

SOLVENT & CHEMICAL RESISTANCE INFORMATION

INTRODUCTION

Solvent and chemical resistance refers to the ability of a fiber to retain its important physical properties. The resistance of fibers to chemicals depends not only on the type of fiber and the chemical, but concentration, temperature, time, fiber diameter, stress, etc. The following are general comments on solvent and chemical resistance, followed by a more specific table.

MATERIAL INFORMATION

NYLON

Nylon has excellent resistance to most substances. It is however attacked by oxidizing agents, organic acids, mineral acids and aromatic alcohols. Nylon has excellent resistance to hydrocarbons (such as gasoline, kerosene and diesel fuel), oils, cleaning solutions and alkalis. It will absorb small amounts of water, low molecular weight alcohols (methyl, ethyl or isopropyl alcohols) and chlorinated solvents and be plasticized to them.

POLYESTER

Polyester has excellent resistance to most substances. It is resistant to acids, oxidizers such as hydrogen peroxide and most solvents. Polyester has excellent resistance to hydrocarbon fuels, oils and

lubricants. It is however attacked by strong alkalis such as concentrated solutions of sodium hydroxide (lye or caustic soda), calcium hydroxide (lime, mortar), ammonia, trisodium phosphate or sodium carbonate (washing soda, soda ash).

POLYPROPYLENE

Polypropylene offers excellent resistance to most water soluble chemicals, including fairly strong acids or alkalis and simple hydrocarbons. It may be attacked by oxidizing agents such as hydrogen peroxide, chlorinated solvents such as 1,1,1-trichloroethane and aromatic solvents such as xylene, especially at higher temperatures.

RATINGS

S: Satisfactory – The material should give good service life when used with this chemical.

M: Marginal – Depending on temperature concentration, exposure, expected life, etc. The material may or may not give adequate performance. Specific testing for the application is recommended, or contact us for further details.

U: Unsatisfactory – The material will deteriorate in hours to weeks when used with this chemical.

REAGENT	POLYPROPYLENE	NYLON	POLYESTER	NOTES
Acetaldehyde	M	M	M	—
Acetic Acid 5%	S	M	S	Will etch Nylon
Acetic Acid 10%	S	M	S	—
Acetic Acid 100%	S	U	U	Will dissolve Nylon
Acetone	S	S	M	—
Acetophenone	S	S	—	—
Allyl Alcohol	—	S	S	—
Aluminum Chloride	S	M	S	—
Aluminum Sulfate	S	S	S	—
Ammonia Solution	S	S	S	aka Ammonium Hydroxide
Amyl Alcohol	S	S	S	—
Amyl Acetate n-	S	S	S	—
Amyle Chloride	M	—	—	—
Anti-Freeze	S	S	S	—
Aqua Regia	S	U	U	—
Aromatic Hydrocarbons	U	S	M	—
Barium Carbonate	S	S	S	—
Benzaldehyde	M	S	—	—
Benzene	U	S	M	—
Benzoic Acid	S	S	S	—
Benzyl Acetate	M	—	—	—
Borax	S	S	S	—
Boric Acid	S	S	S	—
Brake Fluid	—	S	S	—
Bromine Liquid	M	U	U	—
Butanol	S	S	S	—
Butter	S	S	S	—
Butyl Acetate iso	S	S	M	—
Butyl Acetate n-	S	S	M	—
Butyl Alcohol iso	S	S	S	—
Butyl Alcohol n-	S	S	S	—
Butyl Phthalate	S	S	S	—
Calcium Chloride	S	U	S	—
Calcium Hypochlorite 15%	S	U	S	—
Camphor	U	S	—	—

REAGENT	POLYPROPYLENE	NYLON	POLYESTER	NOTES
Carbon Tetrachloride	U	S	S	—
Carbolic Acid 50%	S	U	U	aka Phenol/ Solvent for Nylon
Carbolic Acid 100%	S	U	U	aka Phenol/ Solvent for Nylon
Caster Oil	S	S	S	—
Caustic Soda	S	M	M	aka Sodium Hydroxide
Cellosolve	S	—	—	—
Cellulose Acetate	S	S	—	—
Cetyl Alcohol	S	S	S	—
Chlorobenzene	U	S	M	—
Chloroform	U	M	M	Temporarily softens Nylon
Chlorine	U	U	U	—
Chromic Acid	S	U	M	—
Citric Acid 10%	S	M	S	—
Citric Acid 20%	S	M	S	—
Citrus Oil	S	S	S	—
Cocoa Butter	S	S	S	—
Cod Liver Oil	S	S	S	—
Coconut Oil	S	S	S	—
Copper Salts	M	M	M	—
Corn Oil	S	S	S	—
Cottonseed Oil	S	S	S	—
Cyclohexane	M	S	S	—
Cyclohexanol	S	S	—	—
Cyclohexanone	M	S	—	—
Decalin	U	S	M	—
Detergents	S	S	S	—
Diacetone	S	M	U	—
Dibutyl Sebacate	S	—	—	—
Dichlorobenzene p-	—	S	—	aka Moth Balls
Diethylene Glycol	S	M	M	—
Diethylketone	S	M	U	—
Dimethyl Formamide	S	M	S	—
Epichlorohydrin	S	M	—	—

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REAGENT	POLYPROPYLENE	NYLON	POLYESTER	NOTES
Ether	S	S	S	—
Ethyl Acetate	M	S	M	—
Ethyl Alcohol 95%	S	S	S	Temporarily softens Nylon
Ethyl Chloride (Gas & Liq.)	M	S	—	—
Ethyl Ether	S	S	S	—
Ethylene Lactate	—	M	—	—
Ethylene Dichloride	M	S	M	—
Ethylene Glycol	S	S	S	—
Ethylene Oxide	M	M	S	—
Ferrous Chloride	S	U	S	—
Formaldehyde	S	S	S	—
Formic Acid	S	U	S	Solvent for Nylon
Furfuryl Alcohol	M	S	S	—
Gasoline	M	S	S	—
Glucose 30%	S	S	S	—
Glycerin	S	M	S	—
Heptyl Alcohol n-	—	M	—	—
Hexane	M	S	S	—
Hexyl Alcohol n-	—	M	—	—
Hydrochloric Acid 10%	S	U	S	Dissolves Nylon
Hydrochloric Acid 38%	S	U	M	Dissolves Nylon
Hydrofluoric Acid	S	U	U	—
Hydrogen Peroxide 3%	S	U	S	—
Hydrogen Peroxide 30%	M	U	S	—
Hydroquinone	S	U	S	—
Iodine Tincture	S	U	—	—
Isopropyl Alcohol	S	S	M	—
Derosene	M	S	S	—
Lactic Acid 10%	S	M	S	—
Lanolin	S	S	S	—
Lard	S	S	S	—
Lauryl Alcohol	S	S	S	—
Lemon Juice	S	M	S	—
Lubricating Oil	S	S	S	—
Lye	S	M	M	—
Magnesium Carbonate	S	S	S	—
Maleic Acid 10%	S	S	S	—
Mercuric Chloride 5%	S	U	—	—
Methyl Acetate	M	S	M	Temporarily softens Nylon
Methyl Alcohol	S	S	S	Temporarily softens Nylon
Methyl Chloride	M	—	—	—
Methyl Ethyl Ketone	M	S	M	Softens Nylon
Methyl Isobutyl Ketone	M	S	U	—
Methyl Propyl Ketone	M	S	U	—
Methyl Salicylate	—	—	—	aka Oil of Wintergreen
Methylene Chloride	M	M	U	—
Milk	S	S	S	—
Mineral Oil	M	S	S	—
Monochlorobenzene	U	S	M	—
Motor Oil	S	S	S	—
Nitric Acid	M	U	M	—
Nonyl Alcohol	S	S	S	—
Octyl Alcohol	S	S	S	—
Oils-Essential	M	S	S	—
Oils-Vegetable	S	S	S	—
Oleic Acid 100%	S	S	S	—
Orange Juice Fresh	S	S	S	—
Orange Juice Conc.	S	S	S	—
Oxalic Acid 10%	S	M	S	—

REAGENT	POLYPROPYLENE	NYLON	POLYESTER	NOTES
Ozone	M	M	M	—
Paint Thinner	M	S	S	aka VM & P naphtha
Palm Oil	S	S	S	—
Palmitic Acid	S	S	S	—
Peanut Oil	S	S	S	—
Pectin	S	S	S	—
Perchloroethylene	U	S	—	—
Petroleum Distillate	M	S	S	—
Petroleum Jelly	S	S	S	—
Phenol 5%	S	U	U	Solvent for Nylon
Phosphoric Acid 50%	S	U	S	—
Potassium Hydroxide 30%	S	S	U	—
Potassium Hydroxide 35%	S	S	U	—
Potassium Hydroxide 50%	S	M	U	—
Potassium Bromide	S	S	S	—
Potassium Ferricyanide	S	S	—	—
Potassium Iodide	S	—	—	—
Potassium Permanganate	M	U	S	—
Potassium Thiocyanate	S	U	S	—
Propyl Alcohol iso-	S	M	M	—
Propylene Glycol	S	S	S	—
Resorcinol	—	U	—	Solvent for Nylon
Salicylic Acid	S	S	M	—
Silver Nitrate	S	S	S	—
Sodium Acetate	S	S	S	—
Sodium Benzoate	S	S	S	—
Sodium Bicarbonate	S	S	S	—
Sodium Bisulphite	S	S	S	—
Sodium Borate	S	S	S	—
Sodium Bromide	S	S	S	—
Sodium Carbonate	S	S	S	—
Sodium Chloride	S	S	S	—
Sodium Dichromate 10%	S	M	M	—
Sodium Hydroxide 40%	S	M	U	—
Sodium Hypochlorite 5%	M	U	M	aka bleach
Sodium Tetraborate	S	S	M	aka Borax
Sodium Thiosulfate	S	S	S	aka Hypo
Stannic Chloride	S	M	—	—
Stearic Acid (pwd.)	S	S	S	—
Stoddard Solvent	M	S	S	—
Sucrose 30%	S	S	S	—
Sulphuric Acid 2%	S	M	S	—
Sulphuric Acid 50%	S	U	U	—
Sulphuric Acid 96%	S	U	U	—
Tannic Acid 2%	S	—	S	—
Tartaric Acid	S	S	S	—
Tea (sol.)	S	S	S	—
Tetrahydrofuran	S	S	S	—
Tetralin	M	S	S	—
Thionyl Chloride	—	U	—	—
Toluene	M	S	M	—
Trichloroethylene (1,1,1)	U	S	S	Softens Nylon
Trisodium Phosphate	S	S	M	—
Triethylene Glycol	S	S	S	—
Turpentine	M	S	S	—
Water	S	S	S	—
Water Carbonated	S	S	S	—
Xylene	M	S	M	—
Zinc Chloride	S	U	S	—
Zinc Salts in solution	S	U	S	Cracks Nylon
Zinc Stearate	S	S	S	—