

# CHEMICAL RESISTANCE PROPERTIES OF INNOVASIL G<sup>®</sup> TUBING

The ratings in the charts on are based on the results of laboratory tests. They reflect the relative capabilities of various Innovapure's tubing formulations to withstand specific chemicals.

NOTE: The ratings in the charts DO NOT reflect the extent to which extraction may occur, or the extent to which fluids may undergo any physical changes in properties or composition, as a result of coming into contact with the tubing. Innovapure makes no representation

or warranty with respect to the susceptibility of any fluid to become contaminated or undergo changes in properties or composition as a result of possible extraction of tubing ingredients by the fluid to be transmitted. Certain corrosives that would be destructive to tubing with prolonged exposure can be satisfactorily handled for short periods of time if flushed with water after use. All ratings are based on room temperature (23°C). Chemical resistance will be adversely affected by elevated temperatures.

## Chemical Resistance Properties

E - Excellent    G - Good    F - Fair    X - Not recommend

Acetaldehyde	F	Calcium Nitrate, 55% in w	E	Hydrofluoric Acid, 10% in w	X	Paraffins	X
Acetamide, 67% in w	E	Calcium Salts	E	Hydrofluoric Acid, 25% in w	X	Perchloric Acid, 67% in w	X
Acetate Solvents (general)	X	Calcium Sulfate, 1% in w	E	Hydrofluoric Acid, 40-48% in w	X	Perchloroethylene	X
Acetic Acid, 10% in w	E	Carbon Dioxide, Wet/Dry	E	Hydrogen Gas	E	Phenol, 5-10% in w	X
Acetic Acid, 50-60% in w	E	Carbon Disulfide	X	Hydrogen Peroxide, 3% in w	E	Phenol, 91% in w	X
Acetic Acid, Glacial, 100%	X	Carbon Monoxide	E	Hydrogen Peroxide, 10% in w	E	Phosphoric Acid, <10% in w	F
Acetic Anhydride	E	Carbon Tetrachloride	X	Hydrogen Peroxide, 30% in w	E	Phosphoric Acid, 25% in w	X
Acetone	F	Carbonic Acid	E	Hydrogen Peroxide, 90% in w	F	Phosphoric Acid, 85% in w	X
Acetonitrile	X	Castor Oil	E	Hydrogen Sulfide	E	Phosphorous Trichloride Acid	X
Acetyl Bromide	X	Cellosolve	X	Hydroquinone, 7% in w	G	Photographic Solutions	G
Acetyl Chloride	X	Cellosolve Acetate	X	Hypochlorous Acid, 25% in w	E	Phthalic Acid, 9% in alc	G
Acetylene Gas	E	Chlorine, Dry Gas	X	Iodine, 50 ppm in w	E	Phthalic Anhydride, 9% in alc	E
Acrylonitrile	X	Chlorine, Wet Gas	X	Isobutyl Alcohol	X	Picric Acid, 1% in w	X
Adipic Acid, 100% in alc	X	Chloroacetic Acid, 20% in w	E	Isocane	X	Plating Solutions	X
Air	E	Chlorobenzene, Mono, Di, Tri	X	Isopropyl Acetate	X	Potassium Carbonate, 55% in w	E
Alcohols General	G	Chloroform	X	Isopropyl Alcohol	X	Potassium Cyanide, 33% in w	E
Aliphatic Hydrocarbons	X	Chlorosulfonic Acid	X	Isopropyl Ether	X	Potassium Dichromate, 5% in w	E
Allyl Alcohol	X	Chromic Acid, 10-20% in w	X	Jet Fuel, JP8	X	Potassium Hydroxide, <10% in w	E
Alum, 5% in w	E	Chromic Acid, 50% in w	X	Kerosene	X	Potassium Hypochlorite, 70% in w	E
Aluminum Chloride, 53% in w	E	Citric Acid, 10-20% in w	E	Ketones	X	Potassium Iodide, 56% in w	-
Aluminum Hydroxide, 2% in w	E	Coconut Oil	E	Lacquer Solvents	X	Potassium Permanganate, 6% in w	E
Aluminum Sulfate, 50% in w	E	Corn Syrup	E	Lactic Acid, 3-10% in w	E	Potassium Salts	E
Aluminum Salts	E	Cottonseed Oil	E	Lactic Acid, 85% in w	X	Propane Gas	E
Amines	X	Cresol (m, o, or p)	G	Lard, Animal Fat	E	Propyl Alcohol (Propanol)	-
Ammonia Gas	X	Cresylic Acid	X	Lead Acetate, 35% in w	E	Propylene Glycol	E
Ammonia, Anhydrous Liquid	X	Cupric Chloride, 40% in w	E	Lead Salts	E	Propylene Oxide	E
Ammonium Acetate, 45% in w	E	Cupric Nitrate, 70% in w	E	Lemon Oil	X	Pyridine	X
Ammonium Carbonate, 50% in w	E	Cupric Sulfate, 13% in w	E	Limonene-D	X	Salicylic Acid, 1% in w	E
Ammonium Hydroxide, 5-10% in w	X	Cyclohexane	X	Linoleic Acid	G	Silicone Oils	X
Ammonium Hydroxide, 30% in w	X	Cyclohexanone	X	Linseed Oil	E	Silver Nitrate, 55% in w	X
Ammonium Persulfate, 30% in w	E	Detergent Solutions	E	Lubricating Oils, Petroleum	G	Skydrol 500A	E
Ammonium Salts	E	Dibutyl Phthalate	E	Magnesium Carbonate, 1% in w	E	Soap Solutions	E
Ammonium Sulfate, 30% in w	E	Diesel Fuel	X	Magnesium Chloride, 35% in w	E	Sodium Acetate, 55% in w	X
Amyl Acetate	X	Diethylamine, 2.5% in w	X	Magnesium Hydroxide, 10% in dil acid	E	Sodium Benzoate, 22% in w	E
Amyl Alcohol	X	Diethylene Glycol	E	Magnesium Nitrate, 50% in w	E	Sodium Bicarbonate, 7% in w	E
Amyl Chloride	X	Dimethylformamide	E	Magnesium Sulfate, 25% in w	E	Sodium Carbonate, 7% in w	E
Aniline	X	Dimethylsulfoxide	F	Maleic Acid, 30% in w	G	Sodium Chlorate, 45% in w	E
Aniline Hydrochloride	X	Diocetyl Phthalate	E	Malic Acid, 36% in w	E	Sodium Chloride, 20% in w	E
Antimony Salts	E	Dioxane	X	Manganese Salts	E	Sodium Cyanide, 30% in w	E
Aqua Regia	X	Ether	X	Mercuric Chloride, 6% in w	E	Sodium Fluoride, 3% in w	E
Aromatic Hydrocarbons	X	Ethyl Acetate	X	Mercuric Cyanide, 8% in w	E	Sodium Hydroxide, 10-15% in w	E
Arsenic Acid, 20% in w	F	Ethyl Alcohol (Ethanol)	F	Mercury	E	Sodium Hydroxide, 30-40% in w	E
Arsenic Salts	E	Ethyl Benzoate	X	Mercury Salts	E	Sodium Hypochlorite, 5.5% in w	X
ASTM Reference No. 1 Oil	E	Ethyl Chloride	X	Methane Gas	E	Sodium Hypochlorite, 12.2% in w	X
ASTM Reference No. 2 Oil	G	Ethyl Ether	X	Methyl Acetate	X	Sodium Nitrate, 3.5% in w	E
ASTM Reference No. 3 Oil	X	Ethylene Bromide	E	Methyl Bromide	X	Sodium Salts	E
Barium Carbonate, 1% in w	E	Ethylene Chlorohydrin	G	Methyl Chloride	X	Sodium Sulfate, 5% in w	E
Barium Hydroxide, 5% in w	E	Ethylene Dichloride	X	Methyl Ethyl Ketone (MEK)	X	Sodium Sulfide, 45% in w	E
Beer	E	Ethylene Glycol	E	Methyl Isobutyl Ketone	X	Sodium Sulfite, 10% in w	-
Benzaldehyde	F	Ethylene Oxide	E	Methylene Chloride	X	Stannic Chloride, 50% in w	E
Benzene	X	Fatty Acids	G	Methyl Methacrylate	X	Stannous Chloride, 45% in w	E
Benzenesulfonic Acid	X	Ferric Chloride, 43% in w	E	Milk	E	Stearic Acid, 5% in alc	G
Benzoic Acid	X	Ferric Nitrate, 60% in w	E	Mineral Oil	X	Styrene Monomer	X
Benzyl Alcohol	E	Ferric Sulfate, 5% in w	E	Mineral Spirits	X	Sulfur Chloride	X
Bleach Liquor, 22% in w	X	Ferrous Chloride, 40% in w	E	Molasses	X	Sulfur Dioxide, Gas Dry	E
Borax, 6% in w	E	Ferrous Sulfate, 5% in w	E	Monoethanolamine	X	Sulfur Dioxide, Gas Wet	E
Boric Acid, 4% in w	E	Fluoboric Acid, 48% in w	X	Motor Oil	X	Sulfur Trioxide, Wet	G
Bromine, Anhydrous Liquid	X	Fluorine Gas	X	Naphtha	X	Sulfuric Acid, 10% in w	E
Butadiene	E	Fluosilicic Acid, 25% in w	F	Naphthalene	X	Sulfuric Acid, 30% in w	G
Butane	E	Formaldehyde, 37% in w	E	Natural Gas	E	Sulfuric Acid, 95-98% in w	X
Butyl Acetate	X	Formic Acid, 25% in w	F	Nickel Chloride, 40% in w	E	Sulfurous Acid	E
Butyl Alcohol	X	Formic Acid, 40-50% in w	E	Nickel Nitrate, 75% in w	E	Tannic Acid, 75% in w	E
Butyric Acid	X	Formic Acid, 98% in w	E	Nickel Salts	E	Tartaric Acid, 56% in w	E
Calcium Carbonate, 25% in dilute acids	E	Freon 11	E	Nickel Sulfate, 25% in w	E	Tetrahydrofuran	X
Calcium Chloride, 30% in w	E	Freon 12	E	Nitric Acid, 10% in w	F	Thionyl Chloride	E
Calcium Hydroxide, 10% in glycerol	E	Freon 22	E	Nitric Acid, 35% in w	X	Tin Salts	E
Calcium Hypochlorite, 20% in w	X	Fruit Juice	E	Nitric Acid, 68-71% in w	X	Titanium Salts	E
		Fuel Oil	X	Nitrobenzene	X	Toluene	X
		Furfural	X	Nitromethane	X	Trichloroacetic Acid, 90% in w	E
		Gallic Acid, 17% in acetone	X	Nitrous Acid, 10% in w	G	Trichloroethane	X
		Gasoline, Automotive	X	Nitrous Oxide	E	Triethanolamine	X
		Gelatin	E	Oils, Animal	E	Trichloroethylene	X
		Glucose, 50% in w	E	Oils, Essential	X	Trichloropropane	X
		Glycerol, (Glycerin)	E	Oils, Hydraulic (Phosphate Est@weight.	X	Tricresyl Phosphate	E
		Glycolic Acid, 70% in w	E	Oils, Hydrocarbon	G	Trisodium Phosphate	E
		Heptane	X	Oils, Vegetable	E	Turpentine	X
		Hexane	X	Oleic Acid	G	Urea, 20% in w	E
		Hydrazine	X	Oleum, 25% in w	G	Uric Acid	E
		Hydrobromic Acid, 20-50% in w	X	Ortho Dichlorobenzene	X	Vinegar	E
		Hydrobromic Acid, 100% in w	X	Oxalic Acid, 12% in w	E	Vinyl Acetate	X
		Hydrochloric Acid, 10% in w	E	Oxygen	E	Water, Deionized	E
		Hydrochloric Acid, 37% in w	X	Ozone, 300pphm	E	Water, Distilled	E
		Hydrocyanic Acid	E	Palmitic Acid, 100% in ether	G	Xylene	X
						Zinc Chloride, 80% in w	E
						Zinc Salts	E

w = Water    alc = Alcohol