



Refer to safety information regarding proper selection of tubing and tube fittings on page 1.

These tables alphabetically list commonly used materials of various chemical composition. After each agent listing you will find the basic tubing and fitting materials rated according to their chemical resistance to each individual agent. The chart is intended to be used as a guide only. Many factors (concentration, temperature, intermittent or continuous exposure, etc.) have a bearing upon the suitability of any tubing or connector for any specific application, and these factors must be considered by you as you review the chemical compatibility chart.

Where unusual conditions exist or where questions arise, consult Boston Weatherhead for expert assistance on your tubing application requirements.

Fluid	Nylon 11 TP160, NT100	Nylon 6/6 PT230	PVC PT200	Polyethylene PT240 (LDPE)	Brass	Steel	316 Stainless
Acetaldehyde	G	F	X	X	X	X	G
Acetic Acid (Concentrated)	X	X	X	X	X	X	G
Acetic Acid (Dilute)	F	X	F	G	X	X	G
Acetic Anhydride	X	X	X	X	X	F	F
Acetone	G	F	X	G	G	G	G
Acrylonitrile	G	—	G	—	—	G	G
Air	G	G	G	G	G	G	G
Alcohols							
Amyl Alcohol	G	G	X	G	G	F	F
Butyl Alcohol, Butanol	G	G	X	G	G	G	G
Ethyl Alcohol, Ethanol	G	G	F	G	G	F	G
Isopropyl Alcohol, Isopropanol	G	G	G	G	G	G	G
Methyl Alcohol, Methanol	G	G	X	G	G	F	G
Aluminum Chloride	X	X	G	G	X	X	F
Aluminum Fluoride	X	X	G	G	X	X	X
Aluminum Hydroxide	G	G	G	G	X	F	G
Aluminum Nitrate	G	F	G	G	X	X	G
Aluminum Sulfate	G	F	G	G	X	X	G
Alums	F	G	G	G	X	X	F
Ammonia, Anhydrous		Use approved anhydrous ammonia hose			X	F	G
Ammonia Solution (10%)	X	X	G	G	X	G	G
Ammonium Chloride	G	X	G	G	X	G	F
Ammonium Hydroxide	G	X	X	G	X	F	G
Ammonium Nitrate	G	G	G	G	—	—	G
Ammonium Phosphate	G	G	F	G	X	X	G
Ammonium Sulfate	G	G	G	G	X	X	F
Amyl Acetate	G	G	X	X	G	F	G
Amyl Alcohol	G	G	X	G	G	F	F
Aniline	X	X	X	X	X	G	G
Aniline Dyes	X	X	X	X	X	X	F
Animal Oils and Fats	G	—	G	X	G	G	G
Anti-Freeze (Glycol Base)	G	—	G	F	G	G	G
Aqua Regia	X	X	X	X	—	X	X
Aromatic Hydrocarbons	G	G	X	G	G	G	G
Asphalt Emulsion	G	—	X	—	G	G	G
Barium Chloride	G	—	G	G	X	F	G
Barium Hydroxide	G	G	G	G	X	G	G
Barium Sulfate	G	G	G	G	G	G	G
Barium Sulfide	X	—	G	G	X	X	G
Beet Sugar Liquors	G	G	G	G	X	G	G
Benzaldehyde	G	G	X	X	F	F	G
Benzene, Benzol	G	G	X	X	G	G	G
Benzoic Acid	X	X	X	G	F	X	F
Black Sulfate Liquor	X	X	X	G	X	G	G
Bleach Solution	X	X	F	G	X	X	G
Borax Solution	G	—	G	G	G	G	G
Boric Acid	G	G	G	G	X	X	G
Brake Fluid (Glycol Ether Base)	G	—	X	X	G	G	G
Brine	G	—	G	G	—	X	F
Bromine	X	X	X	X	X	X	X

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\* Call Technical Support for specific application

# Chemical Compatibility Chart

## Application

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APPLICATION

Fluid	Nylon 11 TP160, NT100	Nylon 6/6 PT230	PVC PT200	Polyethylene PT240 (LDPE)	Brass	Steel	316 Stainless
Butane	Use H336 or H243 Hose Only						
Butyl Acetate	G	—	X	X	G	G	G
Butyl Alcohol, Butanol	G	G	X	G	G	G	G
Calcium Bisulfite	G	X	G	G	X	X	X
Calcium Chloride	G	X	G	G	X	F	F
Calcium Hydroxide	G	G	G	G	F	G	G
Calcium Hypochlorite	X	X	G	G	F	X	F
Cane Sugar Liquors	G	—	G	G	F	G	G
Carbon Dioxide (Dry)	G	G	G	G	G	G	G
Carbon Dioxide (Wet)	G	G	G	G	F	G	G
Carbon Disulfide (Bisulfide)	X	X	X	X	G	G	G
Carbon Monoxide (Hot)	X	X	X	X	X	F	G
Carbon Tetrachloride	G	G	X	X	G	G	G
Carbonic Acid	G	—	G	G	X	X	F
Castor Oil	G	—	G	X	G	G	G
Cellosolve Acetate	G	—	X	—	X	X	G
Chlorinated Solvents	F	G	X	X	G	G	F
Chloroacetic Acid	X	X	X	X	X	X	F
Chlorobenzene	X	X	X	X	F	F	G
Chlorine Gas (Dry)	X	X	X	X	F	F	G
Chlorine Gas (Wet)	X	X	X	X	X	X	X
Chloroform	F	G	X	X	G	G	G
Chlorosulfonic Acid	X	X	X	X	X	F	X
Chromic Acid (under 25%)	X	X	F	F	X	X	G
Chromic Acid (over 25%)	X	X	X	X	X	X	F
Citric Acid	X	F	G	G	X	X	G
Coke Oven Gas	G	—	X	G	F	G	G
Copper Chloride	X	X	G	G	X	X	G
Copper Cyanide	G	G	G	G	X	X	G
Copper Sulfate	G	G	G	G	X	X	G
Corn Syrup (Non-food)	G	—	G	G	—	G	G
Cottonseed Oil	G	—	F	G	G	G	G
Creosote	X	X	X	X	F	—	G
Cresol	X	X	X	X	—	G	G
Cyclohexanol	G	G	X	F	G	F	G
Dextrose (Food Grade)	X	X	X	G	—	—	G
Dichlorobenzene	G	—	X	X	—	—	G
Diesel Fuel	G	—	X	X	G	G	G
Diethanolamine	G	—	X	—	X	G	G
Diethylenetriamine	X	X	X	G	—	—	—
Dowtherm A	X	X	X	X	X	F	G
Enamel (Solvent Base)	G	—	X	G	G	—	G
Ethanolamine	G	—	X	G	X	G	G
Ethers (Ethyl Ether)	G	—	X	X	G	G	G
Ethyl Alcohol	G	G	F	G	F	G	G
Ethyl Acetate	G	G	X	G	G	G	G
Ethyl Acrylate	X	—	X	—	—	G	G
Ethyl Methacrylate	X	—	X	—	—	G	G
Ethylamine	X	X	X	G	G	—	G
Ethyl Cellulose	F	—	X	G	F	G	F
Ethyl Chloride	G	—	X	X	F	F	G
Ethylenediamine	X	X	X	G	G	G	G
Ethylene Dibromide	F	—	X	—	—	—	—
Ethylene Dichloride	F	—	X	X	G	X	X
Ethylene Glycol	G	G	G	G	F	G	G
Ethylene Oxide	G	—	X	X	X	F	F

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Fluid	Nylon 11 TP160, NT100	Nylon 6/6 PT230	PVC PT200	Polyethylene PT240 (LDPE)	Brass	Steel	316 Stainless
Fatty Acids	G	G	G	G	F	F	G
Ferric Chloride 5%	G	G	G	G	X	X	X
Ferric Sulfate	G	G	G	G	X	X	F
Fertilizer Salts Solution	F	—	G	G	—	—	G
Formaldehyde	G	G	X	G	F	X	G
Formic Acid	X	X	X	G	F	X	G
Freon 12	Use approved Freon 12 hose				G	G	G
Freon 134a	Use approved Freon 134a hose				—	G	G
Fuel Oil	G	—	F	X	F	G	G
Furfural	X	X	X	X	F	G	G
Gasoline (Refined)	G	G	X	X	G	G	G
Gasoline (Unleaded)	G	G	X	X	G	G	G
Gasoline (10% Ethanol)	G	G	X	X	G	G	G
Gasoline (10% Methanol)	G	G	X	X	G	G	G
Glucose (non-food)	G	G	G	G	G	G	G
Glycerine, Glycerol (Non-food)	G	G	G	G	G	G	G
Greases	G	G	G	G	G	G	G
Green Sulfate Liquor	X	X	G	G	X	X	G
Heptane	G	G	X	X	G	G	G
Hexane	G	G	X	X	G	G	G
Houghto Safe 273 to 640	G	—	F	G	G	G	G
Houghto Safe 5046, 5047F	G	—	G	G	G	G	G
Houghto Safe 1000 Series	G	—	X	X	G	G	G
Hydraulic Oils							
Straight Petroleum Base	G	G	G	G	G	G	G
Water Petroleum Emulsion	G	—	—	F	G	G	G
Water Glycol	G	G	X	—	G	G	G
Straight Phosphate Ester	G	G	X	X	G	G	G
Phos. Ester/Petroleum Blend	G	G	X	X	G	G	G
Polyol Ester	G	—	—	—	G	G	G
Hydrobromic Acid (under 48%)	X	X	G	G	X	X	X
Hydrochloric Acid	X	X	G	G	X	X	X
Hydrocyanic Acid	X	X	G	G	X	F	G
Hydrofluoric Acid (under 50%)	X	X	F	F	X	X	G
Hydrofluoric Acid (over 50%)	X	X	X	X	X	X	G
Hydrofluosilicic Acid	X	X	G	G	X	X	X
Hydrogen	Use approved hydrogen hose or metal tubing				—	—	G
Hydrogen Peroxide	X	X	—	G	X	X	G
Hydrogen Sulfide	X	X	G	G	F	F	F
Hydrolube	G	—	G	G	G	G	G
Iodine	X	X	X	X	X	X	X
Isocyanates	X	X	X	X	—	—	—
Isopropyl Alcohol, Isopropanol	G	G	G	G	G	G	G
Isopropylamine	X	—	X	—	G	—	G
Iso-Octane	G	G	X	X	G	G	G
Jet Fuel (Transfer Only)	G	G	X	X	G	F	G
Kerosene	G	G	X	X	G	G	G
Lacquer	G	G	X	F	G	X	G
Lacquer Solvents	G	G	X	F	G	X	G
Lactic Acid	G	G	G	G	F	F	G
Lime Sulfur	G	F	G	G	X	—	G
Lindol	G	G	—	—	F	G	G
Linseed Oil	G	G	G	G	F	G	G
Lubricating Oils	G	G	G	G	G	G	G
Lye	G	F	G	G	F	X	G
Magnesium Chloride	G	G	G	G	F	F	G

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Magnesium Hydroxide	G	G	G	G	G	G	G
Magnesium Sulfate	G	G	G	G	F	G	G
Mercuric Chloride	X	X	F	G	X	X	X
Mercury	G	G	F	G	X	G	G
Methyl Alcohol, Methanol	G	G	X	G	F	G	G
Methyl Acrylate	X	X	X	—	G	G	G
Methyl Bromide	G	F	X	X	G	G	G
Methyl Chloride	G	G	X	X	G	G	G
Methylene Chloride	F	F	X	X	G	G	G
Methyl t-Butyl Ether (MTBE)	G	G	X	—	—	G	G
Methyl Ethyl Ketone	G	G	X	G	G	G	G
Methyl Isobutyl Ketone	G	G	X	G	G	G	G
Methyl Isopropyl Ketone	G	G	X	G	G	G	G
Methyl Methacrylate	X	—	X	—	—	G	G
Mineral Oil	G	G	F	X	G	G	G
Mineral Spirits	G	G	X	G	G	G	G
Naphtha	G	G	X	G	F	G	G
Naphthalene	G	G	X	X	F	G	G
Nickel Acetate	G	G	G	G	G	G	G
Nickel Chloride	G	G	G	G	X	X	F
Nickel Sulfate	G	G	G	G	X	X	G
Nitric Acid (under 35%)	X	X	G	F	X	X	G
Nitric Acid (35% to 60%)	X	X	F	X	X	X	G
Nitric Acid (over 60%)	X	X	X	X	X	X	G
Nitrobenzene	X	—	X	X	F	G	G
Nitrogen Gas	G	G	G	G	G	G	G
Nitrous Oxide	F	F	X	X	G	G	G
Oleic Acid	G	G	F	G	F	F	G
Oleum (Fuming Sulfuric Acid)	X	X	X	X	X	F	G
Oxalic Acid	X	X	G	G	F	X	G
Oxygen	G	G	G	G	G	G	G
(non-breathing non-welding) +							
Ozone (300 ppm)	X	X	X	X	—	F	G
Paint (Solvent Base)	G	G	X	F	G	G	G
Palmitic Acid	G	G	F	G	X	F	F
Paper Mill Liquors	X	X	X	X	—	—	—
Pentane	G	—	X	X	G	G	G
Perchloroethylene	F	G	X	X	F	G	G
Petroleum Ether	G	G	X	X	G	G	G
Petroleum Oils	G	G	G	G	G	G	G
Phenol	X	X	X	X	F	X	F
Phosphoric Acid (to 85%)	X	X	G	G	X	X	F
Picric Acid (Molten)	X	X	X	X	X	X	F
Picric Acid (Solution)	X	X	X	X	X	X	F
Potassium Chloride	G	G	G	G	F	X	G
Potassium Cyanide	G	G	G	G	X	G	G
Potassium Dichromate	F	—	G	G	X	G	G
Potassium Hydroxide	G	F	G	G	F	X	G
Potassium Permanganate	X	X	G	G	—	—	—
Potassium Sulfate	G	G	G	G	F	F	G
Propane Liquid							
Propylene Glycol	G	—	F	G	F	G	G
Pyridine	X	X	X	G	F	G	G
Sea Water	G	G	G	G	G	F	G
Silver Nitrate	G	G	G	G	X	X	F
Skydrol	G	G	X	X	G	G	G

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Soap Solution	G	G	G	X	G	G	G
Sodium Bicarbonate	G	G	G	G	F	F	G
Sodium Bisulfate	G	G	G	G	F	F	F
Sodium Bisulfite	G	G	G	G	F	X	G
Sodium Borate	G	G	G	G	G	G	G
Sodium Carbonate	G	G	G	G	X	G	G
Sodium Chloride	G	G	G	G	X	F	G
Sodium Cyanide	G	G	G	G	X	F	G
Sodium Hydroxide	G	F	G	G	F	X	G
Sodium Hypochlorite	X	X	G	G	X	X	F
Sodium Nitrate	G	G	G	G	F	G	G
Sodium Perborate	G	F	G	G	F	F	G
Sodium Peroxide	X	X	X	X	X	F	G
Sodium Phosphates	G	G	G	G	F	F	F
Sodium Silicate	G	G	G	G	F	F	G
Sodium Sulfate	G	G	G	G	F	F	G
Sodium Sulfide	G	G	G	G	X	X	G
Sodium Thiosulfate	G	G	G	G	X	X	G
Soybean Oil	G	—	F	G	G	G	G
Stannic Chloride	F	X	G	G	X	X	X
Steam 450° F	X	X	X	X	F	F	G
Stearic Acid	G	G	F	G	X	X	G
Stoddard Solvent	G	G	X	X	G	G	G
Styrene	G	G	X	X	G	G	G
Sulfur 70o F	G	G	F	G	X	X	G
Sulfur 200o F	X	X	X	X	X	X	G
Sulfur Chloride	X	X	X	G	X	X	X
Sulfur Dioxide	X	X	X	X	X	—	G
Sulfuric Acid (under 50%)	X	X	G	G	X	X	X
Sulfuric Acid (51% to 70%)	X	X	G	X	X	X	X
Sulfuric Acid (71% to 95%)	X	X	X	X	X	X	X
Sulfuric Acid (96% to 98%)	X	X	X	X	X	X	X
Tannic Acid	X	X	G	G	F	X	G
Tar	G	G	X	X	F	F	G
Tartaric Acid	G	G	G	G	F	X	F
Tetrachloroethane	F	—	X	F	—	—	G
Tetrahydrofuran (THF)	G	—	X	X	—	—	G
Toluene	G	G	X	G	G	G	G
Transmission Oil (Petrol. Base)	G	G	G	G	G	G	G
Trichloroethane	F	G	X	G	G	G	G
Trichloroethylene	F	G	X	G	G	G	G
Tung Oil	G	—	—	—	F	G	G
Turpentine	G	G	X	G	F	G	G
Urea (Water Solution)	G	G	G	G	—	G	G
Uric Acid	G	G	G	G	—	—	F
Varnish	G	G	X	G	G	G	G
Vegetable Oil (Non-food)	G	G	F	G	G	G	G
Vinegar	G	X	G	G	X	F	G
Vinyl Acetate	G	—	X	—	F	G	G
Water (non-potable)	G	G	G	G	F	F	G
Water-Glycol Mixture	G	G	X	—	G	G	G
Water-Petroleum Mixture	G	G	—	F	G	G	G
Xylene	G	G	X	G	G	G	G
Zinc Chloride	X	X	G	G	X	X	X
Zinc Sulfate	G	G	G	G	X	X	G

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