	Benzoic Acid	Titanium
Benzene	Titanium	Ammonium Sulfate	Titanium
Benzenesulfonic Acid	Titanium	Mercuric Chloride	Titanium
Benzoic Acid	Titanium	Calcium Chloride	Titanium
Black Nickel	Quartz,(D)	Butyric Acid	Titanium
Black Oxide (290 F)	304SS w/ All SS JBox(DD)	Ammonium Hydroxide	Titanium
Black Oxide (PC boards)	Titanium (D)	Sodium Nitrate	Titanium
Bonderizing	316SS(D)	Calcium Hypochlorite	Titanium
Boric Acid	Titanium	Sulfur	Titanium
Brass Cyanide	304SS	Sulfamate Nickel	Titanium(D)
Bright Nickel	Titanium (D)	Sodium Hydroxide	Teflon,HAS C
Bright Copper Cyanide	304SS	Diversey 514	Teflon

(D) = DERATED FROM 40 WSI TO 20 WSI
(DD) = DERATED FROM 40 WSI TO 10 WSI
(DDD) =DERATED FROM 40 WSI TO 5 WSI

BY CHEMICAL NAME

Bronze Cyanide	
Brown Oxide (PC Boards)	Titanium (D)
Butyl Amine	316SS
Butyric Acid	Titanium
Cadmium,Black	Quartz
Cadmium,(alkaline)	304SS
Cadmium,Florobate	Teflon
Calcium Chlorate	316SS
Calcium Chloride	Titanium
Calcium Bisulfite	316SS
Calcium Hypochlorite	Titanium
Carbon Disulfide	316SS
Carbonic Acid	316SS
Caustic	304SS(D)
Cellosolve	316SS
Chlorine (WET)	Quartz
Chloride	Quartz
Chlorobenzene	316SS
Chlorosulfonic Acid	Titanium
Chromic Acid Anodizing	Quartz
Chromic Acetate	Quartz
Chromic Nickel	Quartz
Chromic Acid(no fluorides)	Titanium,Quartz
Chromium	Titanium,Quartz
Citric Acid	Titanium
Clear Chromate	316SS
Cobalt Nickel	Titanium (D)
Cobalt plating	Quartz
Copper Acid	Titanium Quartz
Copper ,Bright Acid	Quartz
Copper Cyanide	304SS
Copper Strike	304SS
Copper Sulfate	304SS
Cyanide	316SS
D.I. Water	316SS(electropolished)
Diethylene Glycol	304SS
Deoxidizer Ph>5	Quartz
Dichromic Hot Seal	316SS
Diversey DS9333	Quartz
Diversey 511	Quartz
Diversey 514	Teflon
Dow Therm A	316SS (D)
Dye Solutions,Hot	316SS
Electroless Nickel	316SS(D)
Electroless Tin (acid)	Quartz
Electroless Tin (alkaline)	316SS
Electro cleaner	304SS
Electropolishing	Quartz
Ethanol	316SS
Enthone Acid 80	Teflon
Ethylene Glycol	316SS (D)
Ferric Nitrate	Titanium
Ferric Sulfate	316SS
Ferric Ammonium Oxide	316SS
Ferric Chloride	Titanium
Fluoborate	Teflon
Formic Acid	316SS
Freon	304SS
Immersion Gold	304SS

BY SHEATH MATERIAL

304SS ARP 28	Teflon
Actane 70	Teflon
Ammonium Bi-fluoride	Teflon
Isoprep 191 Acid Salts	Teflon
Enthone Acid 80	Teflon
Sodium Dichromate	Teflon
Salt(actine)	Teflon
Iron Fluoborate	Teflon
McDermid 629	Teflon
Hydrofluoric Acid	Teflon
Potassium Hydroxide	Teflon
Tin Nickel	Teflon
Methyl Bromide	Teflon
Fluoborate	Teflon
Cadmium,Florobate	Teflon
Actane 80	Teflon
Actane Salt	Teflon
Ammonium Sulfite	TANTALUM
Phosphoric Acid	Quartz(D)
Black Nickel	Quartz,(D)
Reynolds Brightner	Quartz/lead guard
Aluminum Bright Dip	Quartz,Teflon SS gua
Alcorite	Quartz,Teflon
Aluminum Chloride	Quartz,Teflon
ARP 80-Blacking Salts	Quartz,Teflon
Acid Sulfate	Quartz,Teflon
Hydrochloric Acid	Quartz
Nitric Hydrochloric	Quartz
Gold Acid	Quartz
Chromic Nickel	Quartz
Nitric Acid	Quartz
Chromic Acetate	Quartz
Sodium Salicyate	Quartz
Muriatic Acid	Quartz
Chlorine (WET)	Quartz
Zinc Acid	Quartz
Tin Plating, Acid	Quartz
Wood's Nickel Strike	Quartz
Unichrome SRHS	Quartz
Deoxidizer Ph>5	Quartz
Sulphamic Acid	Quartz
Diversey DS9333	Quartz
Sulfur Chloride	Quartz
Chromic Acid Anodizing	Quartz
Sulfuric Acid	Quartz
Oleic Acid	Quartz
Iridite 4P-4,4-80, 4L-1	Quartz
Cobalt plating	Quartz
Oxalic Acid	Quartz
Copper ,Bright Acid	Quartz
Electropolishing	Quartz
Iridite 5P-1,8,7,7-P8P	Quartz
Trioxide	Quartz
Sodium Phosphate	Quartz
Chloride	Quartz
Sodium Hypochlorite	Quartz
Iridite 8-2,12-P, 17P,	Quartz
Acetic Acid	Quartz
Unichrome CR-110	Quartz

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BY CHEMICAL NAME

Gold Acid	Quartz
Gold Cyanide	304SS
Grey Nickel	Titanium (D)
Glycerol	304SS
Hot Seal Dichromate	316SS
Hydrochloric Acid	Quartz
Hydrofluoric Acid	Teflon
Indium	Quartz
Iron Fluoborate	Teflon
Iron Phosphate	316SS(D)
Iridite ,#4-75,4-73,14,	316SS
Iridite 14-2, 14-9, 18-P	316SS
Iridite #1,2,3,4-C,4PC&S	Quartz
Iridite 4P-4,4-80, 4L-1	Quartz
Iridite 4-2,4-2A, 4-2P	Quartz
Iridite 5P-1,8,7,7-P8P	Quartz
Iridite 8-2,12-P, 17P,	Quartz
Iridite 15,18-P,	Quartz
Iridite Dyes	Quartz
Isoprep,187, 188 Deox	316SS
Isoprep,cleaner #186	316SS
Isoprep 191 Acid Salts	Teflon
Jetal	304SS
Lead Acetate	316SS
Lead Acid Salts	304SS
Linseed Oil	304SS
Lime saturated Water	316SS
Magnesium Hydroxide	304SS
Magnesium Nitrate	Titanium
Magnesium Sulfate	304SS
McDermid 629	Teflon
Mercuric Chloride	Titanium
Methane chloride	Titanium
Methanesulfonic Acid	
Methyl Bromide	Teflon
Muriatic Acid	Quartz
Naphtha	316SS
Nickel Plating	Titanium,Quartz (D)
Nickel Acetate Seal	316SS
Niklad	304SS
Nitric Acid	Quartz
Nitric 6% /Phosphoric	316SS (D)
Nitric Hydrochloric	Quartz
Nitric Sodium Chromate	qtz,316,tef
Oil (30 wt)	304 (DD)
Oleic Acid	Quartz
Oakite #67	304SS
Oxalic Acid	Quartz
Paint Stripper Ph>6	304SS(D)
Paint Stripper (solvent)	316SS(D)
Perchloroethylene	316SS(D)
Phosphoric Acid	Quartz(D)
Phosphate Cleaner	304SS (D)
Phosphate	316SS(D)
Phosphate, Iron	316SS(D)
Phosphatizing	316SS(D)
Potassium Acid Sulfate	Quartz
Potassium Cyanide	304SS
Potassium Hydroxide	Teflon
Potassium Hydrochloric	Quartz
Reynolds Brightner	Quartz w/ lead guard

BY SHEATH MATERIAL

Anodizing(sulfuric)	Quartz
Cadmium,Black	Quartz
Indium	Quartz
Potassium Acid Sulfate	Quartz
Sodium Citrate	Quartz
Rhodium	Quartz
Iridite 15,18-P,	Quartz
Iridite 4-2,4-2A, 4-2P	Quartz
Sodium Bromide	Quartz
Electroless Tin (acid)	Quartz
Ruthenium	Quartz
Iridite Dyes	Quartz
Potassium Hydrochloric	Quartz
Diversey 511	Quartz
Iridite #1,2,3,4-C,4PC&S	Quartz
Nitric Sodium Chromate	QTZ,316,TEF
D.I. Water	316SS(electropolishe
Zinc Cyanide	316SS(D),Titanium
Zinc Phosphate	316SS(D) electropolis
Phosphate	316SS (D)
Iron Phosphate	316SS (D)
Perchloroethylene	316SS (D)
Phosphate, Iron	316SS (D)
Paint Stripper (solvent)	316SS (D)
Trichloroethylene	316SS (D)
Electroless Nickel	316SS (D)
Turco Ultra Sonic Solution	316SS (D)
Phosphatizing	316SS (D)
Bonderizing	316SS (D)
Ethylene Glycol	316SS (D)
Turco 4181	316SS (D)
Nitric 6% /Phosphoric	316SS (D)
Turco 4338	316SS (D)
Dow Therm A	316SS (D)
Stearic Acid	316SS,QTZ
Tranrite H-11	316SS electropolished
Turco 4008	316SS electropolished
Clear Chromate	316SS
Formic Acid	316SS
Silver Lume	316SS
Alodine	316SS
Calcium Bisulfite	316SS
Naphtha	316SS
Isoprep,cleaner #186	316SS
Yellow Dichromate	316SS
Isoprep,187,188 Deox	316SS
Dichromic Hot Seal	316SS
Silver Cyanide	316SS
Calcium Chlorate	316SS
Iridite 14-2, 14-9, 18-P	316SS
Ethanol	316SS
Silver Bromide	316SS
Chlorobenzene	316SS
Barium Hydroxide	316SS
Ferric Ammonium Oxide	316SS
Iridite ,#4-75,4-73,14,	316SS
Lead Acetate	316SS
Ammonium Persulfate	316SS
Nickel Acetate Seal	316SS

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BY CHEMICAL NAME**BY SHEATH MATERIAL**

Rhodium	Quartz	Sodium Sulfate	316SS
Rochelle Salts Cyanide	304SS	Butyl Amine	316SS
Ruthenium	Quartz	Sodium Chloride	316SS
Salt(actine)	Teflon	Dye Solutions,Hot	316SS
Sodium Bisulfate	Titanium,316SS	Carbon Disulfide	316SS
Sodium Bromide	Quartz	Lime saturated Water	316SS
Sodium Carbonate	Titanium,316SS	Carbonic Acid	316SS
Sodium Chlorate	Titanium,Quartz	Cellosolve	316SS
Sodium Chloride	316SS	Anline	316SS
Sodium Citrate	Quartz	Xylene	316SS
Sodium Cyanide	Titanium	Ammonium Nitrate	316SS
Sodium Dichromate	Teflon	Electroless Tin (alkaline)	316SS
Sodium Hydroxide	Teflon,HAS C	Hot Seal Dichromate	316SS
Sodium Hypochlorite	Quartz	Alcohol	316SS
Sodium Nitrate	Titanium	Ferric Sulfate	316SS
Sodium Phosphate	Quartz	Cyanide	316SS
Sodium Salicyate	Quartz	Sodium Silicate	316SS
Sodium Silicate	316SS	Caustic	304SS (D)
Sodium Sulfate	316SS	Paint Stripper Ph>6	304SS (D)
Sodium Sulfide	Titanium,316SS	Phosphate Cleaner	304SS (D)
Silver Bromide	316SS	Asphalt (liquid)	304SS (DDD)
Silver Cyanide	316SS	Black Oxide (290 F)	304SS w/ SS JBox(D)
Silver Lume	316SS	Tin Plating, alkaline	304SS
Silver Nitrate	Titanium	Bright Copper Cyanide	304SS
Stannate	304SS	Rochelle Salts Cyanide	304SS
Stearic Acid	316SS,qtz	Magnesium Hydroxide	304SS
Sulfamate Nickel	Titanium(D)	Ammonia	304SS
Sulfur	Titanium	Electro cleaner	304SS
Sulfuric Acid	Quartz	Gold Cyanide	304SS
Sulfur Chloride	Quartz	Aluminum Sulfate	304SS
Sulfurous Acid	Titanium,qtz	Aluminum Cleaner(silicated	304SS
Sulphamic Acid	Quartz	Immersion Gold	304SS
Tannic Acid	Titanium,316SS	Oakite #67	304SS
Tin Nickel	Teflon	Alkaline Soak Cleaner	304SS
Tin Plating, Acid	Quartz	Magnesium Sulfate	304SS
Tin Plating ,Alkaline	304SS	Jetal	304SS
Tranrite H-11	316SS electropolished	Diethylene Glycol	304SS
Trichlorethylene	316SS(D)	Lead Acid Salts	304SS
Trioxide	Quartz	Water	304SS
Turco 4181	316SS (D)	Linseed Oil	304SS
Turco 4008	316SS electropolished	Zeline	304SS
Turco 4338	316SS (D)	Brass Cyanide	304SS
Turco Ultra Sonic Solution	316SS(D)	Stannate	304SS
Unichrome CR-110	Quartz	Cadmium,(alkaline)	304SS
Unichrome SRHS	Quartz	Freon	304SS
Water	304SS	Bronze Cyanide	304SS
Wood's Nickel Strike	Quartz	Alco Bright Dip R5	304SS
Yellow Dichromate	316SS	Copper Sulfate	304SS
Xylene	316SS	Copper Cyanide	304SS
Zinc Acid	Quartz	Niklad	304SS
Zinc Ammonium Chloride	Titanium,qtz	Potassium Cyanide	304SS
Zincate	304SS	Zincate	304SS
Zeline	304SS	Glycerol	304SS
		Copper Strike	304SS
Specialty BLACK BKA	Titanium	Oil (30 wt)	304SS (DD)

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