



*Material Selection
Guide
For Corrosive Services*

 **BERIC DAVIS COMPANIES INTERNATIONAL, LTD.**

Connecting Business Worldwide!

MATERIAL SELECTION GUIDE FOR CORROSIVE SERVICES

	Ductile Iron/Cast Iron	Carbon Steel	316 Stainless Steel	Alloy 20	17-4PH	Monel	Hastelloy C	Brass	Graphite	T.F.E./R.T.F.E.
CHEMICALS										
Acetaldehyde	C	C	A	A		A	A	C	A	A
Acetamine	B	B	B			A	A	B	A	A
Acetate Solvents	B	A	A			A	A	B	A	A
Acetic Acid, aerated	D	D	A			A	A	D	A	A
Acetic Acid, Air Free	D	D	A	A	A	A	A	B	A	A
Acetic Acid, crude	C	C	A	A	A	B	A	C	A	A
Acetic Acid, glacial			D		A		A		A	A
Acetic Acid, pure	D	D	A	A	A	D	A	C	A	A
Acetic Acid, 10%	C	C	A	A	A	B	A	C	A	A
Acetic Acid, 80%	C	C	A	A	A	B	A	C	A	A
Acetic Acid Vapors			D	B	D	C	A	D	A	A
Acetic Anhydride	D	D	B	B	B	B	A	D	A	A
Acetone	C	C	A	A	A	B	A	C	A	A
Other Ketones	A	A	A	A	A	A	A	A	A	A
Acetyl Chloride	D		C			B	A	A	A	A
Acetylene	A	A	A	A	A	A	A	B	A	A
Acid fumes	D	D	B	B				D	C	A
Acrylonile	C	A	A	B		A	A	A	A	A
Air	A	A	A	A	A		A	A	B	A
Alcohol, Amyl	C	B	A	B		B	B	B	A	A
Alcohol, Butyl	C	B	A	A		A	A	B	A	A
Alcohol, Diacetone	A	A	A	A		B	A	A	A	A
Alcohol, Ethyl	B	B	B	A		B	A	B	A	A
Alcohols, Fatty	B	B	A	A			A	B	A	A
Alcohol, Isopropyl	B	B	B	A		B	B	B	A	A
Alcohol, Methyl	B	B	A	A		A	A	B	A	A
Alcohol, Propyl	B	B	A	A		A	A	A	A	A
Alumina			A				A	A	A	A
Aluminum Acetate	D		A	B	B	C	B	D	A	A
Aluminum Chloride dry	D	C	C	D		B	B	B	A	A
Aluminum Chloride solution			D	B	C	B	A		A	A
Aluminum Fluoride	D	D	C			B	A		A	A
Aluminum Hydroxide	D	D	A	B	B	B	B	A	A	A
Aluminum Nitrate	D		C	B		C	B	D	B	A
Aluminum Oxalate			D	A		B	A			A
Alum (Aluminum Potassium Sulfate)	D		B	B	C	B	A	D	A	A
Aluminum Sulfate	D	D	B	B	A	C	A	C	A	A
Amines	C	B	A	A	A	B	B	B	A	A
Ammonia, Alum			A	A			A		A	A
Ammonia, Anhydrous Liquid	B	A	A	A	A	B	A	D	A	A
Ammonia, Aqueous	A	A	A	A		B	B	D	A	A
Ammonia Gas, hot	B		A	A		B	B	D	A	A
Ammonia Liquor			A	A			B		A	A
Ammonia Solutions	B	B	A	A		B	B	D	A	A
Ammonium Acetate	B		B	A		B	B	D	A	A
Ammonium Bicarbonate	B	C	B	B		B		B	A	A
Ammonium Bromide 5%			B	B		B	B		A	A
Ammonium Carbonate	B	B	B	B		B	B	B	A	A
Ammonium Chloride	D	D	C	B	C	B	B	D	A	A
Ammonium Hydroxide 28%	C	C	B	A	A	D	B	D	A	A

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CHEMICALS										
Ammonium Hydroxide Concentrated	C	C	B	A	A	C	B	D	A	A
Ammonium Monosulfate			A	B		B	B			A
Ammonium Nitrate	D	D	A	B	A	D	B	D	B	A
Ammonium Oxalate 5%			A	A		B	A			A
Ammonium Persulfate			A	A		D	A	C		A
Ammonium Phosphate	D	D	B	B		C	A	D	A	A
Ammonium Phosphate Di-basic	D	D	B	B		C	B	C	A	A
Ammonium Phosphate Tri-basic	D	D	B	B		C	B	C	A	A
Ammonium Sulfate	D	C	B	B	B	B	B	C	A	A
Ammonium Sulfide	D	D	B	B		B		D	A	A
Ammonium Sulfite	C	C	A	B		D	A	C	A	A
Amyl Acetate	C	C	B	A	A	B	A	B	A	A
Amyl Chloride	B	C	A	A		B	B	B	A	A
Aniline	C	C	B	A		B	B	D	A	A
Aniline Dyes	C	C	A	A		A	A	C	A	A
Apple Juice	D	D	B	A		A		C	A	A
Aqua Regia (Strong Acid)	D	D	B	B			D	D	D	A
Aromatic Solvents	B	C	A	A		B		A	A	A
Arsenic Acid	D	D	B	B		D	B	D	A	A
Asphalt Emulsion	B	B	A	A		A	A	A	A	A
Asphalt Liquid	B	B	A	A		A	A	A	A	A
Barium Carbonate	B	B	B	B		B	A	B	A	A
Barium Chloride	C	C	B	C	B	B	A	B	A	A
Barium Cyanide	C		B	B		D		C	A	A
Barium Hydrate			A	A		B		D	A	A
Barium Hydroxide	B	C	B	A	A	B	B	C	A	A
Barium Nitrate			A	A					B	A
Barium Sulfate	C	C	A	A		B		C	A	A
Barium Sulfide	D	C	B	B		C		D	A	A
Beer	D	D	A	A	A	A	A	B	A	A
Beet Sugar Liquors	B	B	A	A		A		A	A	A
Benzaldehyde	C	A	A	A		B	B	A	A	A
Benzene (Benzol)	B	B	B	A	B	A	B	B	A	A
Benzoic Acid	D	D	B	B	A	B	A	B	A	A
Beryllium Sulfate	B		B	A		B		B	A	A
Bleaching Powder - wet			C	B		D	A	B	A	A
Boold (Meat Juices)	D		A	A	A	B		B	A	A
Borax (Sodium Borate)	C	C	A	A		A	A	D	A	A
Bordeaux Mixture			A	A					A	A
Borax Liquors	C	C	B	A		A	B	A	A	A
Boric Acid	D	D	B	B		B	A	C	A	A
Brake Fluid	B		B		A	B		B	A	A
Brines, saturated	C	D	B	B		B	A	B	A	A
Bromine, dry	D	D	D	B		A	A	B	B	A
Bunker Oils (Fuel)	B	B	A	A		A		B	A	A
Butadiene	B	B	A	A		C	B	C	A	D
Butane	B	B	A	A		B	A	A	A	A
Butter			A	A					A	A
Buttermilk	D	D	A	A		D		D	A	A
Butyl Acetate	B		B	A		B	B	B	A	A

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CHEMICALS										
Butylene	A	A	A	A		A		A	A	A
Butyric Acid	D	D	B	B		B	A	C	A	A
Calcium Bisulfiter	D	D	B	B		D	B	C	A	A
Calcium Carbonate	D	D	B	B		B	B	D	A	A
Calcium Chlorate	C		B	B		B	B		B	A
Calcium Chloride	C	C	B	B	B	B	A	B	A	A
Calcium Hydroxide	C	C	B	B		A	A	C	A	A
Calcium Nitrate			B	B					B	A
Calcium Phosphate	C		B	B				C	A	A
Calcium Silicate	C		B	B				C	A	A
Calcium Sulfate	C	C	B	B	B	B	B	C	A	A
Caliche Liquor		B	A	A					A	A
Camphor	C		B	C		C		C	A	A
Cane Sugar Liquors	B		A	A		B		B	A	A
Carbonated Beverages	B	D	B	B	B	C		B	A	A
Carbonated Water	A	B	A	A	B	B	A	B	A	A
Carbon Disulfide	B	B	B	B		B	A	C	A	A
Carbon Dioxide, dry	B	A	A	A	A	A	A	A	A	A
Carbolic Acid	D	D	B	A	B	B	A	D	A	A
Carbon Monoxide	B		A	A	A	A	A	A		A
Carbon Tetrachloride, dry	C	B	A	A	A	A	A	C	A	A
Carbon Tetrachloride, wet	D	D	B	B		B	B	D	A	A
Casein	C		B	B		C		C	A	A
Castor Oil	B	B	A	A		A	A	A	A	A
Caustic Potash			A	A		B			A	A
Caustic Soda	B	B	A	A		A			A	A
Cellulose Acetate	B		B			B	B	B	A	A
China Wood Oil (Tung)	C	C	A	A		A	A	C	A	A
Chlorinated Solvents	C	C	A	A		B		C	A	A
Chlorinated Water			C	A	D	D	D		A	A
Chlorine Gas, dry	B	B	B	A	C	A	A	C	A	A
Chlorobenzene, dry	B	B	A	A		B	B	B	A	A
Chloroform, dry	C	B	A	A	B	A	B	B	A	A
Chlorophyll, dry	B		B	A		B		B	A	A
Chlorosulfonic Acid, dry	B	B	B	B		B	A	C		A
Chrome Alum	C	B	A	A		B		C	A	A
Chromic Acid < 50%	D	D	C	B	C	C	B	D	A	A
Chromic Acid > 50%	C	D	C	B	D	D	B	D	A	A
Chromium Sulfate	D		B	C		B	C	C	A	A
Cider			A	B		A			A	A
Citric Acid	D	D	B	A	C	B	A	C	A	A
Citrus Juices	D	D	B	A		A		B	A	A
Coca-Cola Syrup			A	A					A	A
Coconut Oil	C	C	B	A		B		B	A	A
Coffee	D		A	A		B		A	A	B
Coffee Extracts, hot	C	C	A	A		A		B	A	A
Coke Oven Gas	B	B	A	A		B	A	C	A	A
Cooking Oil	B	B	A	A		A		B	A	A
Copper Acetate	D	D	A	A		C	B	D	A	A
Copper Carbonate			A	A					A	

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CHEMICALS										
Copper Cyanide	D		A	A		C	A	D	A	A
Copper Nitrate	D	D	B	B		D	A	D	B	A
Copper Sulfate	D	D	B	B	B	C	A	D	A	A
Corn Oil	C	C	B	B		B		B	A	A
Cottonseed Oil	C	C	B	B		B	A	B	A	A
Cresol			B	B					A	A
Creosote Oil	B	B	B	A	B	B	B	B	A	A
Cresylic Acid	D	C	B	B		B	A	C	A	A
Crude Oil, sour	C	B	A	A		B	A	C	A	A
Crude Oil, sweet	B	B	A	A		A	A	B	A	A
Cupric Nitrate			A	A		D	B		B	A
Cutting Oils, Water Emulsions	B	B	A	A				A	A	A
Cyanide Plating Solution	D		B	B		D		D		A
Cyclohexane	A	A	A	A		B	B	A	A	A
Cyclohexanone			A	A		B	B	B	A	A
Detergents, Synthetic	B		B	A		B		B	A	A
Dextrin	B		B	B		B		B	A	A
Dichloroethane	B		B	B		B	B	B		A
Dichloroethyl Ether	B		B	B				B		A
Diesel Oil Fuels	A	A	A	A		A		A	A	A
Diethylamine	B	A	A	A		B		B	A	A
Diethyl Benzene			B	B					A	A
Diethylene Glycol	A		A	A		B		B	A	A
Diethyl Sulfate	B		B	B		B	A	B	A	A
Dimethyl Formamide	B		A	A		B		B	A	A
Dimethyl Phthalate			D						A	A
Dioxane	B		B	B		B		B	A	A
Dipentane (Pinene)	A		A	A				A	A	A
Disodium Phosphate			B	B		C			A	A
Dowtherm	B	B	A	A		A		A	A	A
Drilling Mud	B	B	A	A		B		B	A	A
Dry Cleaning Fluids	B	B	A	A		B		C	A	A
Drying Oil	B	C	B	B		B		C	A	A
Enamel			A					A	A	A
Epson Salts (MgSo4)	C	C	B	B		B		B	A	A
Ethane	C	C	B	B		B	A	B	A	A
Ethers	B	A	A	A	B	B	D	B	A	A
Ethyl Acetate	C	B	B	B	A	B	D	C	A	A
Ethyl Acrylate	C	C	A	A		B	D	B	A	A
Ethyl Benzene	B		B	A			C		A	A
Ethyl Bromide	B		B	C		B	B	A	A	A
Ethyl Chloride, dry	D	B	A	A	A	B	C	B	A	B
Ethyl Chloride, wet		D	B	B		B	C	C	A	A
Ethylene Chloride			A	A		B	D		A	A
Ethylene Dichloride			B	A		B	D		A	A
Ethylene Glycol	B	B	B	A	A	B	A	B	A	A
Ethylene Oxide	B	B	B	B		B	D	C	A	A
Ethyl Ether	C		A	A		A	D	B	A	A
Ethyl Silicate	B		B	B		B		B	A	A
Ethyl Sulfate			B	B			B		A	A

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CHEMICALS										
Fatty Acids	D	D	A	A		B	A	C	A	A
Ferric Hydroxide			A	A		A			A	A
Ferric Nitrate	D	D	C	A	B	D	B	D	B	A
Ferric Sulfate	D	D	B	A	B	D	A	D	A	A
Ferrous Ammonium Citrate			B	B					A	A
Ferrous Chloride	D	D	D	D		D	D	B	A	A
Ferrous Sulfate	D	D	B	B		B	B	B	A	A
Ferrous Sulfate, saturated	C	C	A	A		B	B	C	A	A
Fertilizer Solutions	B	B	B	B		B	A	C	A	A
Fish Oils	B	B	A	A		A		B	A	A
Fluorine Gas, dry			B	A		A	A			A
Flue Gases	B		A	A		B	A	B	A	A
Fluboric Acid			B	A			A			A
Fluorosilicic Acid	D	D	B	B		A	B	B		A
Formaldehyde, cold	B	A	A	A	A	A	B	A	A	A
Formaldehyde, hot	D	D	C	B		B	B	B	A	A
Formic Acid, cold	D	D	B	A	B	B	A	B	A	A
Formic Acid, hot	D	D	B	B	D	A	B	B	A	A
Freon Gas, dry	B	B	A	A	A	A	B	B	A	A
Freon 11, MF, 112, BF	C		A	A		B	B	B	A	A
Freon 12, 13, 32, 114, 115	B		A	A		B	B	A	A	A
Freon 21, 31	C		A	A		B	B	B	A	A
Freon 22	B		A	A			B	A	A	A
Freon 113, TF	C		A	A		B	B	B	A	A
Freon, wet	D		C	B	B	B	B	D	A	A
Fruit Juices	D	D	A	A		B		B		A
Fuel Oil	B	B	A	A		B		B	A	A
Fumaric Acid			A	A						A
Furfural	B	A	A	A	B	B	B	A	A	A
Gallic Acid 5%	D	D	B	B		B	B	C		A
Gas, Manufactured	B	B	B	B		A		B	A	A
Gas, Natural	B	B	A	B		A	A	B	A	A
Gas, Odorizers	B	B	B	A		B		A	A	A
Gasoline, Aviation	B	A	A	A		A	A	A	A	A
Gasoline, Leaded	A	A	A	A		B	A	A	A	A
Gasoline, Motor	B	A	A	A	A	A	A	A	A	A
Gasoline, Refined	B	B	A	A		B	A	B	A	A
Gasoline, Sour	B	B	A	A		C	A	B	A	A
Gasoline, Unleaded	B	A	A	A		A	A	A	A	A
Gelatin	D	D	A	A		B		A	A	A
Glucose	B	B	A	A		A	A	A	A	A
Glue	B	A	B	A		B	A	B	A	A
Glycerine (Glycerol)	B	C	A	A	A	A	A	B	A	A
Glycol Amine	B		B		A		D	D	A	
Glycol	B	C	B	A		B		B	A	A
Graphite	C		B	A		B		B	A	A
Grease	A	A	A	A		B		C	A	A
Helium Gas	B		A	A		B	A	B	A	A
Heptane	B	B	A	A		B	A	A	A	A
Hexane	B	B	A	A		B	A	B	A	A

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CHEMICALS										
Hexanol, Tertiary	A	A	A	A		A	A	A	A	A
Hydraulic Oil, Petroleum Base	B	A	A	A		A		B	A	A
Hydrazine	D		B	B		D		D		A
Hydrocyanic Acid	C	D	A	A		C	B	D		A
Hydrofluosilicic Acid	D	D	C	B		B	B	A	A	A
Hydrogen Gas, cold	B	B	A	A		A	A	B	A	A
Hydrogen Gas, hot		B	B	A			A		A	A
Hydrogen Peroxide, Concentrated	D	D	B	B		D	D	D	D	A
Hydrogen Peroxide, Dilute	D	D	B	B		D	D	C	C	A
Hydrogen Sulfide, dry	B	B	A	B	B	B	B	C	A	A
Hydrogen Sulfide, wet	D	C	B	B		C	D	D	A	A
Hypo (Sodium Thiosulfate)	C	D	B	B		B	A	C	A	A
Illuminating Gas	A	A	A	A		A		A	A	A
Ink-Newsprint	D	D	A	A		B		C	A	A
Iodoform	C	B	A	A		C		C		A
Iso-Butane			B	B					A	A
Iso-Octane	B	A	A	A		A		A	A	A
Isopropyl Acetate			B	A					A	A
Isopropyl Ether	B	A	A	A		B	A	A	A	A
JP-4 Fuel	B	A	A	A		A	A	A	A	A
JP-5 Fuel	A	A	A	A		A	A	A	A	A
JP-6 Fuel	A	A	A	A		A	A	A	A	A
Kerosene	B	B	A	A		A	A	A	A	A
Ketchup	D	D	A	A		B		D	A	A
Ketones	A	A	A	A		A		A	A	A
Lacquer (and Solvent)	C	C	A	A		A		A	A	A
Lactic Acid, Concentrated, cold	D	D	A	A	D	D	A	D	A	A
Lactic Acid, Concentrated, hot	D	D	B	A	D	D	B	D	A	A
Lactic Acid, Dilute, cold	D	D	A	A	B	C	A	D	A	A
Lactic Acid, Dilute, hot	D	D	A	A	D	D	B	D	A	A
Lactose	C		B	B		B		B	A	A
Lard	A		A	A				B	A	A
Lard Oil	C	C	B	A		B		B	A	A
Lead Acetate	D	D	B	B		B		C	A	A
Lead Sulfate	D		B	B		B		C	A	A
Lechithin	C		B	B		B		C		A
Linoleic Acid	B	B	A	A		B		B	A	A
Linoleic Oil	A	A	A	A		B		B	A	A
Lithium Chloride	B		B	A		B		B	A	A
LPG	B	B	B	B		B		A	A	A
Lubricating Oil, Petroleum Base	A	A	A	A		B		B	A	A
Ludox	B		B	B		B		D		A
Magnesium Bisulfate	B	B	A	A		B		B	A	A
Magnesium Bisulfide	D		B	B		B		D	A	A
Magnesium Carbonate	B		A	A		B	B	B	A	A
Magnesium Chloride	D	C	B	B	C	B	A	B	A	A
Magnesium Hydroxide	B	B	A	A	A	B	B	B	A	A
Magnesium Hydroxide, hot	B	B	A	A	A	A	B	D	A	A
Magnesium Nitrate			A	A		B			B	A
Magnesium Sulfate	B	B	A	A	A	B	A	B	A	A

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	Ductile Iron/Cast Iron	Carbon Steel	316 Stainless Steel	Alloy 20	17-4PH	Monel	Hastelloy C	Brass	Graphite	T.F.E./R.T.F.E.
CHEMICALS										
Maleic Acid	C	B	B	B		B	A	B	A	A
Maleic Anhydride	B		B	B		B	B	B	A	A
Malic Acid	D	D	B	B		B		B	A	A
Malt Beverages			A	B		A			A	A
Manganese Carbonate			B	A					A	A
Manganese Sulfate	D		A	A		B		B	A	A
Mayonnaise	D	D	A	A		B		D	A	A
Meat Juices			A	A				D	A	A
Melamine Resins	D		C	C					A	A
Merceric Chloride	D	D	B	B		D	B	D	A	A
Merceric Cyanide	D	D	A	A		C	B	D	A	A
Mercurous Nitrate			A	A		D		D	B	A
Mercury	A	A	A	A		B	B	D	A	A
Methane	B	B	A	A		B	A	A	A	A
Methyl Acetate	B	B	A	A		B	A	A	A	A
Methyl Acetone	A	A	A	A		A		A	A	A
Methylamine	B	B	A	A		C	B	D	A	A
Methyl Bromide 100%	D		B	A		B		C	A	A
Methyl Cellosolve	B	B	A	A		B	B	A	A	A
Methyl Cellulose			A	A			B		A	A
Methyl Chloride	B	B	A	A		B	A	B	A	A
Methyl Ethyl Ketone	A	A	A	A		A	B	A	A	A
Methylene Chloride	B	B	A	A		B	B	A	A	A
Methyl Formate	C	C	B	A		B	B	A	A	A
Methyl Isobutyl Ketone			A	A					A	A
Milk and Milk Products	D	D	A	A		B	A	B	A	A
Mineral Oils	B	B	A	A		A		B	A	A
Mineral Spirits	B	B	B	B		B		B	A	A
Mixed Acids, cold	C	C	B	B		C		D	A	A
Molasses, crude	A	A	A	A		A		A	A	A
Molasses, edible	C	C	A	A		A		A	A	A
Molybdc Acid			A	A			B		A	A
Monochloro Benzene, dry			B	B		B			A	A
Morpholine	B		A	A		B	D	B	A	A
Mustard	B	B	A	A		A		A	A	A
Naptha	B	B	B	B		B	A	B	A	A
Napthalene	B	B	B	B		B	B	B	A	A
Natural Gas, Sour	B	B	A	A		D	A	B	A	A
Nickel Ammonium Sulfate	D	D	A	A		C		D	A	A
Nickel Chloride	D	D	B	A		B	A	D	A	A
Nickel Nitrate	D	D	B	A		B	B	D	B	A
Nickel Sulfate	D	D	B	A		B	B	D	A	A
Nicotinic Acid	C	B	A	A		A		A	A	A
Nitric Acid 10%	D	D	A	A	A	D	B	D	A	A
Nitric Acid 30%	D	D	A	A	D	D		D	B	A
Nitric Acid 80%	D	D	C	B	D	D		D	C	A
Nitric Acid 100%	D	D	A	A	D	D		D	D	A
Nitric Acid Anhydrous	C	D	A	A	D	D		D	D	A
Nitrobenzene	B	B	A	A		B	B	D	A	A
Nitrogen	A	A	A	A		A	A	A	A	A

MATERIAL SELECTION GUIDE FOR CORROSIVE SERVICES

	Ductile Iron/Cast Iron	Carbon Steel	316 Stainless Steel	Alloy 20	17-4PH	Monel	Hastelloy C	Brass	Graphite	T.F.E./R.T.F.E.
CHEMICALS										
Nitrous Acid 10%	D	D	B	B		D		D	A	A
Nitrous Gases	C	B	A	A		D		D	A	A
Nitrous Oxide	C	B	B	B		D	B	B	A	A
Oils & Fats			A	A					A	A
Oils, Animal	A	A	A	A		B	A	A	A	A
Oils, Petroleum Refined	A	A	A	A		A	A	B	A	A
Oils, Petroleum Sour	C	B	A	A		A	A	C	A	A
Oils, Water Mixture	B	B	A	A		A	A	A	A	A
Olaic Acid			B	B		A			A	A
Oleic Acid	C	C	B	A		B	B	B	A	A
Oleum	D	B	B	B		C	B	C		A*
Oleum Spirits	D		B	B		D		D		A
Olive Oil	B	B	A	A		A		C	A	A
Oxalic Acid	D	D	B	B	D	B	B	B	A	A
Oxygen	B	B	A	A	A	A	A	A	A#	A
Ozone, dry	A	A	A	A		A	A	A		A
Ozone, wet	C	C	A	A		A	A	B		A
Paints & Solvents	A	A	A	A		A		A	A	A
Palmitic Acid	C	C	B	B		B		B	A	A
Palm Oil	C	C	B	A		A		B	A	A
Paper Pulp	B		A	A		B	A	B	A	A
Paraffin	B	B	A	A		A	A	A	A	A
Paraformaldehyde	B	B	B	B		B		B	B	A
Paraldenhyde			B	B					A	A
Pentane	B	B	A	A		B		A	A	A
Perchlorethylene, dry	B	B	A	A		B	B	C	A	A
Petrolatum (Petroleum Jelly)	C	C	B	A		A		B	A	A
Phenol	D	D	A	A	B	A	A	B	A	A
Phosphate	A	A	A	A		A		D	A	A
Phosphoric Acid 10%	D	D	D	B	B	D	A	D	A	A
Phosphoric Acid 50%, cold	D	D	B	B	B	C	B	D	A	A
Phosphoric Acid 50%, hot	D	D	D	B	D	C	D	D	A	A
Phosphoric Acid 85%, cold	B	B	A	B	C	A	B	D	A	A
Phosphoric Acid 85%, hot	C	C	B	B	D		D	D	A	A
Phosphoric Anhydride			A	A					A	A
Phosphoric Trichloride	C	B	A	A					A	A
Phthalic Acid	C	C	B	B		A	B	B	A	A
Phthalic Anhydride	C	C	B	B		A	A	B	A	A
Picric Acid	D	D	B	B	C		D	C	A	A
Pineapple Juice	C	C	A	A		A		C	A	A
Pine Oil	B	B	A	A		B		B	A	A
Pitch (Bitumen)			A	A					A	A
Polysulfide Liquor	B		B	A		B		D	A	A
Polyvinyl Acetate	B		B	B		B		B	A	A
Polyvinyl Chloride	B		B	B		B		B	A	A
Potassium Bicarbonate			A	A		B			A	A
Potassium Bichromate			A	A		A			A	A
Potassium Bisulfate			A	A		B			A	A
Potassium Bisulfide	D	D	B	B		D	A	C	A	A
Potassium Bromide	D	D	A	B	C	B	A	C	A	A

MATERIAL SELECTION GUIDE FOR CORROSIVE SERVICES

	Ductile Iron/Cast Iron	Carbon Steel	316 Stainless Steel	Alloy 20	17-4PH	Monel	Hastelloy C	Brass	Graphite	T.F.E./R.T.F.E.
CHEMICALS										
Potassium Carbonate	B	B	B	B	A	B	B	B	A	A
Potassium Chlorate	B	B	B	B	B	C	B	B	C	A
Potassium Chloride	B	C	B	A	B	B	B	C	A	A
Postassium Chromate	B		B	B		B	A	B		A
Postassium Cyanide	B	B	B	B		B	B	D	A	A
Potassium Dichromate	C	C	B	A		B	B	D		A
Potassium Ferricyanide	C	C	A	B	B	B		D	A	A
Potassium Ferrocyanide	C	C	B	B		A		B	A	A
Potassium Hydroxide, Dilute, cold	A	A	B	B	B	A	A	D	A	A*
Potassium Hydroxide, < 70%, cold	B	B	B	B	C	A	B	D	A	A*
Potassium Hydroxide, Dilute, hot	B	B	B	B	C	A	B	D	A	A*
Potassium Hydroxide < 70%, hot	B	A	B	B	D	A	B	D	A	A*
Potassium Iodide	C	C	B	B	B	C	A	D	B	B
Potassium Nitrate	B	B	B	B	B	B	B	B	B	A
Potassium Oxalate			A	A					A	A
Potassium Permanganate	B	B		B	B	B	B	B		A
Potassium Phosphate	C		B	B		B	B	C	A	A
Potassium Phosphate Di-basic	A	A	A	A		B	B	B	A	A
Potassium Phosphate Tri-basic	A	A	B	B		B			A	A
Potassium Sulfate	C	B	A	A	A	B	B	B	A	A
Potassium Sulfide	B	B	A	A		C	A	B	A	A
Potassium Sulfite	B	B	A	A		C	B	B	A	A
Producer Gas	B	B	B	B	A	A		B	A	A
Propane Gas	B	B	B	A	A	B	A	A	A	A
Propyl Bromide	B		B	A		B		B	A	A
Propylene Glycol	B	B	B	B		B		B	A	A
Pyridene	B		B	A			B		A	A
Pyrolgalic Acid	B	B	B	A	B	B	B	B	A	A
Quench Oil	B	B	A	A				B	A	A
Quinine, Sulfate, dry			A	A	B	B			A	A
Refrigerant 123	A	A	A	A	A	A	A	A	A	A**
Refrigerant 134A	A	A	A	A	A	A	A	A	A	A
Resins & Rosins	C	C	A	A	B	A	A	A	A	A
Resorcinol			B	B					A	A
Road Tar	A	A	A	A		A		A	A	A
Roof Pitch	A	A	A	A		A		A	A	A
Rosin Emulsion	C	C	A	A		A		B	A	A
RP-1 Fuel	A	A	A	A		A		A	A	A
Rubber Latex Emulsions	B	B	A	A				A	A	A
Rubber Solvents	A	A	A	A		A		A	A	A
Salad Oil	C	C	B	A		B		B	A	A
Salicylic Acid	D	D	A	B		B	A	C	A	A
Salt (NaCl)	C	C	B	A		A	A	B	A	A
Salt Brine	D		B	B		B	A	B	A	A
Sauerkraut Arine			B	B					A	A
Sea Water	D	D	B	B		A	A	C	A	A
Sewage	D	C	B	B	A	B	A	C	A	A
Shellac	B	A	A	A		A		A	A	A
Silicone Fluids	B		B	B				B	A	A
Silver Bromide			A	A	C	B			A	A

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	Ductile Iron/Cast Iron	Carbon Steel	316 Stainless Steel	Alloy 20	17-4PH	Monel	Hastelloy C	Brass	Graphite	T.F.E./R.T.F.E.
CHEMICALS										
Silver Cyanide	D		A	A	A	B	B	D	A	A
Silver Nitrate	D	D	A	A		D	A	D	B	A
Silver Plating Solution			A	A						A
Soap Solutions (Stearates)	B	A	A	A		A		A	A	A
Sodium Acetate	C	C	B	B		B	B	B	A	A
Sodium Aluminate	C	C	A	B		B	B	B	A	A
Sodium Banoate		A	B	B		B			A	A
Sodium Bicarbonate	C	C	B	A		B	B	B	A	A
Sodium Bichromate		A	B	B		B	B		A	A
Sodium Bisulfate 10%	D	D	A	A		B		B	A	A
Sodium Bisulfite 10%	D	D	A	B		B	B	B	A	A
Sodium Borate	C	C	B	B		B		B	A	A
Sodium Bromide 10%	D	C	B	B		B	B	B	A	A
Sodium Carbonate (Soda Ash)	B	B	A	A		B	B	B	A	A
Sodium Chlorate	C	C	B	B		C	B	B	B	A
Sodium Chloride	C	C	B	A		A	B	B	A	A
Sodium Chromate	B	B	A	B		B	A	C		A
Sodium Citrate			B	B					A	A
Sodium Cyanide	B	B	A	A	B	B		D	A	A
Sodium Ferricyanide			A	A		B			A	A
Sodium Fluoride	D	D	B	A	B	B		C	A	A
Sodium Hydroxide 20%, cold	A	A	A	B	A	A	A	A	A	A*
Sodium Hydroxide 20%, hot	B	B	A	A	C	A	B	A	A	A*
Sodium Hydroxide 50%, cold	B	A	A	A	B	A	A	A	A	A*
Sodium Hydroxide 50%, hot	B	B	A	A	C	B	B	A	A	A*
Sodium Hydroxide 70%, cold	A	A	A	B	B	A		A	A	A*
Sodium Hydroxide 70%, hot	B	B	A	B	C	B		B	A	A*
Sodium Hypochlorite (Bleach)	D	D	D	C	D	D	A	D	A	A
Sodium Hyposulfite			B	B		B	B		A	A
Sodium Lactate			A	A	B	B	A		A	A
Sodium Metaphosphate	C	B	B	B	B		A	C	A	A
Sodium Metasilicate, cold	C	C	A	A		A		B	A	A
Sodium Metasilicate, hot	D	D	A	A		A	A	B	A	A
Sodium Nitrate	B	B	A	A	B	B	B	B		A
Sodium Nitrite			B	B		C	B		B	A
Sodium Perborate	B	B	B	B	B	B	B	B	A	A
Sodium Peroxide	C	C	B	B	B	B	B	D	A	A
Sodium Phosphate	C	C	B	B	B	B	B	C	A	A
Sodium Phosphate Di-basic	C	C	B	B		B	B	C	A	A
Sodium Phosphate Tri-basic	C	C	B	B		B	B	C	A	A
Sodium Polyphosphate			B	B		B	B		A	A
Sodium Salicylate			A	A					A	A
Sodium Silicate	B	B	B	B		B		B	A	A
Sodium Silicate, hot	C	C	B	B		B		C	A	A
Sodium Sulfate	B	B	A	A	B	A	A	B	A	A
Sodium Sulfide	B	B	B	B	A	B	A	D	A	A
Sodium Sulfite	A		A	A	A	B	B	C	A	A
Sodium Tetraborate	A		A	A					A	A
Sodium Thiosulfate	C	B	B	A	A	B	A	C	A	A
Soybean Oil	C	C	A	A		A	A	B	A	A

MATERIAL SELECTION GUIDE FOR CORROSIVE SERVICES

CHEMICALS

	Ductile Iron/Cast Iron	Carbon Steel	316 Stainless Steel	Alloy 20	17-4PH	Monel	Hastelloy C	Brass	Graphite	T.F.E./R.T.F.E.
Starch	C	C	B	A		A		B	A	A
Steam (212° F)	A	A	A	A	A	B	A	A	A	A
Stearic Acid	C	C	B	B		B	A	C	A	A
Styrene	B	A	A	A		B	A	A	A	A
Sugar Liquids	B	B	A	A		A	A	A	A	A
Sugar, Syrups & Jam	C		A	A	A		A	B	A	A
Sulfate, Black Liquor	C	C	B	B	A	B		C	A	A
Sulfate, Green Liquor	C	C	B	B	A	B		C	A	A
Sulfate, White Liquor	C	C	B	D	B	C		C	A	A
Sulfur	C	C	B	A		B	B	D	A	A
Sulfur Chlorides	D	D	D	A		B		B	A	A
Sulfur Dioxide, dry	B	B	A	B	A	B	A	B	A	A
Sulfur Dioxide, wet		C	B	B	B	C	A	D	A	A
Sulfur Hexafluoride			A	A				B	A	A
Sulfur, Molten	B	C	B	A		D	B	D	A	A
Sulfur Trioxide	B	B	B	B	B		B	B	D	A
Sulfur Trioxide, dry	B	B	B	B	B	B	B	B	D	A
Sulfuric Acid < 78%	D	D	C	B		B	B	C	A	A
Sulfuric Acid 100%	B	C	A	A	B		D	A	C	D
Sulfurous Acid	D	D	B	B		D	B	D	A	A
Tall Oil	B	B	B	B		B	A	B	A	A
Tannic Acid (Tannin)	C	C	B	B	B	B	B	B	A	A
Tanning Liquors			B	B			A			A
Tar & Tar Oils	A	A	A	A	A	A	A	A	A	A
Tartaric Acid	D	D	A	A	A	B	B	B	A	A
Tetraethyl Lead	C	C	B	B		A		B	B	B
Toluol (Toluene)	A	A	A	A		A	A	A	A	A
Tomato Juice	C	C	A	A		B		C	A	A
Transformer Oil	B	A	A	A		A		B	A	A
Tributyl Phosphate	A	A	A	A		A		A	A	A
Trichlorethylene	C	B	B	B	A	B	A	B	A	A
Trichloroacetic Acid	D		D	B		B	A	B		A
Triethanolamine			B	B		B	A		A	A
Triethylamine			B	B			A	B		A
Trisodium Phosphate			B	B			A		A	A
Tung Oil	B	B	A	A		C	A	B	A	A
Turpentine	B	B	B	B	A	B	A	B	A	A
Urea	C	C	B	B		B	A	B	A	A
Uric Acid			A	A			A		A	A
Varnish	C	C	A	A		A	A	A	A	A
Vegetable Oils	B	B	A	A		B	A	B	A	A
Vinegar	D	D	A	A		B	A	B	A	A
Vinyl Acetate	B		B	B		B	A	B	A	A
Water, Distilled	D	D	A	A	A	A	A	A	A	A
Water, Fresh	C	C	A	A	A	A	A	A	A	A
Water, Acid Mine	D	D	B		B	D	C	D	A	A
Waxes	A	A	A	A		A	A	A	A	A
Whiskey & Wines	D	D	A	A		A	A	B	A	A
Xylene (Xylol), dry	B	B	A	A		A	A	A	A	A
Zinc Bromide	D		B	B		B	A	B	A	A



The information provided in this guide is intended for engineering reference when considering the selection of materials for corrosive services.

When choosing a material for a particular service, the first concern should be given to the internal trim components and then to the body or shell material. Some users may choose to ignore the corrosion rate of one material to obtain maximum value from another, when used in combination with one another.

Each corrosive media affects material properties differently and when combined with temperature, flow, solution, concentration and/or other variables, the rate of corrosion is generally accelerated.

Unless otherwise noted, the corrosive rate of the media is based on room temperature.

The suggested ratings noted are based on application experiences noted and compiled from industry available data. However, it is the decision of the user, based on their experience, to make the final material selection.

Beric accepts no responsibility resulting in the use of the data contained in this guide.

Feel free to contact Beric for suggestions concerning applications.

We appreciate you interest in our company and our products.

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Connecting Business Worldwide!

5602 Armour Drive
Houston, Texas 77020
Phone (713) 673-2073 Fax (713) 673-4641
www.bericvalves.com