

### INTRODUCTION

The Stonchem 400 Series Chemical Resistance Guide is designed to aid in the proper selection of material for every job application. Over 250 chemicals are rated for a multitude of corrosive environments. Due to the number of variables involved in each application, it is recommended that a Technical Service Engineer be contacted for specific recommendations.

This Chemical Resistance Guide is intended only as a guideline and does not constitute an implied warranty for the use of our materials under the environments indicated.

### INSTRUCTIONS FOR USE

The corrosion resistance data contained in this guide has been summarized from in-depth lab analysis and actual job performance. The rating system shown below is designed to consider most application variables. The rating gives the maximum service for a chemical at 38°C.

### CHEMICAL NEAME

Acetaldehyde.....	SS
Acetic – 10% .....	IM
Acetic – 25% .....	SS
Acetic – 50% .....	NR
Acetic Acid, Glacial .....	NR
Acetic Anhydride .....	SS
Acetone .....	SS
Acetonitrile .....	SS
Acrylonitrile .....	NR
Adipic Acid - 23% .....	SS
Alum .....	IM
Aluminum Chloride .....	IM
Aluminum Fluoride * .....	IM
Aluminum Hydroxide .....	IM
Aluminum Nitrate - 10% .....	IM
Aluminum Sulfate .....	IM
Ammonia .....	IM
Ammonium Chloride .....	IM
Ammonium Fluoride * .....	M
Ammonium Hydroxide - 10% .....	IM
Ammonium Hydroxide - 29% .....	IM
Ammonium Nitrate .....	IM
Ammonium Oxalate .....	IM
Ammonium Persulfate .....	IM
Ammonium Phosphate .....	IM
Ammonium Sulfate .....	IM
Ammonium Sulfide - Sat. ....	IM
Ammonium Sulfite - Sat. ....	IM
Amyl Acetate .....	IM
Amyl Alcohol .....	IM
Aniline .....	NR
Aniline Hydrochloride .....	IM
Barium Acetate .....	IM
Barium Bromide .....	IM
Barium Carbonate .....	IM
Barium Chloride .....	IM
Barium Sulfate .....	IM
Barium Sulfide .....	IM

### CORROSION RESISTANCE KEY

- IM = Immersion
- SS = Splash/Spill
- NR = Not Recommended

#### Notes:

1. For immersion conditions over 38°C, contact Stonhard's Technical Service Department. For solutions with no concentrations given, the rating is for all possible concentrations.
2. \*Indicates chemicals where silica-free systems are required. Consult Stonhard's Technical Service Department.

### TEMPERATURES

38°C

**CHEMICAL NAME****TEMPERATURES****38°C**

Benzene .....	SS
Benzene Sulfonic Acid - 50% .....	IM
Benzoic Acid - Sat. ....	IM
Benzyl Chloride .....	IM
Black Liquor .....	IM
Blood Sugar .....	IM
Borax - 100% .....	IM
Boric Acid .....	IM
Brine .....	IM
Bromine, Liquid .....	NR
Butanol .....	IM
Butyl Acetate .....	SS
Butyl Acrylate .....	IM
Butyl Cellosolve Solvent .....	SS
Butyric Acid .....	SS
Calcium Bisulfite .....	IM
Calcium Bromide .....	IM
Calcium Carbonate .....	IM
Calcium Chlorate .....	IM
Calcium Chloride .....	IM
Calcium Hydroxide .....	IM
Calcium Hypochlorite .....	SS
Calcium Nitrate .....	IM
Calcium Sulfate .....	IM
Calcium Sulfite .....	IM
Carbon Disulfide .....	SS
Carbon Tetrachloride .....	IM
Castor Oil .....	IM
Chlorine Water - Sat. ....	IM
Chloroacetic Acid - 25% .....	SS
Chloroacetic Acid - 50% .....	NR
Chlorobenzene .....	IM
Chloroform .....	NR
Chromic Acid - 10% .....	SS
Chromic Acid - 40% .....	SS
Citric Acid .....	IM
Copper Acetate .....	IM
Copper Chloride .....	IM
Copper Cyanide .....	IM
Copper Fluoride .....	* IM
Copper Nitrate .....	IM
Copper Sulfate .....	IM
Corn Oil .....	IM
Corn Starch - Slurry .....	IM
Corn Sugar .....	IM
Cottonseed Oil .....	IM
Creosote .....	IM
Cutting Oil .....	IM
Cyclohexane .....	IM
Detergents, Organic .....	IM
Detergents, Sulfonated .....	IM
Dibutylphthalate .....	IM
Dichlorobenzene .....	IM
Dichloroethane .....	NR
Diesel Fuel .....	IM
Diethylbenzene .....	IM
Diethylene Glycol .....	IM

**CHEMICAL NAME****TEMPERATURES**

	<b>38°C</b>
Diethyl Ether .....	SS
Dimethyl Formamide .....	NR
Dimethyl Sulfoxide .....	NR
Epichlorohydrin .....	SS
Ethanol .....	SS
Ethanolamine .....	SS
Ethyl Acetate .....	SS
Ethyl Acrylate .....	SS
Ethylbenzene .....	IM
Ethyl Chloride .....	SS
Ethylene Dichloride .....	NR
Ethylene Glycol .....	IM
Fatty Acids .....	SS
Ferric Chloride .....	IM
Ferrous Nitrate .....	IM
Ferric Sulfate .....	IM
Ferrous Chloride .....	IM
Ferrous Sulfate .....	IM
Fluoboric Acid * .....	SS
Fluosilicic Acid - 10% * .....	SS
Formaldehyde .....	IM
Formic Acid - 10% .....	SS
Formic Acid - 50% .....	NR
Fuel Oil .....	IM
Furfural Alcohol .....	SS
Gasoline .....	IM
Glycerine .....	IM
Green Liquor .....	IM
Heptane-n .....	IM
Hexane .....	IM
Hydraulic Fluid .....	SS
Hydrobromic Acid - 18% .....	SS
Hydrobromic Acid - 48% .....	SS
Hydrobromic Acid - 62% .....	SS
Hydrochloric Acid - 10% .....	IM
Hydrochloric Acid - 37% .....	SS
Hydrofluoric Acid - 10% * .....	IM
Hydrofluoric Acid - 40% * .....	SS
Hydrogen Peroxide - 10% .....	IM
Hydrogen Peroxide - 30% .....	SS
Hydrogen Peroxide - 50% .....	NR
Hydrogen Sulfide - 5% .....	IM
Hydrogen Sulfide - 100% .....	IM
Hypochlorous Acid - 20% .....	NR
Isopropyl Alcohol .....	IM
Isopropyl Amine .....	SS
Jet Fuel (JP-4) .....	IM
Kerosene .....	IM
Lactic Acid - 10% .....	IM
Lactic Acid - 50% .....	SS
Lactic Acid - 85% .....	NR
LASSO Herbicide .....	IM
Lead Acetate .....	IM
Linseed Oil .....	IM
Lithium Bromide - Sat. .....	IM
Lithium Chloride - Sat. .....	IM
Lithium Hydroxide - Sat. .....	IM

**CHEMICAL NAME****TEMPERATURES****38°C**

Magnesium Bisulfite .....	IM
Magnesium Carbonate .....	IM
Magnesium Chloride .....	IM
Magnesium Hydroxide .....	IM
Magnesium Nitrate .....	IM
Magnesium Sulfate .....	IM
Maleic Acid .....	SS
Manganese Chloride .....	IM
Manganese Sulfate .....	IM
Mercuric Chloride .....	IM
Mercurous Chloride .....	IM
Mercury .....	IM
Methyl Benzoate .....	IM
Methyl Alcohol .....	SS
Methyl Ethyl Ketone .....	SS
Methyl Isobutyl Ketone .....	SS
Methylene Chloride .....	NR
Milk .....	IM
Mineral Oils .....	IM
Mineral Spirits .....	IM
Motor Oil .....	IM
M-Pyrol .....	NR
Naphtha .....	IM
Nickel Chloride .....	IM
Nickel Nitrate .....	IM
Nickel Sulfate .....	IM
Nitric Acid - 10% .....	IM
Nitric Acid - 40% .....	SS
Nitric Acid - 70% .....	NR
Nitrobenzene .....	SS
Oil, Sour Crude .....	IM
Oil, Sweet Crude .....	IM
Oleic Acid .....	IM
Oleum .....	NR
Oxalic Acid .....	SS
Perchloric Acid .....	SS
Perchloroethylene .....	IM
Phenol - 5% .....	SS
Phenol - 88% .....	NR
Phosphoric Acid - 50% .....	IM
Phosphoric Acid - 85% .....	SS
Phosphorous Acid - 70% .....	IM
Phosphorous Trichloride .....	IM
Picric Acid - 10% .....	IM
Plating Solutions, Cyanide .....	IM
Plating Solutions, Fluoborate * .....	IM
Potassium Bicarbonate - 10% .....	IM
Potassium Bicarbonate - 50% .....	IM
Potassium Bromide .....	IM
Potassium Carbonate .....	IM
Potassium Chloride .....	IM
Potassium Hydroxide .....	IM
Potassium Iodide .....	IM
Potassium Nitrate .....	IM
Potassium Permanganate .....	IM
Potassium Persulfate .....	IM
Potassium Sulfate .....	IM

**CHEMICAL NAME****TEMPERATURES****38°C**

Propionic Acid .....	SS
Propylene Glycol .....	IM
Pyridine .....	NR
Salt Brine - 30% .....	IM
Silver Nitrate .....	IM
Skydrol .....	SS
Sodium Acetate .....	IM
Sodium Benzoate .....	IM
Sodium Bicarbonate - 10% .....	IM
Sodium Bicarbonate - Sat. ....	IM
Sodium Bisulfate .....	IM
Sodium Bisulfite - Sat. ....	IM
Sodium Carbonate .....	IM
Sodium Chlorate - 50% .....	IM
Sodium Chloride - Sat. ....	IM
Sodium Chlorite - 10% .....	SS
Sodium Chlorite - 50% .....	SS
Sodium Chromate - 50% .....	IM
Sodium Cyanide .....	IM
Sodium Dichromate .....	IM
Sodium Ferrocyanide .....	IM
Sodium Fluoride * .....	IM
Sodium Hydroxide .....	IM
Sodium Hypochlorite - 5.25% .....	SS
Sodium Hypochlorite - 15% .....	NR
Sodium Nitrate .....	IM
Sodium Phosphate - 10% .....	IM
Sodium Silicate .....	IM
Sodium Sulfate .....	IM
Sodium Sulfide .....	IM
Sodium Sulfite .....	IM
Sodium Tartrate .....	IM
Sodium Tetraborate - Sat. ....	IM
Sodium Thiosulfate .....	IM
Stannic Chloride .....	IM
Stannous Chloride .....	IM
Stearic Acid .....	IM
Styrene .....	SS
Sugar Cane .....	IM
Sugar/Sucrose .....	IM
Sulfite/Sulfate Liquors .....	IM
Sulfuric Acid - 5% .....	IM
Sulfuric Acid - 20% .....	SS
Potassium Bromide .....	IM
Potassium Carbonate .....	IM
Potassium Chloride .....	IM
Potassium Hydroxide .....	IM
Tannic Acid .....	IM
Tartaric Acid .....	IM
Tetrachloroethane .....	IM
Thionyl Chloride .....	NR
Toluene .....	SS
Toluene Sulfonic Acid .....	IM
Transformer Oils .....	IM
Trichloroacetic Acid - 50% .....	NR
Trichloroethane .....	IM
Trichloroethylene .....	SS

**CHEMICAL NAME**

**TEMPERATURES  
38°C**

Tricresyl Phosphate .....	IM
Trisodium Phosphate .....	IM
Turpentine .....	IM
Tween Surfactant .....	IM
Urea - 50% .....	IM
Vegetable Oils .....	IM
Vinegar .....	IM
Water, Deionized .....	IM
Water, Distilled .....	IM
Water, Sea .....	IM
Water, Steam Condensate .....	IM
White Liquor .....	IM
Xylene .....	SS
Zinc Chloride - 70% .....	IM
Zinc Chlorate .....	IM
Zinc Nitrate .....	IM
Zinc Sulfate .....	IM
Zinc Sulfite .....	IM

Note: This data is based on laboratory tests performed under carefully controlled conditions. (All solutions are at ambient temperatures.) No warranty can be expressed nor implied regarding the accuracy of this information, as it will apply to actual plant operation or job site use. Plant operations and job site uses vary widely, and the individual results obtained are affected by the specific conditions encountered, which are beyond our control.

**IMPORTANT:**

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