

**TUBING CHEMICAL RESISTANCE DATA**

The following ratings are very general guidelines, designed ONLY to be used as an initial screening tool. Bear in mind that dynamic vs. static application, temperature, chemical mixtures, and the specific tubing compound selected can significantly affect or change these ratings either positively or negatively. Careful testing under actual conditions is essential. Accuracy for these ratings is not given or implied.

- N = Nylon
- PUR = Polyurethane
- PE = Polyethylene
- PVC = Polyvinylchloride (vinyl)

- RATINGS:**  
**SOLVENT/CHEMICAL**  
 1 = little or no effect  
 2 = minor effect  
 3 = moderate effect  
 4 = severe effect  
 - = no tested data available

SOLVENT/CHEMICAL	N	P U R	P E	P V C	SOLVENT/CHEMICAL	N	P U R	P E	P V C	SOLVENT/CHEMICAL	N	P U R	P E	P V C
Acetic Acid	-	4	1	4	Acetic Acid	-	4	1	4	Acetic Acid	-	4	1	4
Acetic Acid 30%	-	4	1	4	Acetic Acid 30%	-	4	1	4	Acetic Acid 30%	-	4	1	4
Acetone	-	4	2	4	Acetone	-	4	2	4	Acetone	-	4	2	4
Acetylene	-	4	1	1	Acetylene	-	4	1	1	Acetylene	-	4	1	1
Alkazine	-	4	-	-	Alkazine	-	4	-	-	Alkazine	-	4	-	-
Aluminum Chloride (aq)	-	3	2	1	Aluminum Chloride (aq)	-	3	2	1	Aluminum Chloride (aq)	-	3	2	1
Aluminum Nitrate (aq)	-	3	-	-	Aluminum Nitrate (aq)	-	3	-	-	Aluminum Nitrate (aq)	-	3	-	-
Ammonia Anhydrous	-	4	2	1	Ammonia Anhydrous	-	4	2	1	Ammonia Anhydrous	-	4	2	1
Ammonia Gas (cold)	-	3	-	-	Ammonia Gas (cold)	-	3	-	-	Ammonia Gas (cold)	-	3	-	-
Ammonia Gas (hot)	-	4	-	-	Ammonia Gas (hot)	-	4	-	-	Ammonia Gas (hot)	-	4	-	-
Ammonium Chloride (aq)	-	1	1	1	Ammonium Chloride (aq)	-	1	1	1	Ammonium Chloride (aq)	-	1	1	1
Ammonium Sulfate (aq)	-	1	1	1	Ammonium Sulfate (aq)	-	1	1	1	Ammonium Sulfate (aq)	-	1	1	1
Amyl Alcohol	-	4	2	1	Amyl Alcohol	-	4	2	1	Amyl Alcohol	-	4	2	1
Amyl Naphthalene	-	4	-	-	Amyl Naphthalene	-	4	-	-	Amyl Naphthalene	-	4	-	-
Animal Fats	-	1	-	-	Animal Fats	-	1	-	-	Animal Fats	-	1	-	-
Aqua Regia	-	4	2	3	Aqua Regia	-	4	2	3	Aqua Regia	-	4	2	3
Arsenic Acid	-	3	2	1	Arsenic Acid	-	3	2	1	Arsenic Acid	-	3	2	1
Asphalt	-	2	1	1	Asphalt	-	2	1	1	Asphalt	-	2	1	1
ASTM Fuel A	-	2	-	-	ASTM Fuel A	-	2	-	-	ASTM Fuel A	-	2	-	-
ASTM Fuel B	-	3	-	-	ASTM Fuel B	-	3	-	-	ASTM Fuel B	-	3	-	-
ASTM Fuel C	-	3	1	1	ASTM Fuel C	-	3	1	1	ASTM Fuel C	-	3	1	1
Barium Chloride (aq)	-	1	1	1	Barium Chloride (aq)	-	1	1	1	Barium Chloride (aq)	-	1	1	1
Beer	1	2	1	1	Beer	1	2	1	1	Beer	1	2	1	1
Beet Sugar Liquors	-	4	1	1	Beet Sugar Liquors	-	4	1	1	Beet Sugar Liquors	-	4	1	1
Benzene	1	3	3	3	Benzene	1	3	3	3	Benzene	1	3	3	3
Benzine	-	2	-	-	Benzine	-	2	-	-	Benzine	-	2	-	-
Blast Furnace Gas	-	4	-	-	Blast Furnace Gas	-	4	-	-	Blast Furnace Gas	-	4	-	-
Bleach Solutions	-	4	-	1	Bleach Solutions	-	4	-	1	Bleach Solutions	-	4	-	1
Borax	-	1	1	2	Borax	-	1	1	2	Borax	-	1	1	2
Boric Acid	-	1	1	1	Boric Acid	-	1	1	1	Boric Acid	-	1	1	1
Brake Fluid	-	4	-	-	Brake Fluid	-	4	-	-	Brake Fluid	-	4	-	-
Brine	-	2	4	3	Brine	-	2	4	3	Brine	-	2	4	3
Bromine Water	4	4	-	-	Bromine Water	4	4	-	-	Bromine Water	4	4	-	-
Bunker Oil	-	2	-	-	Bunker Oil	-	2	-	-	Bunker Oil	-	2	-	-
Butane	1	1	3	3	Butane	1	1	3	3	Butane	1	1	3	3
Butter	-	1	-	-	Butter	-	1	-	-	Butter	-	1	-	-
Butyl Alcohol	3	4	1	2	Butyl Alcohol	3	4	1	2	Butyl Alcohol	3	4	1	2
Butylene	-	4	1	1	Butylene	-	4	1	1	Butylene	-	4	1	1
Calcium Chloride (aq)	1	1	2	1	Calcium Chloride (aq)	1	1	2	1	Calcium Chloride (aq)	1	1	2	1
Calcium Hydroxide (aq)	-	1	2	1	Calcium Hydroxide (aq)	-	1	2	1	Calcium Hydroxide (aq)	-	1	2	1
Calcium Nitrate (aq)	1	1	-	-	Calcium Nitrate (aq)	1	1	-	-	Calcium Nitrate (aq)	1	1	-	-
Calcium Sulfide (aq)	-	1	-	-	Calcium Sulfide (aq)	-	1	-	-	Calcium Sulfide (aq)	-	1	-	-
Cane Sugar Liquors	-	4	-	1	Cane Sugar Liquors	-	4	-	1	Cane Sugar Liquors	-	4	-	1
Carbolic Acid	-	3	2	3	Carbolic Acid	-	3	2	3	Carbolic Acid	-	3	2	3
Carbon Dioxide	-	1	3	1	Carbon Dioxide	-	1	3	1	Carbon Dioxide	-	1	3	1
Carbonic Monoxide	-	1	2	1	Carbonic Monoxide	-	1	2	1	Carbonic Monoxide	-	1	2	1
Carbon Tetrachloride	3	4	2	2	Carbon Tetrachloride	3	4	2	2	Carbon Tetrachloride	3	4	2	2
Castor Oil	-	1	-	1	Castor Oil	-	1	-	1	Castor Oil	-	1	-	1
Chlorine (dry)	4	4	2	1	Chlorine (dry)	4	4	2	1	Chlorine (dry)	4	4	2	1
Chlorine (wet)	4	4	-	-	Chlorine (wet)	4	4	-	-	Chlorine (wet)	4	4	-	-
Chloroform	3	4	3	4	Chloroform	3	4	3	4	Chloroform	3	4	3	4
Chlorox	-	4	-	-	Chlorox	-	4	-	-	Chlorox	-	4	-	-
Chromic Acid	4	4	1	1	Chromic Acid	4	4	1	1	Chromic Acid	4	4	1	1
Citric Acid	1	1	1	2	Citric Acid	1	1	1	2	Citric Acid	1	1	1	2
Coal Tar	-	3	-	-	Coal Tar	-	3	-	-	Coal Tar	-	3	-	-
Coconut Oil	-	2	-	1	Coconut Oil	-	2	-	1	Coconut Oil	-	2	-	1
Cod Liver Oil	-	1	-	1	Cod Liver Oil	-	1	-	1	Cod Liver Oil	-	1	-	1
Coke Oven Gas	-	4	-	-	Coke Oven Gas	-	4	-	-	Coke Oven Gas	-	4	-	-
Copper Chloride (aq)	-	1	2	1	Copper Chloride (aq)	-	1	2	1	Copper Chloride (aq)	-	1	2	1
Copper Cyanide (aq)	-	1	2	1	Copper Cyanide (aq)	-	1	2	1	Copper Cyanide (aq)	-	1	2	1
Corn Oil	-	1	3	2	Corn Oil	-	1	3	2	Corn Oil	-	1	3	2
Cotton Seed Oil	-	1	2	2	Cotton Seed Oil	-	1	2	2	Cotton Seed Oil	-	1	2	2
Creosol	4	4	3	4	Creosol	4	4	3	4	Creosol	4	4	3	4
Cyclohexane	1	1	2	4	Cyclohexane	1	1	2	4	Cyclohexane	1	1	2	4
Denatured Alcohol	-	4	-	-	Denatured Alcohol	-	4	-	-	Denatured Alcohol	-	4	-	-
Detergent Solution	-	4	1	1	Detergent Solution	-	4	1	1	Detergent Solution	-	4	1	1
Diesel Oil	-	3	3	1	Diesel Oil	-	3	3	1	Diesel Oil	-	3	3	1
Dioxane	-	4	-	-	Dioxane	-	4	-	-	Dioxane	-	4	-	-
Dowtherm Oil	-	3	-	-	Dowtherm Oil	-	3	-	-	Dowtherm Oil	-	3	-	-
Dry Cleaning Fluids	-	4	-	-	Dry Cleaning Fluids	-	4	-	-	Dry Cleaning Fluids	-	4	-	-
Ethane	-	3	-	4	Ethane	-	3	-	4	Ethane	-	3	-	4
Ethyl Acrylate	-	4	-	-	Ethyl Acrylate	-	4	-	-	Ethyl Acrylate	-	4	-	-
Ethyl Alcohol	3	4	-	-	Ethyl Alcohol	3	4	-	-	Ethyl Alcohol	3	4	-	-
Ethyl Benzene	-	4	-	-	Ethyl Benzene	-	4	-	-	Ethyl Benzene	-	4	-	-
Ethyl Cellulose	-	2	-	-	Ethyl Cellulose	-	2	-	-	Ethyl Cellulose	-	2	-	-
Ethyl Chloride	-	2	-	-	Ethyl Chloride	-	2	-	-	Ethyl Chloride	-	2	-	-
Ethyl Ether	-	3	-	-	Ethyl Ether	-	3	-	-	Ethyl Ether	-	3	-	-
Ethyl Chloride	-	4	3	4	Ethyl Chloride	-	4	3	4	Ethyl Chloride	-	4	3	4
Ethyl Glycol	2	4	1	1	Ethyl Glycol	2	4	1	1	Ethyl Glycol	2	4	1	1
Ethylene Oxide	1	4	3	3	Ethylene Oxide	1	4	3	3	Ethylene Oxide	1	4	3	3
Ethylene Trichloride	-	4	-	-	Ethylene Trichloride	-	4	-	-	Ethylene Trichloride	-	4	-	-
Ferric Chloride (aq)	-	1	1	1	Ferric Chloride (aq)	-	1	1	1	Ferric Chloride (aq)	-	1	1	1
Ferric Nitrate (aq)	-	1	2	1	Ferric Nitrate (aq)	-	1	2	1	Ferric Nitrate (aq)	-	1	2	1
Ferric Sulfate (aq)	-	1	1	1	Ferric Sulfate (aq)	-	1	1	1	Ferric Sulfate (aq)	-	1	1	1
Flourine (liquid)	4	4	3	4	Flourine (liquid)	4	4	3	4	Flourine (liquid)	4	4	3	4
Formaldehyde (RT)	-	4	3	1	Formaldehyde (RT)	-	4	3	1	Formaldehyde (RT)	-	4	3	1
Formic Acid	3	3	2	1	Formic Acid	3	3	2	1	Formic Acid	3	3	2	1
Freon 11	-	4	3	1	Freon 11	-	4	3	1	Freon 11	-	4	3	1
Freon 12	1	1	3	1	Freon 12	1	1	3	1	Freon 12	1	1	3	1
Freon 22	1	4	-	2	Freon 22	1	4	-	2	Freon 22	1	4	-	2
Fuel Oil	-	2	3	1	Fuel Oil	-	2	3	1	Fuel Oil	-	2	3	1
Furfural Glucose	-	4	1	1	Furfural Glucose	-	4	1	1	Furfural Glucose	-	4	1	1
Glue	-	1	1	3	Glue	-	1	1	3	Glue	-	1	1	3
Glycerin	1	1	1	1	Glycerin	1	1	1	1	Glycerin	1	1	1	1
Glycols	1	4	-	-	Glycols	1	4	-	-	Glycols	1	4	-	-
Green Sulfate Liquor	-	1	-	-	Green Sulfate Liquor	-	1	-	-	Green Sulfate Liquor	-	1	-	-
Hexane	-	2	3	2	Hexane	-	2	3	2	Hexane	-	2	3	2
Hydraulic Oil	-	1	1	1	Hydraulic Oil	-	1	1	1	Hydraulic Oil	-	1	1	1
Hydrochloric Acid (cold) 37%	-	4	2	2	Hydrochloric Acid (cold) 37%	-	4	2	2	Hydrochloric Acid (cold) 37%	-	4	2	2
Hydrochloric Acid (hot) 37%	-	4	-	-	Hydrochloric Acid (hot) 37%	-	4	-	-	Hydrochloric Acid (hot) 37%	-	4	-	-
Hydrochloric Acid (cold)	-	3	-	-	Hydrochloric Acid (cold)	-	3	-	-	Hydrochloric Acid (cold)	-	3	-	-
Hydrochloric Acid (hot)	-	4	-	-	Hydrochloric Acid (hot)	-	4	-	-	Hydrochloric Acid (hot)	-	4	-	-
Hydrogen Gas	1	1	1	1	Hydrogen Gas	1	1	1	1	Hydrogen Gas	1	1	1	1
Isobutyl Alcohol	-	4	-	-	Isobutyl Alcohol	-	4	-	-	Isobutyl Alcohol	-	4	-	-
Isocetane	-	2	-	-	Isocetane	-	2	-	-	Isocetane	-	2	-	-
Isopropyl Acetate	-	4	2	4	Isopropyl Acetate	-	4	2	4	Isopropyl Acetate	-	4	2	4
Isopropyl Alcohol	1	3	-	-	Isopropyl Alcohol	1	3	-	-	Isopropyl Alcohol	1	3	-	-
Isopropyl Ether	-	2	1	2	Isopropyl Ether	-	2	1	2	Isopropyl Ether	-	2	1	2
Kerosene	1	1	3	4	Kerosene	1	1	3	4	Kerosene	1	1	3	4
Lacquers	-	4	2	3	Lacquers	-	4	2	3	Lacquers	-	4	2	3
Lacquer Solvents	-	4	2	3	Lacquer Solvents	-	4	2	3	Lacquer Solvents	-	4	2	3
Lard	-	1	2	1	Lard	-	1	2	1	Lard	-	1	2	1
Lavender Oil	-	4	-	-	Lavender Oil	-	4	-	-	Lavender Oil	-	4	-	-
Lead Acetate (aq)	-	4	1	1	Lead Acetate (aq)	-	4	1	1	Lead Acetate (aq)	-	4	1	1
Linseed Oil	1	2	3	1	Linseed Oil	1	2	3	1	Linseed Oil	1	2	3	1
Liquefied Petroleum Gas	-	-	-	-	Liquefied Petroleum Gas	-	-	-	-	Liquefied Petroleum Gas	-	-	-	-
Lubricating Oils	-	2	4	2	Lubricating Oils	-	2	4	2	Lubricating Oils	-	2	4	2
Lye	-	4	-	-	Lye	-	4	-	-	Lye	-	4	-	-