

Chemical compatibility



Doc: ChemComp/01

Jun 2007

Chemical resistance of common metals used in valves.

The information in these tables is offered as a general guide only to the chemical resistance of commonly used materials in the construction of METAL valves.

These tables are *not* to be used as an absolute recommendation as there are too many factors that can influence the corrosion resistance, such as temperature, temperature fluctuations, concentrations and solutions, velocity and abrasion. J+J therefore accept no responsibility for any problems arising from use of these tables.

We recommend that if any doubt exists as to the resistance of a material to a specific chemical, that tests be carried out to verify the compatibility.

What the ratings mean:

Ratings are based on media at ambient/ room temperature unless otherwise stated.

A = EXCELLENT RESISTANCE

B = GOOD OR ACCEPTABLE RESISTANCE

C = POOR RESISTANCE

D = DO NOT USE, NO RESISTANCE

Chemical compatibility



Doc: ChemComp/01

Jun 2007

Chemicals

| Chemicals | Aluminum | Brass | Carbon Steel | Ductile Iron / Cast Iron | 316 Stainless Steel | 17-4PH | Alloy20 | Monel | Hastelloy C | Buna N (Nitrile) | Delrin | EPDM/EPR | Viton | Flexible Graphite | Teflon-Reinforced |
|---------------------------------------|----------|-------|--------------|--------------------------|---------------------|--------|---------|-------|-------------|------------------|--------|----------|-------|-------------------|-------------------|
| Acetaldehyde | B | C | C | C | A | | A | A | A | D | A | B | C | | A |
| Acetamine | B | B | B | B | B | | | | | A | | | | | A |
| Acetate Solvents | A | B | A | B | A | | | A | A | D | D | | D | | A |
| Acetic Acid, Aerated | B | F | D | D | A | | | A | A | C | D | | C | A | A |
| Acetic Acid, Air Free | B | B | D | D | A | A | A | A | A | C | D | | D | A | A |
| Acetic Acid, crude | C | C | C | C | A | A | A | B | A | D | D | | D | A | A |
| Acetic Acid Glacial | | | | | | A | | | | D | | B | C | A | A |
| Acetic Acid, pure | C | C | D | D | A | A | A | D | A | D | D | | D | A | A |
| Acetic Acid 10% | C | C | C | C | A | A | A | B | A | D | B | B | D | A | A |
| Acetic Acid 80% | C | C | C | C | A | A | A | B | A | D | D | C | D | A | A |
| Acetic Acid Vapors | B | D | | | D | D | B | C | A | D | | | | A | A |
| Acetic Anhydride | B | D | D | D | B | B | B | B | A | D | C | C | D | A | A |
| Acetone | A | A | A | A | A | A | A | A | A | D | A | A | D | A | A |
| Other Ketones | A | A | A | A | A | A | A | A | A | D | A | D | D | | A |
| Acetyl Chloride | D | A | | C | C | | | B | A | D | D | D | D | | A |
| Acetylene | A | B | A | A | A | A | A | A | A | B | A | A | A | | A |
| Acid Fumes | B | D | D | D | B | | B | | | C | D | | | | A |
| Acrylonite | B | A | A | C | A | | B | A | A | D | D | D | C | | A |
| Air | A | A | A | A | A | | A | A | A | A | A | A | A | | A |
| Alcohol, Amyl | B | B | B | C | A | | B | B | B | C | A | A | B | A | A |
| Alcohol, Butyl | B | B | B | C | A | | A | A | A | B | A | C | A | A | A |
| Alcohol, Diacetone | A | A | A | A | A | | A | B | A | D | A | B | D | A | A |
| Alcohol, Ethyl | B | B | B | B | B | | A | B | A | A | A | A | A | A | A |
| Alcohol, Fatty | B | B | B | B | A | | A | | A | B | A | | | A | A |
| Alcohol, Isopropyl | B | B | B | B | B | | A | B | B | C | A | A | A | A | A |
| Alcohol, Methyl | B | B | B | B | A | | A | A | A | B | A | A | C | A | A |
| Alcohol, Propyl | A | A | B | B | A | | A | A | A | B | A | A | A | A | A |
| Alumunia | A | A | | | | | | | A | A | A | A | | | A |
| Aluminum Acetate | C | D | | D | A | B | B | C | B | D | D | A | D | | A |
| Aluminum Chloride Dry | B | B | C | D | C | | D | B | B | B | A | A | A | A | A |
| Aluminum Chloride Solution | C | | | | D | C | B | B | B | B | D | | A | A | A |
| Aluminum Fluoride | C | | D | D | C | | B | B | A | A | C | A | A | A | A |
| Aluminum Hydroxide | A | A | D | D | A | B | B | B | A | A | C | A | A | | A |
| Aluminum Nitrate | D | D | | D | C | | B | C | B | B | D | B | D | | A |
| Aluminum Oxalate | B | | | | | | A | B | | | | | | | A |
| Aluminum (Aluminum Potassium Sulfate) | D | D | | D | B | C | B | C | A | B | D | | B | A | A |
| Alum (Aluminum Sulfate) | C | C | D | D | B | A | B | C | A | A | D | A | A | A | A |
| Amines | B | B | B | C | A | A | A | B | B | D | C | C | D | | A |
| Ammonia Alum | C | | | | A | | A | | A | B | C | | | A | A |
| Ammonia, Anhydrous Liquid | A | D | A | B | A | A | A | B | A | B | D | B | D | A | A |
| Ammonia, Aqueous | B | C | C | C | A | | A | A | A | D | A | B | C | | A |
| Ammonia, Gas, hot | B | B | B | B | B | | | | | A | | | | | A |
| Ammonia Liquor | A | B | A | B | A | | | A | A | D | D | | D | | A |
| Ammonia Solutions | B | F | D | D | A | | | A | A | C | D | | C | A | A |
| Ammonium Acetate | B | B | D | D | A | A | A | A | A | C | D | | D | A | A |
| Ammonium Bicarbonate | B | B | C | B | B | | B | B | | B | A | A | A | | A |
| Ammonium Bromide 5% | D | | | | B | | B | B | | | A | | | | A |
| Ammonium Carbonate | B | B | B | B | B | | B | B | | C | D | A | B | | A |
| Ammonium Chloride | D | D | D | D | C | C | B | B | B | B | C | A | A | | A |
| Ammonium Hydroxide 28% | C | D | C | C | B | A | A | F | B | B | D | B | A | A | A |

Ratings: A=Excellent B=Good C=Poor D=Do not use Blank =No Information

Chemical compatibility



Doc: ChemComp/01

Jun 2007

Chemicals

| Chemicals | Aluminum | Brass | Carbon Steel | Ductile Iron / Cast Iron | 316 Stainless Steel | 17-4PH | Alloy20 | Monel | Hastelloy C | Buna N (Nitrile) | Delrin | EPDM/EPR | Viton | Flexible Graphite | Teflon-Reinforced |
|---------------------------------|----------|-------|--------------|--------------------------|---------------------|--------|---------|-------|-------------|------------------|--------|----------|-------|-------------------|-------------------|
| Ammonium Hydroxide Concentrated | C | D | C | C | A | A | A | C | B | C | D | A | A | A | A |
| Ammonium Monosulfate | D | | | | B | | B | B | B | | D | | A | | A |
| Ammonium Nitrate | B | D | D | D | A | A | B | D | B | A | D | A | A | | A |
| Ammonium Oxalate 5% | A | | | | A | | A | D | | | A | | | | A |
| Ammonium Persulfate | C | C | | | A | | A | B | | D | D | B | B | | A |
| Ammonium Phosphate | C | D | D | D | B | | B | C | A | C | C | A | A | | A |
| Ammonium Phosphate Di-basic | B | C | D | D | B | | B | C | A | A | A | | A | | A |
| Ammonium Phosphate Tri-basic | C | C | D | D | B | | B | C | A | A | A | | A | | A |
| Ammonium Sulfate | C | C | C | D | B | B | B | B | A | B | B | A | B | A | A |
| Ammonium Sulfide | C | D | D | D | B | | B | B | A | A | A | A | D | | A |
| Ammonium Sulfite | C | C | C | C | A | | B | D | | B | A | B | A | | A |
| Amyl Acetate | B | B | C | C | B | A | A | B | A | D | A | B | D | | A |
| Amyl Chloride | D | B | | B | A | | A | B | B | D | A | D | D | | A |
| Aniline | C | D | C | C | B | | A | B | B | D | D | C | C | A | A |
| Aniline Dyes | C | C | C | C | A | | A | A | | C | A | C | B | | A |
| Apple Juice | B | C | D | D | B | | A | A | | A | A | B | A | | A |
| Aqua Regia (Strong Acid) | D | D | D | D | B | | B | B | | D | D | D | D | D | A |
| Aromatic Solvents | A | A | C | B | A | | A | B | | D | A | D | D | | A |
| Arsenic Acid | D | D | D | D | B | | B | D | B | A | D | B | A | A | A |
| Asphalt Emulsion | C | A | B | B | A | | A | A | A | D | A | D | A | | A |
| Asphalt Liquid | C | A | B | B | A | | A | A | A | C | A | D | A | | A |
| Barium Carbonate | C | B | B | B | B | | B | B | A | B | A | A | A | | A |
| Barium Chloride | D | B | C | C | B | B | C | B | | A | A | A | A | | A |
| Barium Cyanide | D | C | | C | B | | B | D | | B | A | B | B | | A |
| Barium Hydrate | D | D | | | A | | A | B | | | A | | | | A |
| Barium Hydroxide | D | C | C | B | B | A | A | B | | A | A | B | A | | A |
| Barium Nitrate | B | | | | A | | A | | | A | A | | | | A |
| Barium Sulfate | D | C | C | C | A | | A | B | | A | A | B | A | | A |
| Barium Sulfide | D | D | C | D | B | | B | C | | A | A | A | A | | A |
| Beer | A | B | D | D | A | A | A | A | | B | A | B | A | | A |
| Beet Sugar Liquors | A | A | B | B | A | | A | A | | A | A | B | A | | A |
| Benzaldehyde | A | A | A | C | A | | A | B | B | D | A | A | D | | A |
| Benzene (Benzol) | B | B | B | B | B | B | A | A | B | D | C | D | B | A | A |
| Benzoic Acid | B | B | D | D | B | A | B | B | A | C | A | D | B | | A |
| Beryllium Sulfate | B | B | | B | B | | A | B | | B | A | B | B | | A |
| Bleaching Powder Wet | | B | | | C | | B | A | D | D | B | B | B | | A |
| Blood (meat juices) | B | B | | D | A | A | A | | B | A | B | B | B | | A |
| Borax (Sodium Borate) | C | D | C | C | A | | | A | B | A | A | A | A | | A |
| Bordeaux Mixture | | | | | A | | A | | | A | | | | | A |
| Borax Liquors | C | A | C | C | B | | A | B | | A | A | A | A | | A |
| Boric Acid | B | C | D | D | B | | B | B | A | B | A | B | A | A | A |
| Brake Fluid | B | B | | B | B | A | | B | | D | B | B | D | | A |
| Brines, Saturated | C | B | D | C | B | | B | B | A | A | A | A | A | | A |
| Bromine, Dry | C | B | D | D | D | | B | B | A | D | D | D | B | B | A |
| Bunker Oils (Fuel) | A | B | B | B | A | | A | A | | B | A | | A | | A |
| Butadiene | B | C | B | B | A | | A | C | B | C | A | C | B | | D |
| Butane | A | A | B | B | A | | A | B | A | B | A | D | A | | A |
| Butter | | | | | A | | A | | | B | A | | | | A |
| Buttermilk | A | D | D | D | A | | A | D | | A | A | B | A | | A |
| Butyl Acetate | B | B | | B | B | | A | B | B | D | B | D | D | | A |

Ratings: A=Excellent B=Good C=Poor D=Do not use Blank =No Information

Chemical compatibility



Doc: ChemComp/01

Jun 2007

Chemicals

| Chemicals | Aluminum | Brass | Carbon Steel | Ductile Iron / Cast Iron | 316 Stainless Steel | 17-4PH | Alloy20 | Monel | Hastelloy C | Buna N (Nitrile) | Delrin | EPDM/EPR | Viton | Flexible Graphite | Teflon-Reinforced |
|---------------------------|----------|-------|--------------|--------------------------|---------------------|--------|---------|-------|-------------|------------------|--------|----------|-------|-------------------|-------------------|
| Butylene | A | A | A | A | A | | A | A | | D | A | D | D | | A |
| Butyric Acid | B | C | D | D | B | | B | B | A | C | A | C | C | | A |
| Calcium Bisulfite | C | C | D | D | B | | B | D | B | A | D | D | A | | A |
| Calcium Carbonate | C | C | D | D | B | | B | B | B | A | A | B | A | | A |
| Calcium Chlorate | B | D | | C | B | | B | B | | B | D | B | B | B | A |
| Calcium Chloride | C | B | C | C | B | B | B | B | A | A | A | B | A | | A |
| Calcium Hydroxide | D | C | C | C | B | | B | A | A | A | A | A | A | | A |
| Calcium Nitrate | B | | | | B | | B | | | B | C | B | | | A |
| Calcium Phosphate | D | C | | C | B | | B | | | B | B | B | B | | A |
| Calcium Silicate | D | C | | C | B | | B | | | B | A | B | B | | A |
| Calcium Sulfate | B | C | C | C | B | B | B | B | B | A | A | B | A | | A |
| Caliche Liquor | | | B | | A | | A | | | B | A | | | | A |
| Camphor | C | C | | C | B | | C | C | | B | A | B | B | | A |
| Cane Sugar Liquors | A | B | | B | A | | A | B | | B | A | B | B | | A |
| Carbonated Beverages | B | B | D | B | B | B | B | C | | B | A | B | B | A | A |
| Carbonated Water | A | B | B | A | A | B | A | B | | A | A | A | A | A | A |
| Carbon Bisulfide | A | C | B | B | B | | B | B | | D | A | D | A | | A |
| Carbon Dioxide, Dry | A | A | A | B | A | A | A | A | | C | A | B | B | A | A |
| Carbonic Acid | A | D | D | D | B | B | A | B | | B | A | B | A | A | A |
| Carbon Monoxide | A | A | | B | A | A | A | A | A | B | A | B | B | | A |
| Carbon Tetrachloride, dry | B | C | B | C | A | A | A | A | A | D | A | D | B | A | A |
| Carbon Tetrachloride, wet | | D | D | D | B | | B | B | B | D | B | D | B | A | A |
| Casein | C | C | | C | B | | B | C | | B | A | B | B | | A |
| Caster Oil | A | A | B | B | A | | A | A | A | A | A | B | A | | A |
| Caustic Potash | | | | | A | | A | B | | B | D | | | | A |
| Caustic Soda | D | | B | B | A | | A | A | | C | D | B | B | | A |
| Cellulose Acetate | B | B | | B | B | | | B | B | D | C | B | D | | A |
| China Wood Oil (Tung) | A | C | C | C | A | | A | A | A | A | A | D | A | | A |
| Chlorinated Solvents | D | C | C | C | A | | A | B | | D | A | D | C | | A |
| Chlorinated Water | C | | | | C | D | A | D | D | B | D | | A | B | A |
| Chlorine Gas, Dry | B | C | B | B | B | C | A | A | A | C | D | D | B | A | A |
| Chlorobenzene, dry | B | B | B | B | A | | A | B | B | D | B | D | A | | A |
| Chloroform, dry | D | B | B | C | A | B | A | A | B | D | A | D | B | | A |
| Chlorophyll, dry | B | B | | B | B | | A | B | | B | | B | B | | A |
| Chlorosulfonic Acid, dry | B | C | B | B | B | | B | B | A | D | D | D | D | | A |
| Chrome Alum | C | C | B | C | A | | A | B | | B | B | B | B | | A |
| Chromic Acid<50% | C | D | D | D | C | C | B | C | B | D | D | C | C | | A |
| Chromic Acid>50% | D | D | D | C | C | D | B | D | B | D | D | C | C | | A |
| Chromium Sulfate | B | C | | D | B | | C | B | | B | C | B | B | | A |
| Cider | B | | | | A | | B | A | | | A | | | | A |
| Citric Acid | B | C | D | D | B | C | A | B | A | B | A | B | A | A | A |
| Citrus Juices | C | B | D | D | B | | A | A | | A | A | | A | A | A |
| Coca Cola Syrup | | | | | A | | A | | | B | A | | B | | A |
| Coconut Oil | B | B | C | C | B | | A | B | | A | A | A | A | | A |
| Coffee | A | A | | D | A | | A | B | | A | A | A | A | | B |
| Coffee Extracts, hot | A | B | C | C | A | | A | A | | | A | | | | A |
| Coke Oven Gas | A | C | B | B | A | | A | B | | C | D | D | B | | A |
| Cooking Oil | B | B | B | B | A | | A | A | | A | A | D | A | | A |
| Copper Acetate | D | D | D | D | A | | A | C | B | C | D | B | D | | A |
| Copper Carbonate | D | | | | A | | A | | | | A | | | | A |

Ratings: A=Excellent B=Good C=Poor D=Do not use Blank =No Information

Chemical compatibility



Doc: ChemComp/01

Jun 2007

Chemicals

| | Aluminum | Brass | Carbon Steel | Ductile Iron / Cast Iron | 316 Stainless Steel | 17-4PH | Alloy20 | Monel | Hastelloy C | Buna N (Nitrile) | Delrin | EPDM/EPR | Viton | Flexible Graphite | Teflon-Reinforced |
|-------------------------------|----------|-------|--------------|--------------------------|---------------------|--------|---------|-------|-------------|------------------|--------|----------|-------|-------------------|-------------------|
| Copper Cyanide | D | D | D | D | A | | A | C | | A | A | B | B | | A |
| Copper Nitrate | D | D | D | D | B | | B | D | | A | A | B | A | | A |
| Copper Sulfate | D | D | D | D | B | B | B | C | A | A | A | A | A | A | A |
| Corn Oil | B | B | C | C | B | | B | B | | A | A | C | A | | A |
| Cottonseed Oil | B | B | C | C | B | | B | B | | A | A | C | B | | A |
| Cresol | | | | | B | | B | | | D | D | D | D | | A |
| Creosote Oil | B | B | B | B | B | B | A | B | B | C | D | D | A | | A |
| Cresylic Acid | C | C | C | D | B | | B | B | | D | D | D | B | | A |
| Crude Oil, sour | B | C | B | C | A | | A | B | | A | A | D | A | | A |
| Crude Oil, sweet | A | B | B | B | A | | A | A | | A | A | | A | | A |
| Cupric Nitrate | D | | | | A | | A | D | | | D | | | | A |
| Cutting Oils, Water Emulsions | A | A | B | B | A | | A | | | A | A | | A | | A |
| Cyanide Plating Solution | D | D | | D | B | | B | D | | B | D | B | B | | A |
| Cyclohexane | A | A | A | A | A | | A | B | B | C | A | D | A | | A |
| Cyclohexanone | B | B | | | A | | A | B | B | D | A | | | | A |
| Detergents, Synthetic | B | B | | B | B | | A | B | | B | A | B | A | | A |
| Dextrin | B | B | | B | B | | B | B | | B | A | B | B | | A |
| Dichloroethane | | | | C | C | | B | B | | D | D | D | | | A |
| Dichloroethyl Ether | B | B | | B | B | | B | | | D | D | D | D | | A |
| Diesel Oil Fuels | A | A | | A | A | | A | A | | A | A | D | A | | A |
| Diethylamine | B | B | A | B | A | | A | B | | B | A | C | D | | A |
| Diethyl Benzene | | | | | B | | B | | | D | C | D | | | A |
| Diethylene Glycol | B | B | A | A | A | | A | B | | A | A | A | B | | A |
| Diethyl Sulfate | B | B | | B | B | | B | B | | C | A | C | B | | A |
| Dimethyl Formamide | B | B | | B | A | | A | B | | B | A | D | D | | A |
| Dimethyl Phthalate | | | | | | | | | | B | C | | D | | A |
| Dioxane | B | B | | B | B | | B | B | | D | C | C | D | A | A |
| Dipentane (Pinene) | A | A | | A | A | | A | | | B | A | D | B | | A |
| Disodium phosphate | B | | | B | B | | B | C | | B | A | | B | | A |
| Dowtherm | A | A | B | B | A | | A | A | | D | A | D | A | A | A |
| Drilling Mud | B | B | B | B | A | | A | A | | B | A | A | A | | A |
| Dry Cleaning Fluids | A | C | B | B | A | | A | A | | B | D | A | B | | A |
| Drying Oil | C | C | C | B | B | | B | B | | B | A | A | | | A |
| Enamel | | A | | | | | | | | | B | A | | | A |
| Epsom Salts (MgSo4) | A | B | C | C | B | | B | B | | B | A | A | A | | A |
| Ethane | A | B | C | C | B | | B | B | | A | A | D | A | | A |
| Ethers | A | B | A | B | A | B | A | B | | D | C | C | C | | A |
| Ethyl Acetate | A | C | B | C | B | A | B | B | B | D | C | C | D | | A |
| Ethyl Acrylate | C | B | C | C | A | | A | B | | D | B | C | D | | A |
| Ethyl Benzene | | | | | | | A | | A | A | C | A | D | | A |
| Ethyl Bromide | B | A | | B | B | | C | B | | B | A | B | B | | A |
| Ethyl Chloride, dry | B | B | B | B | A | A | A | B | B | C | A | C | B | | B |
| Ethyl Chloride, wet | D | C | C | D | B | | B | B | B | C | A | B | B | | A |
| Ethylene Chloride | C | | | | A | | A | B | B | D | A | | D | | A |
| Ethylene Dichloride | | | | | B | | A | B | | D | C | D | D | A | A |
| Ethylene Glycol | A | B | B | B | B | A | A | B | A | A | A | A | A | | A |
| Ethylene Oxide | C | C | B | B | B | | B | B | A | D | A | D | D | | A |
| Ethyl Ether | | B | | C | A | | A | A | B | D | A | D | D | | A |
| Ethyl Silicate | B | B | | B | B | | B | B | | B | A | B | B | | A |
| Ethyl Sulfate | A | | | | B | | B | | | B | A | C | A | | A |

Ratings: A=Excellent B=Good C=Poor D=Do not use Blank =No Information

Chemical compatibility



Doc: ChemComp/01

Jun 2007

Chemicals

| | Aluminum | Brass | Carbon Steel | Ductile Iron / Cast Iron | 316 Stainless Steel | 17-4PH | Alloy20 | Monel | Hastelloy C | Buna N (Nitrile) | Delrin | EPDM/EPR | Viton | Flexible Graphite | Teflon-Reinforced |
|----------------------------|----------|-------|--------------|--------------------------|---------------------|--------|---------|-------|-------------|------------------|--------|----------|-------|-------------------|-------------------|
| Fatty Acids | B | C | D | D | A | | A | B | A | B | A | D | A | A | A |
| Ferric Hydroxide | | | | | A | | A | A | | B | A | | | | A |
| Ferric Nitrate | D | D | D | D | C | B | A | D | B | A | A | A | A | | A |
| Ferric Sulfate | D | D | D | D | B | B | A | D | | A | A | A | A | | A |
| Ferrous Ammonium Citrate | B | | | | B | | B | | | A | | | | | A |
| Ferrous Chloride | D | B | D | D | D | | D | D | D | A | A | A | A | A | A |
| Ferrous Sulfate | C | B | D | D | B | | B | B | B | A | A | A | A | A | A |
| Ferrous Sulfate, Saturated | C | C | C | C | A | | A | B | B | C | A | B | B | | A |
| Fertilizer Solutions | B | C | B | B | B | | B | B | | B | | | | | A |
| Fish Oils | C | B | B | B | A | | A | A | | A | A | D | A | | A |
| Flue Gases | C | B | | B | A | | A | B | | C | C | D | C | | A |
| Fluoboric Acid | B | | | | B | | A | | | A | D | | | | A |
| Fluorosilicic Acid | D | B | D | D | B | | B | A | B | C | C | C | C | | A |
| Formaldehyde, cold | A | A | A | B | A | A | A | A | B | B | A | B | D | | A |
| Formaldehyde, hot | B | B | D | D | C | | B | B | B | B | A | | | | A |
| Formic Acid, cold | D | B | D | D | B | B | A | B | A | D | D | | B | A | A |
| Formic Acid, hot | D | B | D | D | B | D | B | B | B | D | D | | A | A | A |
| Freon Gas, dry | B | B | B | B | A | A | A | B | B | C | A | C | C | A | A |
| Freon 11, MF, 112, BF | B | B | | C | A | | A | B | B | C | A | C | D | A | |
| Freon 12, 12, 32, 114, 115 | A | A | | B | A | | A | B | B | B | A | A | D | A | |
| Freon 21, 31 | B | B | | C | A | | A | B | B | D | A | D | D | A | |
| Freon 22 | A | A | | B | | | A | | B | D | A | D | D | A | |
| Freon 113, TF | B | B | | C | A | | A | B | B | B | A | C | C | A | |
| Freon, wet | D | D | | D | C | B | B | B | B | B | A | B | D | A | A |
| Fruit Juices | B | B | D | D | A | | A | B | | A | A | A | A | | A |
| Fuel Oil | A | B | B | B | A | | A | B | | A | A | D | A | | A |
| Fumaric Acid | | | | | | | A | | | B | A | | | | A |
| Furfural | A | A | A | B | A | B | A | B | B | B | A | C | D | | A |
| Gallic Acid 5% | A | C | D | D | B | | B | B | B | D | A | C | A | | A |
| Gas, Manufactured | B | B | B | B | B | | B | A | | A | A | | A | | A |
| Gas, Natural | B | B | B | B | A | | B | A | | A | A | D | A | | A |
| Gas, Odorizers | A | A | B | B | B | | A | B | | B | A | | A | | A |
| Gasoline, Aviation | A | A | A | B | A | | A | A | A | C | A | | A | A | A |
| Gasoline, Leaded | A | A | A | A | A | | A | B | A | C | A | | A | A | A |
| Gasoline, Motor | A | A | A | B | | A | A | A | A | C | A | D | A | A | A |
| Gasoline, Refined | A | B | B | B | A | | A | B | A | C | A | D | A | A | A |
| Gasoline, sour | A | B | B | B | A | | A | C | A | C | A | D | A | A | A |
| Gasoline, Unleaded | A | A | A | B | A | | A | A | A | C | A | | A | A | A |
| Gelatine | A | A | D | D | A | | A | B | | A | A | A | A | | A |
| Glucose | A | A | B | B | A | | A | A | A | A | A | A | A | | A |
| Glue | A | B | A | B | B | | A | B | A | A | A | B | A | | A |
| Glycerine (Glycerol) | A | B | C | B | A | A | A | A | A | C | A | A | B | A | |
| Glycol Amine | C | D | | B | B | A | | | D | A | C | D | D | A | |
| Glycol | A | B | C | B | B | | A | B | | B | C | A | A | | A |
| Graphite | B | B | | C | B | | A | B | | B | A | B | B | | A |
| Grease | B | C | A | A | A | | A | B | | A | A | D | A | | A |
| Helium Gas | B | B | | B | A | | A | B | A | B | A | B | B | | A |
| Heptane | A | A | B | B | A | | A | B | A | A | A | D | A | | A |
| Hexane | A | B | B | B | A | | A | B | A | A | A | D | A | | A |
| Hexanol, Tertiary | A | A | A | A | A | | A | A | A | A | A | D | B | | A |

Ratings: A=Excellent B=Good C=Poor D=Do not use Blank =No Information

Chemical compatibility



Doc: ChemComp/01

Jun 2007

Chemicals

| Chemicals | Aluminum | Brass | Carbon Steel | Ductile Iron / Cast Iron | 316 Stainless Steel | 17-4PH | Alloy20 | Monel | Hastelloy C | Buna N (Nitrile) | Delrin | EPDM/EPR | Viton | Flexible Graphite | Teflon-Reinforced |
|---------------------------------|----------|-------|--------------|--------------------------|---------------------|--------|---------|-------|-------------|------------------|--------|----------|-------|-------------------|-------------------|
| Hydraulic Oilm Petroleum Base | A | B | A | B | A | | A | A | | A | A | D | A | | A |
| Hydrazine | C | D | | D | B | | B | D | | C | D | B | D | | A |
| Hydrocyanic Acid | A | D | D | C | A | | A | C | B | B | D | B | A | | A |
| Hydrofluosilicic Acid | D | A | D | D | C | | C | B | | B | A | B | A | A | A |
| Hydrogen Gas, cold | A | B | B | B | A | | A | A | | B | A | B | A | | A |
| Hydrogen Gas, hot | C | | B | | B | | A | | A | B | A | B | | | A |
| Hydrogen Peroxide, Concentrated | A | D | D | D | B | | B | D | D | D | D | B | B | | A |
| Hydrogen Peroxide, Dilute | A | C | D | D | B | | B | D | D | A | D | B | A | | A |
| Hydrogen Sulfide, Dry | A | C | B | B | A | B | B | B | B | C | C | A | A | A | A |
| Hydrogen Sulfide, Wet | B | D | C | D | B | | B | C | D | C | C | B | A | A | A |
| Hypo (Sodium Thiosulfate) | B | C | D | D | B | | B | B | | C | A | A | A | | A |
| Illuminating Gas | A | A | A | A | A | | A | A | | A | A | D | A | | A |
| Ink-Newsprint | C | C | D | D | A | | A | B | | A | A | B | A | | A |
| Iodoform | C | C | B | C | A | | A | C | | | A | | A | | A |
| Iso-Butane | | | | | B | | B | | | B | A | D | | | A |
| Iso-Octane | A | A | A | B | A | | B | | A | A | A | D | A | | A |
| Isopropyl Acetate | | | | | B | | | | D | D | A | D | | A | A |
| Isopropyl Ether | B | A | A | B | A | | B | A | C | C | A | D | D | A | A |
| JP-4 Fuel | A | A | A | B | A | | A | A | A | A | A | | A | | A |
| JP-5 Fuel | A | A | A | A | A | | B | A | B | B | A | | A | | A |
| JP-6 Fuel | A | A | A | A | A | | A | A | A | A | A | | A | | A |
| Kerosene | A | A | B | B | A | | A | A | A | A | A | D | A | A | A |
| Ketchup | D | D | D | D | A | | A | B | | A | A | | A | | A |
| Ketones | A | A | A | A | A | | A | A | | D | A | D | D | | A |
| Laquer (and Solvent) | A | A | C | C | A | | A | A | | D | A | D | D | | A |
| Lactic Acid Concentrated cold | C | D | D | D | A | D | A | D | A | B | D | B | A | A | A |
| Lactic Acid Concentrated hot | C | D | D | D | B | D | A | D | B | C | D | B | B | A | A |
| Lactic Acid Dilute cold | A | D | D | D | A | B | A | C | A | B | D | B | A | A | A |
| Lactic Acid Dilute hot | B | D | D | D | A | D | A | D | B | C | D | | D | A | A |
| Lactose | B | B | | C | B | | B | B | | B | A | B | B | | A |
| Lard | A | B | | A | A | | A | | | B | A | C | | | A |
| Lard Oil | B | B | C | C | B | | A | B | | A | A | B | A | | A |
| Lead Acetate | D | C | D | D | B | | B | B | | A | A | B | B | | A |
| Lead Sulfate | D | C | | D | B | | B | B | | B | A | B | B | | A |
| Lecithin | C | C | | C | B | | B | B | | D | A | D | B | | A |
| Linoleic Acid | A | B | B | B | A | | A | B | | B | A | D | B | | A |
| Linseed Oil | A | B | A | A | A | | A | B | | A | A | D | A | | A |
| Lithium Chloride | D | B | | B | B | | A | B | | B | A | B | B | | A |
| LPG | A | A | B | B | B | | B | B | | A | A | D | A | | A |
| Lubricating Oil Petroleum Base | A | B | A | A | A | | A | B | | A | A | D | A | | A |
| Ludox | D | D | | B | B | | B | B | | B | B | B | B | | A |
| Magnesium Bisulfate | B | B | B | B | A | | A | B | | B | A | B | B | | A |
| Magnesium Bisulfade | C | D | | D | B | | B | B | | B | A | B | B | | A |
| Magnesium Carbonate | B | A | | B | A | | A | B | | B | A | B | B | | A |
| Magnesium Chloride | C | B | C | D | B | C | B | B | A | A | A | A | A | | A |
| Magnesium Hydroxide | D | B | B | B | A | A | A | B | B | A | A | A | A | | A |
| Magnesium Hydroxide Hot | D | D | B | B | A | A | A | A | B | B | A | | A | | A |
| Magnesium Nitrate | B | | | | A | | A | B | | B | A | | B | | A |
| Magnesium Sulfate | B | B | B | B | A | A | A | B | A | A | A | A | A | | A |
| Maleic Acid | B | B | B | C | B | | B | B | A | B | A | D | A | | A |

Ratings: A=Excellent B=Good C=Poor D=Do not use Blank =No Information

Chemical compatibility



Doc: ChemComp/01

Jun 2007

Chemicals

| Chemicals | Aluminum | Brass | Carbon Steel | Ductile Iron / Cast Iron | 316 Stainless Steel | 17-4PH | Alloy20 | Monel | Hastelloy C | Buna N (Nitrile) | Delrin | EPDM/EPR | Viton | Flexible Graphite | Teflon-Reinforced |
|-------------------------|----------|-------|--------------|--------------------------|---------------------|--------|---------|-------|-------------|------------------|--------|----------|-------|-------------------|-------------------|
| Maleic Anhydride | B | B | | B | B | | B | B | B | D | C | D | B | | A |
| Malic Acid | B | B | D | D | B | | B | B | | A | A | | A | | A |
| Malt Beverages | | | | | A | | B | A | | A | A | B | A | | A |
| Managanese Carbonate | B | | | | B | | A | | | B | A | | | | A |
| Manganese Sulfate | B | B | | D | A | | A | B | | B | A | B | B | A | A |
| Mayonnaise | D | D | D | D | A | | A | B | | A | A | | A | | A |
| Meat Juices | B | D | | | A | | A | | | B | A | | | | A |
| Melamine Resins | | | | D | C | | C | | | B | A | | | | A |
| Methanol | B | B | | B | A | | A | B | | B | C | D | B | | A |
| Mercuric Chloride | D | D | D | D | B | | B | D | B | A | A | A | A | | A |
| Mercuric Cyanide | D | D | D | D | A | | A | C | B | A | A | A | A | | A |
| Mercurous Nitrate | D | D | | | A | | A | D | | A | A | | B | | A |
| Mercury | D | D | A | A | A | | A | B | B | A | A | A | A | | A |
| Methane | A | A | B | B | A | | A | B | A | A | A | | A | | A |
| Methyl Acetate | A | A | B | B | A | | A | B | A | D | B | B | D | | A |
| Methyl Acetone | A | A | A | A | A | | A | A | | D | B | A | D | | A |
| Methylamine | A | D | B | B | A | | A | C | B | D | A | B | D | | A |
| Methyl Bromide 100% | C | C | | D | B | | A | B | | B | A | D | B | | A |
| Methyl Cellosolve | A | A | B | B | A | | A | B | | B | C | A | B | | A |
| Metyl Cellulose | | | | | A | | A | | B | D | A | | | | A |
| Methyl Chloride | D | B | B | B | A | | A | B | | D | A | D | B | | A |
| Methyl Ethyl Ketone | A | A | A | A | A | | A | A | B | D | A | B | D | A | A |
| Methylene Chloride | C | A | B | B | A | | A | B | B | D | A | D | C | | A |
| Methyl Formate | C | A | C | C | B | | A | B | B | D | A | B | D | | A |
| Methyl Isobutyle ketone | | | | | A | | A | | | D | A | | | A | A |
| Milk & Milk Products | A | B | D | D | A | | A | B | | A | A | A | A | | A |
| Mineral Oils | A | B | B | B | A | | A | A | | A | A | D | A | | A |
| Mineral Spirits | A | B | B | B | B | | B | B | | A | A | | A | | A |
| Mixed Acids (cold) | D | D | C | C | B | | B | C | | D | D | D | B | | A |
| Molasses, crude | B | A | A | A | A | | A | A | | A | A | | A | | A |
| Molasses, Edible | A | A | C | C | A | | A | A | | A | A | | A | | A |
| Molybdc Acid | | | | | A | | A | | | A | A | | | | A |
| Monochloro Benzene Dry | | | | | B | | B | B | | D | C | | | A | A |
| Morphine | B | B | | B | A | | A | B | | D | A | B | D | | A |
| Mustard | B | A | B | B | A | | A | A | | A | A | | A | | A |
| Naptha | A | B | B | B | B | | B | B | A | B | A | D | A | | A |
| Napthalene | B | B | B | B | B | | B | B | B | D | A | D | A | | A |
| Natural Gas, Sour | B | B | B | B | A | | A | D | A | A | A | D | A | | A |
| Nickel Ammonium Sulfate | D | D | D | D | A | | A | C | | A | C | B | D | | A |
| Nickel Chloride | D | D | D | D | B | | A | B | A | A | D | B | A | A | A |
| Nickel Nitrate | C | D | D | D | B | | A | B | | A | C | A | A | | A |
| Nickel Sulfate | D | D | D | D | B | | A | B | B | A | C | B | A | A | A |
| Nicotinic Acid | A | A | B | C | A | | A | A | | D | C | D | B | | A |
| Nitric Acid 10% | D | D | D | D | A | A | A | D | | C | D | | A | A | A |
| Nitric Acid 30% | D | D | D | D | A | D | A | D | | C | D | B | A | B | A |
| Nitric Acid 80% | B | D | D | D | C | D | B | D | | D | D | B | B | B | A |
| Nitric Acid 100% | B | D | D | D | A | D | A | D | | D | D | D | B | B | A |
| Nitric Acid Anhydrous | B | D | D | C | A | D | A | D | | D | D | D | C | B | A |
| Nitrobenzene | C | D | B | B | A | | A | B | B | D | B | C | C | | A |
| Nitrogen | A | A | A | A | A | | A | A | | A | A | B | A | | A |

Ratings: A=Excellent B=Good C=Poor D=Do not use Blank =No Information

Chemical compatibility



Doc: ChemComp/01

Jun 2007

Chemicals

| Chemicals | Aluminum | Brass | Carbon Steel | Ductile Iron / Cast Iron | 316 Stainless Steel | 17-4PH | Alloy20 | Monel | Hastelloy C | Buna N (Nitrile) | Delrin | EPDM/EPR | Viton | Flexible Graphite | Teflon-Reinforced |
|---------------------------------------|----------|-------|--------------|--------------------------|---------------------|--------|---------|-------|-------------|------------------|--------|----------|-------|-------------------|-------------------|
| Nitrus Acid 10% | D | D | D | D | B | | B | D | | C | B | | A | | A |
| Nitrous Gases | B | D | B | C | A | | A | D | | B | B | | | | A |
| Nitrous Oxide | C | B | B | C | B | | B | D | B | B | A | | A | | A |
| Oils & Fats | B | | | | A | | A | | | B | A | D | | | A |
| Oils, Animal | A | A | A | A | A | | A | B | A | A | A | B | B | | A |
| Oils, Petroleum | A | B | A | A | A | | A | A | A | A | A | A | D | | A |
| Oils, Petroleum Sour | A | C | B | C | A | | A | A | A | A | B | A | D | | A |
| Oils, Water Mixture | A | A | B | B | A | | A | | A | A | A | A | | | A |
| Olaic Acid | B | | | | B | | B | A | A | | D | C | | | A |
| Oleic Acid | B | B | C | C | B | | A | B | B | B | B | C | D | A | A |
| Oleum | B | C | B | D | B | | B | C | B | D | D | D | C | | A |
| Oleum Spirits | D | D | | D | B | | B | D | | C | D | D | A | | A |
| Olive Oil | B | C | B | B | A | | A | A | | A | A | B | A | | A |
| Oxalic Acid | C | B | D | D | B | | IB | B | | C | C | B | A | A | A |
| Oxygen | A | A | B | B | A | | AA | A | A | B | D | A | A | | A |
| Ozone, Dry | A | A | A | A | A | | A | A | A | D | C | A | B | | A |
| Ozone, Wet | B | B | C | C | A | | A | A | A | D | C | B | B | | A |
| Paints & Solvents | A | A | A | A | A | | A | A | | D | A | D | B | | A |
| Palmitic Acid | B | B | C | C | B | | B | B | | B | A | B | A | | A |
| Palm Oil | A | B | C | C | B | | A | A | | B | A | D | A | | A |
| Paper Pulp | D | B | | B | A | | A | B | | B | A | B | B | | |
| Paraffin | A | A | B | B | A | | A | A | A | A | A | D | A | | A |
| Paraformaldehyde | B | B | B | B | B | | B | B | | B | A | D | | | A |
| Paraldehyde | | | | | B | | B | | | B | A | D | | A | A |
| Pentane | A | A | B | B | A | | A | B | | A | A | D | A | | A |
| Perchlorethylene, Dry | B | C | B | B | A | | A | B | B | D | B | D | A | | A |
| Petrolatum (Vaseline Petroleum Jelly) | B | B | C | C | B | | A | A | | A | A | A | A | | A |
| Phenol | A | B | D | D | A | | BA | A | | D | C | D | B | | A |
| Phosphate Ester 10% | D | D | A | A | A | | A | A | A | D | A | A | A | | A |
| Phosphate Acid 10% | D | D | D | D | D | | IB | D | | B | D | B | A | A | A |
| Phosphoric Acid 50% Cold | D | D | D | D | B | | IB | C | | B | D | B | A | A | A |
| Phosphoric Acid 50% Hot | D | D | D | D | D | | IB | C | | B | D | B | A | A | A |
| Phosphoric Acid 85% Cold | D | D | B | B | A | | CB | A | | C | D | | B | A | A |
| Phosphoric Acid 85% Hot | D | D | C | C | B | | IB | | | C | D | | A | A | A |
| Phosphoric Anhydride | A | | | | A | | A | | | D | B | | B | A | A |
| Phophorous Trichloride | D | | B | C | A | | A | | | D | D | B | B | A | A |
| Phthalic Acid | B | B | C | C | B | | B | A | B | C | B | | A | | A |
| Phthalic Anhydride | B | B | C | C | B | | B | A | A | C | A | | A | | A |
| Picric Acid | C | C | D | D | B | | CB | D | B | C | D | B | B | | A |
| Pineapple Juice | A | C | C | C | A | | A | A | | A | A | | A | | A |
| Pine Oil | B | B | B | B | A | | A | B | | A | A | D | A | | A |
| Pitch (Bitumen) | | | | | A | | A | | | C | A | D | | | A |
| Polysulfide | D | D | | B | B | | A | B | | B | D | B | B | | A |
| Polyvinyl Acetate | B | B | | B | B | | B | B | | | A | B | | | A |
| Polyvinyl Chloride | B | B | | B | B | | B | B | | | A | B | | | A |
| Potassium Bicarbonate | A | | | | A | | A | B | | B | A | | | | A |
| Potassium Bichromate | A | | | | A | | A | A | | B | B | | B | | A |
| Potassium Bisulfate | B | | | | A | | A | B | | B | A | B | A | | A |
| Potassium Bisulfate | C | C | D | D | B | | B | D | | A | A | B | A | | A |
| Potassium Bromide | C | C | D | D | A | | CB | B | | A | A | | A | | A |

Ratings: A=Excellent B=Good C=Poor D=Do not use Blank =No Information

Chemical compatibility



Doc: ChemComp/01

Jun 2007

Chemicals

| | Aluminum | Brass | Carbon Steel | Ductile Iron / Cast Iron | 316 Stainless Steel | 17-4PH | Alloy20 | Monel | Hastelloy C | Buna N (Nitrile) | Delrin | EPDM/EPR | Viton | Flexible Graphite | Teflon-Reinforced |
|----------------------------------|----------|-------|--------------|--------------------------|---------------------|--------|---------|-------|-------------|------------------|--------|----------|-------|-------------------|-------------------|
| Potassium Carbonate | D | B | B | B | B | A | B | B | | A | A | B | A | | A |
| Potassium Chlorate | C | B | B | B | B | B | B | C | | A | A | B | A | | A |
| Potassium Chloride | D | C | C | B | B | B | A | B | B | A | A | A | A | | A |
| Potassium Chromate | B | B | | B | B | | B | B | | B | A | B | B | | A |
| Potassium Cyanide | D | D | B | B | B | | B | B | B | A | A | A | A | | A |
| Potassium Dichromate | A | D | C | C | B | | A | B | | A | A | B | A | | A |
| Potassium Ferricyanide | B | D | C | C | A | B | B | B | | A | A | B | A | | A |
| Potassium Ferrocyanide | B | B | C | C | B | | B | A | | A | A | | A | | A |
| Potassium Hydroxide Dilute Cold | D | D | A | A | B | B | B | A | | A | D | | D | | A* |
| Potassium Hydroxide to 70%, Cold | D | D | B | B | B | C | B | A | | B | D | A | | | A* |
| Potassium Hydroxide Dilute Hot | D | D | B | B | B | C | B | A | | B | D | A | | | A* |
| Potassium Hydroxide to 70%, Hot | D | D | A | B | B | D | B | A | | C | D | | | | A* |
| Potassium Iodide | D | D | C | C | B | B | B | C | | A | A | B | A | | A |
| Potassium Nitrate | A | B | B | B | B | B | B | B | B | A | A | B | A | | A |
| Potassium Oxalate | C | | | | A | | A | | | A | A | | | | A |
| Potassium Permanganate | B | B | B | B | B | B | B | B | B | A | A | B | A | | A |
| Potassium Phosphate | D | C | | C | B | | B | B | B | A | A | A | A | | A |
| Potassium Phosphate Di-basic | B | B | A | A | A | | A | B | B | A | A | B | A | | A |
| Potassium Phosphate Tri-basic | D | | A | A | B | | B | B | | B | | B | | | A |
| Potassium Sulfate | A | B | B | C | A | A | A | B | | A | A | A | A | | A |
| Potassium Sulfide | B | B | B | B | A | | A | C | A | A | A | B | B | | |
| Potassium Sulfite | B | B | B | B | A | | A | C | B | B | A | A | B | | A |
| Producer Gas | B | B | B | B | B | A | B | A | | A | A | D | A | | A |
| Propane Gas | A | A | B | B | B | A | A | B | A | A | A | D | A | | A |
| Propyl Bromide | B | B | | B | B | | A | B | | B | A | B | B | | A |
| Propylene Glycol | A | B | B | B | B | | B | B | | A | C | B | A | | A |
| Pyridine | B | | | B | B | | A | | | D | D | | D | | A |
| Pyrogallic Acid | B | B | B | B | B | B | A | B | | A | A | | A | | A |
| Quench Oil | A | B | B | B | A | | A | | | A | A | | A | | A |
| Quinine, sulfate, dry | | | | | A | B | A | B | | | A | | | | A |
| Resins & Rosins | A | A | C | C | A | B | A | A | | C | A | | A | | A |
| Resorcinol | | | | | B | | B | | | | | | | | A |
| Road Tar | A | A | A | A | A | | A | A | | B | A | D | A | | A |
| Roof Pitch | A | A | A | A | A | | A | A | | B | A | | A | | A |
| Rosin Emulsion | A | B | C | C | A | | A | A | | D | A | | B | | A |
| R P-1 Fuel | A | A | A | A | A | | A | A | | B | A | | A | | A |
| Rubber Latex Emulsions | A | A | B | B | A | | A | A | | A | A | | A | | A |
| Rubber solvents | A | A | A | A | A | | A | A | | D | C | | D | | A |
| Salad Oil | B | B | C | C | B | | A | B | | A | A | B | A | | A |
| Salicylic Acid | C | C | D | D | A | | B | B | | A | A | B | A | | A |
| Salt (NaCl) | B | B | C | C | B | | A | A | | A | A | | A | | A |
| Salt Brine | B | B | | D | B | | B | B | | A | A | B | B | | A |
| Sauerkraut Brine | | | | | B | | B | | | | C | | | | A |
| Sea Water | C | C | D | D | B | | B | A | | A | A | A | A | | A |
| Sewage | C | C | C | D | B | A | B | B | | A | B | B | B | | A |
| Shellac | A | A | A | B | A | | A | A | | A | A | | | | A |
| Silicone Fluids | B | B | | B | A | | B | | | B | A | | B | | A |
| Silver Bromide | D | | | | C | | A | B | | | D | | | | A |
| Silver Cyanide | D | D | | D | A | | A | B | | B | D | | B | | A |
| Silver Nitrate | D | D | D | D | A | | A | D | | C | A | A | A | | A |

Ratings: A=Excellent

B=Good

C=Poor

D=Do not use

Blank =No Information

* Not with reinforced or polyfill

Chemical compatibility



Doc: ChemComp/01

Jun 2007

Chemicals

| Chemicals | Aluminum | Brass | Carbon Steel | Ductile Iron / Cast Iron | 316 Stainless Steel | 17-4PH | Alloy20 | Monel | Hastelloy C | Buna N (Nitrile) | Delrin | EPDM/EPBR | Viton | Flexible Graphite | Teflon-Reinforced |
|------------------------------|----------|-------|--------------|--------------------------|---------------------|--------|---------|-------|-------------|------------------|--------|-----------|-------|-------------------|-------------------|
| Silver Plating sol. | B | | | | A | | A | | | | D | | | | A |
| Soap Solutions (Stearates) | C | A | A | B | A | | A | A | | A | A | A | A | | A |
| Sodium Acetate | B | B | C | C | B | | B | B | B | B | A | B | A | | A |
| Sodium Aluminate | D | B | C | C | A | | B | B | B | A | A | B | A | | A |
| Sodium Benzoate | B | | | | B | | B | B | | | B | | | | A |
| Sodium Bicarbonate | B | B | C | C | B | | A | B | | A | B | A | A | | A |
| Sodium Bichromate | A | | | | B | | B | | | D | A | | | | A |
| Sodium Bisulfate 10% | D | B | D | D | A | | A | B | | A | D | B | A | | A |
| Sodium Bisulfite 10% | D | B | D | D | A | | B | B | B | A | D | B | A | | A |
| Sodium Borate | B | B | C | C | B | | B | B | | A | A | B | A | | A |
| Sodium Bromide 10% | B | B | C | D | B | | B | B | | A | A | B | A | | A |
| Sodium Carbonate (Soda Ash) | D | B | B | B | A | | A | B | B | A | A | B | A | | A |
| Sodium Chlorate | C | B | C | C | B | | B | C | B | A | A | B | A | B | A |
| Sodium Chloride | B | B | C | C | B | | A | A | B | A | A | B | A | A | A |
| Sodium Chromate | D | C | B | B | A | | B | B | | A | A | B | A | | A |
| Sodium Citrate | D | | | | B | | B | | | A | A | | | | A |
| Sodium cyanide | D | D | B | B | A | B | A | B | | A | A | B | A | | A |
| Sodium Ferricyanide | A | | | | A | | A | B | | | A | | | | A |
| Sodium Fluoride | C | C | D | D | B | B | A | B | | A | A | B | A | | A |
| Sodium Hydroxide 20% Cold | D | A | A | A | A | A | B | A | | A | D | B | B | A | A* |
| Sodium Hydroxide 20% Hot | D | A | B | B | A | C | A | A | | B | D | B | C | A | A* |
| Sodium Hydroxide 50% Cold | D | A | A | B | A | B | A | A | | A | D | B | C | A | A* |
| Sodium Hydroxide 50% Hot | D | A | B | B | A | C | A | B | | B | D | | C | A | A* |
| Sodium Hydroxide 70% Cold | D | A | A | A | A | B | B | A | | B | D | B | C | A | A* |
| Sodium Hydroxide 70% Hot | D | B | B | B | A | C | B | B | | D | D | B | C | A | A* |
| Sodium Hypochlorite (Bleach) | D | D | D | D | D | D | C | D | A | | D | | A | | A |
| Sodium Hyposulfite | B | | | | B | | B | B | | | A | | | | A |
| Sodium Lactate | D | | | | A | | A | B | | | A | | | | A |
| Sodium Metaphosphate | A | C | B | C | B | B | B | | A | A | B | B | | A | |
| Sodium Metasilicate Cold | B | B | C | C | A | | A | A | | B | A | | B | | A |
| Sodium Metasilicate Hot | B | B | D | D | A | | A | A | A | | A | | | | A |
| Sodium Nitrate | A | B | B | B | A | B | A | B | B | C | A | B | A | | A |
| Sodium Nitrite | A | | | | B | | B | C | B | C | B | A | B | | A |
| Sodium Perborate | B | B | B | B | B | B | B | B | B | C | A | A | A | | A |
| Sodium Peroxide | C | D | C | C | B | B | B | B | B | C | A | A | A | | A |
| Sodium Phosphate | D | C | C | C | B | B | B | B | B | B | B | A | A | | A |
| Sodium Phosphate Di-basic | D | C | C | C | B | | B | B | B | A | A | A | A | | A |
| Sodium Phosphate Tri-basic | D | C | C | C | B | | B | B | B | A | A | A | A | | A |
| Sodium Polyphosphate | | | | | B | | B | B | B | B | | A | | | A |
| Sodium Salicylate | | | | | A | | A | | | | A | A | | | A |
| Sodium Silicate | B | B | B | B | B | | B | B | | A | A | B | A | | A |
| Sodium Silicate, Hot | C | C | C | C | B | | B | B | | A | A | B | | | A |
| Sodium Sulfate | B | B | B | B | A | B | A | A | | A | A | A | A | | A |
| Sodium Sulfide | C | D | B | B | B | A | B | B | | A | A | B | A | | A |
| Sodium Sulfite | B | C | | A | A | A | A | B | B | A | A | B | B | | A |
| Sodium Tetraborate | | | | A | A | | A | | | A | A | B | | | A |
| Sodium Thosulfate | B | B | B | C | B | A | B | B | | A | A | A | A | | A |
| Soybean Oil | B | B | C | C | A | | A | A | | A | B | B | A | | A |
| Starch | B | B | C | C | B | | A | A | | A | A | C | A | | A |
| Steam (212°F) | A | A | A | A | A | A | A | B | | D | D | B | C | A | A |

Ratings: A=Excellent B=Good C=Poor D=Do not use Blank =No Information

* Not with reinforced or polyfill

Chemical compatibility



Doc: ChemComp/01

Jun 2007

Chemicals

| Chemicals | Aluminum | Brass | Carbon Steel | Ductile Iron / Cast Iron | 316 Stainless Steel | 17-4PH | Alloy20 | Monel | Hastelloy C | Buna N (Nitrile) | Delrin | EPDM/EPR | Viton | Flexible Graphite | Teflon-Reinforced |
|---|----------|-------|--------------|--------------------------|---------------------|--------|---------|-------|-------------|------------------|--------|----------|-------|-------------------|-------------------|
| Stearic Acid | A | C | C | C | B | | B | B | A | A | A | B | A | A | A |
| Styrene | A | A | A | B | A | | A | B | A | D | A | D | B | | A |
| Sugar Liquids | A | A | B | B | A | | A | A | | A | A | B | A | | A |
| Sugar, Syrups & Jam Sulfate, Black Liquor | B | B | C | C | | A | A | B | | C | A | B | C | | A |
| Sulfate, Green Liquor | B | C | C | C | B | A | B | B | | C | A | | C | | A |
| Sulfate, White Liquor | B | C | C | C | B | B | D | C | | C | D | | C | | A |
| Sulfur | A | D | C | C | B | | A | B | | D | A | B | B | | A |
| Sulfur Chlorides | D | B | D | D | D | | A | B | | D | A | C | A | A | A |
| Sulfur Dioxide, dry | A | B | B | B | A | A | B | B | A | D | A | A | A | A | A |
| Sulfur Dioxide, wet | C | D | | | A | C | B | A | B | D | D | B | | A | A |
| Sulfur Hexafluoride | A | B | | | A | | A | | | A | A | | | | A |
| Sulfur, Molten | A | D | C | B | B | | A | D | B | D | D | B | B | | A |
| Sulfur Trioxide | A | B | B | B | B | B | B | B | B | D | D | | B | D | A |
| Sulfur Trioxide, dry | A | B | B | B | B | B | B | B | B | D | A | B | A | D | A |
| Sulfuric Acid 0 to 77% | C | C | D | D | C | | B | B | | B | D | | A | A | A |
| Sulfuric Acid 100% | D | C | C | B | A | B | A | D | | D | D | C | B | D | A |
| Sulfurous Acid | C | D | D | D | B | | B | D | B | C | C | C | A | A | A |
| Tall Oil | C | B | B | B | B | | B | B | A | B | A | D | A | A | A |
| Tannic Acid (Tannin) | C | B | C | C | B | B | B | B | B | B | A | B | A | | A* |
| Tanning Liquors | A | | | | B | | B | | | B | D | | | | A* |
| Tar & Tar Oils | A | A | A | A | A | A | A | A | | C | A | D | A | | A* |
| Tartaric Acid | B | B | D | D | A | A | A | B | B | C | A | B | A | | A* |
| Tetraethyl Lead | B | B | C | C | B | | B | A | | A | A | | | | A* |
| Toluol (Toluene) | A | A | A | A | A | | A | A | A | D | C | D | B | | A* |
| Tomato Juice | A | C | C | C | A | | A | B | | A | A | | A | | A |
| Transformer Oil | A | B | A | B | A | | A | A | | A | A | | A | | A |
| Tributyl Phosphate | A | A | A | A | A | | A | A | | D | A | B | D | | A |
| Trichlorethylene | A | B | B | C | B | A | B | B | A | D | A | D | B | A | A |
| Trichloroacetic Acid | D | B | | D | D | | B | B | A | C | D | | D | | A |
| Triethanolamine | B | | | | B | | B | B | A | C | A | B | | | A |
| Triethylamine | | B | | | B | | B | B | A | B | C | | | | A |
| Trisodium Phosphate | D | | | | B | | B | | A | A | A | B | B | | A |
| Tung Oil | B | B | B | B | A | | A | C | A | A | A | D | A | | A |
| Turpentine | B | B | B | B | B | A | B | D | A | B | A | D | A | | A |
| Urea | B | B | C | C | B | | B | B | A | C | A | B | D | | A |
| Uric Acid | D | | | | A | | A | | A | | B | | | | A |
| Varnish | A | A | C | C | A | | A | A | A | C | A | D | B | | A |
| Vegetable Oils | A | B | B | B | A | | A | B | A | A | A | D | A | | A |
| Vinegar | C | B | D | D | A | | A | B | A | D | B | A | D | | A |
| Vinyl Acetate | B | B | | B | B | | B | B | A | | D | A | | A | A |
| Water, Distilled | A | A | D | D | A | A | A | A | A | C | A | B | A | | A |
| Water, Fresh | A | A | C | C | A | A | A | A | A | C | A | B | A | | A |
| Water, Acid Mine | D | D | D | D | B | B | | D | C | B | A | A | D | A | A |
| Waxes | A | A | A | A | A | | A | A | A | A | A | C | A | | A |
| Whiskey & Wines | D | B | D | D | A | | A | A | A | B | A | A | A | | A |
| Xylene (Xylol), Dry | A | A | B | B | A | | A | A | A | D | A | D | B | | A |
| Zinc Bromide | D | B | | D | B | | B | B | A | B | A | B | B | A | A |
| Zinc Hydrosulfite | D | C | A | B | A | | A | B | A | A | A | A | A | | A |
| Zinc Sulfate | D | B | D | D | B | | A | B | A | A | A | A | A | | A |

Ratings: A=Excellent B=Good C=Poor D=Do not use Blank =No Information

* Not with reinforced or nonfill