

# tech.topic

## Chemical Resistance of Polyethylene

Chemical or Solvent	Concentration	LDPE & MDPE		HDPE Resins	
		70°F	140°F	70°F	140°F
Acetaldehyde	100%	0	U		
Acetic Acid (Glacial)	Conc.	0	U		
Acetic Anhydride		U	U		
Acetic Acid	1-10%	S	S		
Acetic Acid	10-60%	S	0		
Acetic Acid	80-100%	0	U		
Acetone		S	S	S	S
Acetone	100%	U	U		
Acrylic Emulsions		S	S	S	S
Allyl Alcohol		U	U		
Allyl Chloride		U	U		
Aluminum Chloride	Dilute	S	S	S	S
Aluminum Chloride	Conc.	S	S	S	S
Aluminum Fluoride	Conc.	S	S	S	S
Aluminum Hydroxide	Conc.	S	S		
Aluminum Sulfate	Conc.	S	S	S	S
Alums (all types)	Conc.	S	S	S	S
Ammonia	100% Dry Gas	S	S	S	S
Ammonium Carbonate		S	S	S	S
Ammonium Chloride	Sat'd	S	S	S	S
Ammonium Carbonate	Conc.	S	S		
Ammonium Chloride	Sat'd	S	S		
Ammonium Fluoride	20%	S	S	S	S
Ammonium Hydroxide		S	S	S	S
Ammonium Hydroxide	35%	S	S		
Ammonium Metaphosphate	Sat'd	S	S	S	S
Ammonium Nitrate	Sat'd	S	S	S	S
Ammonium Persulfate	Sat'd	S	S	S	S
Ammonium Persulfate	Sat'd	S	S		
Ammonium Sulfate	Sat'd	S	S	S	S
Ammonium Sulfide	Sat'd	S	S	S	S
Ammonium Thiocyanate	Sat'd	S	S		
Ammonium Thiocyanate	Sat'd	S	S	S	S
Amyl Acetate	100%	U	U	0	U
Amyl Alcohol	100%	S	S	S	S
Amyl Chloride	100%	U	U		

S = satisfactory (no attack) 0 = slight attack U = unsatisfactory 70°F = 21°C, 140°F = 60°C

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		70°F	140°F	70°F	140°F
Aniline	100%	S	U	S	
Aniline Hydrochloride	Sat'd		U		
Antimony Chloride		U	U		U
Aqua Acid		U	U		
Aqua Regis		O	U	O	U
Arsenic Acid	100%	S	S		
Barium Carbonate	Sat'd	S	S	S	S
Barium Chloride	Sat'd	S	S	S	S
Barium Hydroxide	Sat'd	S	S		
Barium Sulfide	Sat'd	S	S	S	S
Beer		S	S	S	
Benzene		U	U	O	U
Benzene Sulfonic Acid		S	S	S	S
Benzoic Acid	Sat'd	O	O		
Benzoic Acid	All Conc.	S	S		
Benzene Sulfonic Acid		S	S		
Bismuth Carbonate	Sat'd	S	S	S	S
Black Liquor		S	S	S	S
Bleach Lye	10%	S	S	S	S
Borax	Sat'd	S	S		
Borax	Cold Sat'd	S	S		
Boric Acid	Conc.	S	S	S	S
Boric Acid	Dilute	S	S	S	S
Bromic Acid	10%	S	S		
Bromic Acid	100%	U	U		
Borax Cold	Sat'd	S	S	S	S
Bromic Acid	10%	S	S	S	S
Bromine Liquid	100%	U	U	O	U
Bromine Water		U	U		
Butanediol	100%	S	S		
Butanediol	60%	S	S		
Butanediol	10%	S	S		
Butyl Alcohol	100%	S	S		
Butyric Acid	Conc.	U	U		
Calcium Bisulfide		S	S	S	S

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		70°F	140°F	70°F	140°F
Calcium Carbonate	Sat'd	S	S	S	S
Calcium Chlorate	Sat'd	S	S	S	S
Calcium Chloride	Sat'd	S	S	S	S
Calcium Hydroxide	Sat'd	S	S		
Calcium Hydroxide		S	S	S	S
Calcium Hypochlorite	Bleach Sol'n	S	S	S	S
Calcium Nitrate	Sat'd	S	S		
Calcium Nitrate	50%	S	S	S	S
Calcium Sulfate		S	S	S	S
Camphor Oil		U	U		
Carbon Dioxide	100% Dry	S	S	S	S
Carbon Dioxide	100% Wet	S	S	S	S
Carbon Dioxide	Cold Sat'd	S	S	S	S
Carbon Disulfide		U	U		
Carbon Disulphide		U	U		U
Carbon Monoxide		S	S	S	S
Carbon Tetrachloride		U	U	U	U
Carbonic Acid		S	S	S	S
Caster Oil	Conc.	S	S		
Chloroacetic Acid	100%	U	U		
Chlorine Moist Gas		0	U		
Chlorine Liquid		U	U	0	U
Chlorine Water	2% Sat'd Sol	U	U		
Chlorobenzene		U	U	0	U
Chloroform	100%	U	U	U	U
Chlorosulfonic Acid		U	U	U	U
Chrome Alum	Sat'd	S	S	S	S
Chromic Acid	10-20%	S	0	S	0
Chromic Acid	20%	S	S		
Chromic Acid & Sulfuric Acid		S	0		
Chromic Acid	50%	S	0	S	0
Cider		S	S	S	S
Citric Acid	Sat'd	S	S	S	S
Coconut Oil Alcohols		S	S	S	S
Cola Concentrates		S	S		

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		70°F	140°F	70°F	140°F
Copper Chloride	Sat'd	S	S	S	S
Copper Cyanide	Sat'd	S	S		
Copper Fluoride	2%	S	S	S	S
Copper Nitrate	Sat'd	S	S	S	S
Copper Sulfate	Dilute	S	S	S	S
Copper Sulfate	Sat'd	S	S	S	S
Cottonseed Oil	100%	S	S		
Cottonseed Oil		S	S	S	S
Cresol	100%	U	U		
Cresylic Acid	50%	S	S		
Cuprous Chloride	Sat'd	S	S	S	S
Cyclohexane	100%	U	U		
Cyclohexanone		U	U	U	U
Cyclohexanol	100%	S	S		
Detergents, Synthetic		S	S	S	S
Developers Photographic		S	S	S	S
Dextrin	Sat'd	S	S	S	S
Dextrose	Sat'd	S	S	S	S
Diazo Salts		S	S		
Dibutylphthalate		0	0		
Diethylene Glycol	100%	0	U		
Diethylene Glycol		S	S	S	S
Diglycolic Acid		S	S		
Dimethylamine		U	U		
Diocetyl Phthalate		0	U		
Disodium Phosphate	Sat'd	S	S		
Emulsions, Photographic		S	S		
Ethyl Acetate	100%	0	0	0	0
Ethyl Alcohol	35%	S	S	S	S
Ethyl Alcohol	100%	S	S	S	S
Ethyl Butyrate	100%	0	U		
Ethyl Chloride		U	U	0	U
Ethyl Ether	100%	U	U		
Ethylene Chloride		U	U		

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		70°F	140°F	70°F	140°F
Ethylene Chlorohydrin		U	U		
Ethylene Dichloride		U	U		
Ethylene Glycol		S	S	S	S
Ferric Chloride	Sat'd	S	S	S	S
Ferric Nitrate	Sat'd	S	S	S	S
Ferric Sulfate	Sat'd	S	S		
Ferrous Chloride	Sat'd	S	S	S	S
Ferrous Sulfate		S	S	S	S
Fish Solubles		S	S		
Fluoboric Acid		S	S		
Fluorine		S	U		
Fluosilicic Acid	32%	S	S		
Fluosilicic Acid	Conc.	S	O		
Fluoboric Acid		S	S	S	S
Fluorine		S	U	S	U
Fluosilicic Acid	32%	S	S	S	S
Fluosilicic Acid	Conc.	S	O	S	S
Formaldehyde	40%	S	S	S	
Formic Acid	20%	S	S	S	S
Formic Acid	50%	S	S	S	S
Formic Acid	100%	S	S	S	S
Fructose	Sat'd	S	S	S	S
Fruit Pulp		S	S		
Fuel Oil		O	U	S	U
Furfural	100%	U	U	O	U
Furfuryl Alcohol		U	U		
Gallic Acid	Sat'd	S	S	S	S
Gasoline		U	S	U	
Gin		U	U		
Glucose		S	S	S	S
Glycerine		S	S	S	S
Glycol		S	S	S	S
Glycolic Acid	30%	S	S	S	S
Grape Sugar	Sat'd Aq.	S	S		
Heptane	100%	U	U		

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		70°F	140°F	70°F	140°F
Hydrobromic Acid	50%	S	S	S	S
Hydrocyanic Acid	Sat'd	S	S	S	S
Hydrochloric Acid	10%	S	S	S	S
Hydrochloric Acid	30%	S	S	S	S
Hydrochloric Acid	35%	S	S	S	S
Hydrochloric Acid	Conc.	S	S	S	S
Hydrofluoric Acid	40%	S	S	S	S
Hydrofluoric Acid	60%	S	S	S	S
Hydrofluoric Acid	75%	S	O	S	S
Hydrofluorosilicic	31.1%	S	S		
Hydrogen	100%	S	S	S	S
Hydrogen Bromide	10%	S	S	S	S
Hydrogen Chloride Gas	Dry	S	S	S	S
Hydrogen Peroxide	30%	S	O	S	S
Hydrogen Peroxide	90%	S	U	S	O
Hydrogen Phosphide	100%	S	S		
Hydrogen Sulfide		S	S	S	S
Hydroquinone		S	S	S	S
Hypochlorous Acid	Conc.	S	S	S	S
Inks		S	S	S	S
Iodine (in KI Sol'n)		O	U		
Lactic Acid	10%	S	S	S	S
Lactic Acid	90%	S	S	S	S
Lead Acetate	Sat'd	S	S	S	S
Latex	100%	S	S		
Lead Acetate	Sat'd	S	S		
Lead Tetra-Ethyle	100%	S			
Linseed Oil		O	U		
Lube Oil		O	U		
Magnesium Carbonate	Sat'd	S	S	S	S
Magnesium Chloride	Sat'd	S	S	S	S
Magnesium Hydroxide	Sat'd	S	S	S	S

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		70°F	140°F	70°F	140°F
Magnesium Nitrate	Sat'd	S	S	S	S
Magnesium Sulfate	Sat'd	S	S	S	S
Maleic Acid	Sat'd	S	S		
Mercuric Chloride	Sat'd	S	S		
Mercuric Cyanide	Sat'd	S	S	S	S
Mercurous Nitrate	Sat'd	S	S		
Mercury		S	S	S	S
Methyl Alcohol	100%	S	S	S	S
Methyl Bromide		O	U	O	
Methyl Chloride		O	U		
Methyl Ethyl Ketone	100%	U	U	U	U
Methylene Chloride	100%	U	U	U	U
Methylsulfuric Acid		S	S	S	S
Milk		S	S		
Mineral Oils		O	U	S	U
Molasses	Comm.	S	S		
Naphtha	100%	S	U		
Naphtha	100%	S	U		
Naphthalene		U	U		
Nickel Chloride	Sat'd	S	S	S	S
Nickel Nitrate	Con.	S	S	S	S
Nickel Nitrate	Conc.	S	S		
Nickel Sulfate	Sat'd	S	S	S	S
Nicotinic Acid	100%	S	S		
Nitric Acid	0-30%	S	S	S	S
Nitric Acid	30-50%	S	O	S	O
Nitric Acid	70%	S	O	S	O
Nitric Acid	95-98%	U	U	U	U
Nitrobenzene	100%	U	U	U	U
Octyl Cresol		O	U		
Oils and Fats		O	U		
Oleic Acid	Conc.	O	U		
Oleum	Conc.	U	U	U	U
Orange Extract	Dilute	S	S		
Oxalic Acid	Dilute	S	S	S	S

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		70°F	140°F	70°F	140°F
Oxalic Acid	Sat'd	S	S	S	S
Oxygen	100%	S			
Ozone	100%	O	U		
Perchloric Acid	10%	S	S		
Petroleum Ether		U	U	U	U
Phenol	90%	U	U		
Phosphoric Acid	0-30%	S	S	S	S
Phosphoric Acid	Over 30%	S	S	S	S
Phosphoric Acid	90%	S	U	S	S
Phosphorus (Yellow)	100%	S			
Phosphorus Pentoxide	100%	S	S		
Phosphorus Trichloride		S			
Photographic Solutions		S	S	S	S
Pickling Baths					
Hydrochloric Acid		S	S		
Sulfuric Acid		S	S		
Sulfuric-Nitric		S			
Pickling Baths,					
Sulfuric Acid		S	S	S	S
Hydrochloric Acid		S	S	S	S
Sulfuric-Nitric		S		S	U
Picric Acid	1%	S	O		
Plating Solutions					
Brass		S	S		
Cadmium		U	U		
Chromium		S	S		
Copper		S	S		
Gold		S	S		
Indium		S	S		
Lead		S	S		
Nickel		S	S		
Rhodium		S	S		
Silver		S	S		
Tin		S	S		
Zinc		S	S		

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		70°F	140°F	70°F	140°F
Plating Solutions					
Brass		S	S		
Cadmium		U	U		
Chromium		S	S		
Copper		S	S		
Gold		S	S		
Indium		S	S		
Lead		S	S		
Nickel		S	S		
Rhodium		S	S		
Silver		S	S		
Tin		S	S		
Zinc		S	S		
Plating Solutions					
Brass		S	S	S	S
Cadmium		S	S	S	S
Chromium		U	U		
Copper		S	S	S	S
Gold		S	S	S	S
Indium		S	S	S	S
Lead		S	S	S	S
Nickel		S	S	S	S
Rhodium		S	S	S	S
Silver		S	S	S	S
Tin		S	S	S	S
Zinc		S	S	S	S
Potassium Bicarbonate	Sat'd	S	S	S	S
Potassium Borate	1%	S	S	S	S
Potassium Bromate	10%	S	S	S	S
Potassium Bromide	Sat'd	S	S	S	S
Potassium Carbonate		S	S	S	S
Potassium Chlorate	Sat'd	S	S	S	S
Potassium Chloride	Sat'd	S	S	S	S
Potassium Chromate	40%	S	S	S	S
Potassium Cyanide	Sat'd	S	S	S	S
Potassium Dichromate	40%	S	S	S	S
Potassium Ferricyanide	Sat'd	S	S		

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		70°F	140°F	70°F	140°F
Potassium Ferri/Ferro Cyanide		S	S	S	S
Potassium Fluoride		S	S	S	S
Potassium Hydroxide	20% Conc.	S	S	S	S
Potassium Nitrate	Sat'd	S	S	S	S
Potassium Petborate	Sat'd	S	S	S	S
Potassium Perchlorate	Sat'd	S	S		
Potassium Perchlorate	10%	S	S	S	S
Potassium Permanganate	20%	O	U		
Potassium Persulfate	Sat'd	S	S		
Potassium Sulfate	Conc.	S	S	S	S
Potassium Sulfide	Conc.	S	S	S	S
Potassium Sulfite	Conc.	S	S	S	S
Potassium Persulfate	Sat'd	S	S	S	S
Propargyl Alcohol		S	S	S	S
Propyl Alcohol		S	S	S	S
Propylene Dichloride	100%	U	U		
Propylene Glycol		S	S	S	S
Rayon Coagulating Bath		S	S	S	S
Sea Water		S	S	S	S
Selenic Acid		S	S		
Shortening		S	S	S	S
Silicic Acid		S	S	S	S
Silver Nitrate Sol'n		S	S	S	S
Soap Solution	Conc.	S	S	S	S
Sodium Acetate	Sat'd	S	S	S	S
Sodium Benzoate	35%	S	S	S	S
Sodium Bicarbonate	Sat'd	S	S	S	S
Sodium Bisulfate	Sat'd	S	S	S	S
Sodium Bisulfite Sat'd	Sat'd	S	S	S	S
Sodium Borate		S	S	S	S
Sodium Bromide Oil Sol'n		S	S	S	S
Sodium Carbonate	Conc.	S	S	S	S
Sodium Chlorate	Sat'd	S	S	S	S
Sodium Chloride	Sat'd	S	S	S	S
Sodium Cyanide		S	S		

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		70°F	140°F	70°F	140°F
Sodium Cyanide		S	S	S	S
Sodium Dichromate	Sat'd	S	S	S	S
Sodium Ferricyanide	Sat'd	S	S	S	S
Sodium Fluoride	Sat'd	S	S	S	S
Sodium Hydroxide	Conc.	S	S	S	S
Sodium Hypochlorite		S	S	S	S
Sodium Nitrate		S	S	S	S
Sodium Sulfate		S	S	S	S
Sodium Sulfide	25%	S	S		
Sodium Sulfide	Sat'd Sol'n	S	S		
Sodium Sulfide	25% to Sat'd	S	S	S	S
Sodium Sulfite	Sat'd	S	S	S	S
Stannic Chloride	Sat'd	S	S	S	S
Stannous Chloride	Sat'd	S	S	S	S
Starch Solution	Sat'd	S	S	S	
Stearic Acid	100%	S	S	S	
Sulfur	Colloidal	S			
Sulfur Dioxide	Dry, 100%	S	S		
Sulfur Dioxide	Wet, 100%	S			
Sulfur Trioxide		S	S		
Sulfuric Acid	0-50%	S	S	S	S
Sulfuric Acid	70%	S	O	S	O
Sulfuric Acid	80%	S	U	S	U
Sulfuric Acid	96%	O	U	O	U
Sulfuric Acid	98% Conc.	O	U	O	U
Sulfuric Acid Fuming		U	U	U	U
Sulfurous Acid		S	S	S	S
Tallow		S	O		
Tannic Acid	10%	S	S	S	S
Tanning Extracts	Comm.	S	S		
Tartaric Acid	10%	S	S		
Tartaric Acid	Sat'd	U	U		
Tetralin		U	U		
Tetrahydrofuran	100%	U	U		
Toluene		U	U	U	U
Tetrachloroethylene	100%	U	U		

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		70°F	140°F	70°F	140°F
Tetrahydrofurane		O	O	O	O
Transformer Oil		O	U	S	O
Trichloroacetic Acid	10%				
Trichloroethylene		U	U	U	U
Triethanolamine	100%	S	U		
Trisodium Phosphate	Sat'd	S	S		S
Turpentine		S	U		
Urea	Upt to 30%	S	S		
Urea		S	S	S	
Urine		S	S	S	S
Vinegar	Comm.	S	S	S	S
Vanilla Extract		S	S		
Wetting Agents		S	S	S	S
Whiskey		S	S	S	
Wines		S	S	S	S
Xylene		U	U	U	U
Yeast		S	S	S	S
Zinc Chloride	Sat'd	S	S	S	S
Zinc Sulfate	Sat'd	S	S	S	S

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