HDPE Chemical Resistance Guide

Reagent	70° F (21° C)	140° F (60° C)
A		
Acetaldehyde	S	O
Acetic acid (1-10%)	S	S
Acetic acid (10-60%)	S	O
Acetic acid (80-100%)	S	O
Acetic anhydride	S	S
Acetone	S	S
Acids (aromatic)	S	S
Acrylic emulsions	S	S
Adipic acid	S	S
Aluminum chloride concentrated	S	S
Aluminum chloride dilute	S	S
Aluminum fluoride concentrated	S	S
Aluminum sulfate concentrated	S	S
Alums (all types) concentrated	S	S
Amino acetic acid	S	S
Ammonia (100% dry gas)	S	S
Ammonium acetate	S	S
Ammonium bromide	S	S
Ammonium carbonate	S	S
Ammonium chloride saturated	S	S
Ammonium fluoride (20%)	S	S
Ammonium hydroxide	S	S
Ammonium metaphosphate (sat.)	S	S
Ammonium nitrate saturated	S	S
Ammonium persulfate saturated	S	S
Ammonium phosphate	S	S
Ammonium sulfate saturated	S	S
Ammonium sulfide saturated	S	S
Ammonium thiocyanate saturated	S	S
Amyl acetate (100%)	O	U
Amyl alcohol (100%)	S	S
Amyl Chloride (100%)	O	U
Aniline (100%)	S	U
Anise seed oil	O	U
Antimony chloride	S	S
Aqua Regia	O	U
Aromatic hydrocarbons	U	U
Arsenic	S	S
Aspirin	S	S

Reagent	70° F (21° C)	140° F (60° C)
B		
Barium carbonate saturated	S	S
Barium carbonate saturated	S	S
Barium hydroxide	S	S
Barium sulfate saturated	S	S
Barium sulfite saturated	S	S
Beer	S	S
Benzaldehyde	S	O
Benzene	O	U
Benzene sulfonic acid	S	S
Benzoic acid crystals	S	S
Benzoic acid saturated	S	S
Bismuth carbonate saturated	S	S
Black liquor	S	S
Bleach lye (10%)	S	S
Borax cold saturated	S	S
Boric acid concentrated	S	S
Boric acid dilute	S	S
Brine	S	S
Bromic acid (10%)	S	S
Bromine liquid (100%)	O	U
Bromochloromethane	U	U
Butadiene	U	U
Butanediol (10%)	S	S
Butanediol (60%)	S	S
Butanediol (100%)	S	S
Butter	S	S
Butyl acetate (100%)	O	U
Butyl alcohol (100%)	S	S
Butylene glycol	S	S
Butyric acid (100%)	S	S
C		
Caffeine citrate saturated	S	S
Calcium bisulfide	S	S
Calcium bromide	S	S
Calcium carbonate saturated	S	S
Calcium Chlorate saturated	S	S
Calcium hydroxide	S	S
Calcium hypochlorite bleach solution	S	S
Calcium nitrate (50%)	S	S
Calcium sulfate	S	S

Legend: S = Satisfactory O = Some attack U = Unsatisfactory

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Reagent	70° F (21° C)	140° F (60° C)
Camphor crystals	S	S
Camphor oil	U	U
Carbon dioxide (100% dry)	S	S
Carbon dioxide (100% wet)	S	S
Carbon dioxide cold saturated	S	S
Carbon disulphide	O	U
Carbon monoxide	S	S
Carbon tetrachloride	U	U
Carbonic acid	S	S
Carnauba wax	S	S
Carrot juice	S	S
Castor oil concentrated	S	S
Catsup	S	S
Caustic soda	S	O
Cedar leaf oil	U	U
Cedar wood oil	U	U
Chlorine liquid	O	U
Chlorobenzene	O	U
Chloroform	U	U
Chlorosulfonic acid (100%)	U	U
Chrome alum saturated	S	S
Chromic acid (10-20%)	S	O
Chromic acid (50%)	S	O
Cider	S	S
Cinnamon	S	S
Cinnamon oil	U	U
Citric acid saturated	S	S
Citronella oil	O	U
Cloves (ground)	S	S
Coconut oil alcohols	S	S
Cod liver oil	S	S
Coffee	S	S
Copper chloride saturated	S	S
Cooper cyanide saturated	S	S
Copper fluoride (2%)	S	S
Copper nitrate saturated	S	S
Copper sulfate dilute	S	S
Copper sulfate saturated	S	S
Corn oil	S	S
Cottonseed oil	S	S
Cranberry sauce	S	S
Cresols	S	O
Cuprous chloride saturated	S	S
Cuprous oxide	S	S
Cyclohexane	U	U
Cyclohexanone	U	U
D		
Decalin	S	S
Detergents (synthetic)	S	S
Developers (photogenic)	S	S
Dextrin saturated	S	S
Dextrose saturated	S	S
Dibutyl ether	O	U
Dichlorobenzene (ortho and para)	U	U
Diethylene glycol	S	S
Dioxane	S	S
Disodium phosphate	S	S
E		
Emulsions (photographic)	S	S
Ether	O	O
Ethyl acetate (100%)	O	O
Ethyl alcohol (35%)	S	S
Ethyl alcohol (100%)	S	S
Ethylbenzene	O	U
Ethylene glycol	S	S
F		
Ferric chloride saturated	S	S
Ferric nitrate saturated	S	S
Ferrous ammonium citrate	S	S
Ferrous chloride saturated	S	S
Ferrous sulfate	S	S
Fluoboric acid	S	S
Fluorine	S	U
Fluosilicic acid (32%)	S	S
Fluosilicic acid concentrated	S	S
Formaldehyde (10-30%)	S	S
Formaldehyde (30-40%)	S	O
Formic acid (20%)	S	S
Formic acid (50%)	S	S
Formic acid (100%)	S	S
Fructose saturated	S	S
Fuel oil	S	U
Furfural (100%)	O	U
Furfuryl alcohol	S	O
G		
Gallic acid saturated	S	S
Gasoline	S	U
Glucose	S	S
Glycerine	S	S
Glycol	S	S
Glycolic acid (30%)	S	S
Grape juice	S	S
Grapefruit juice	S	S
H		
Heptane	O	U
Hexachlorobenzene	S	S
Hexane	U	U
Hydrobromic acid (50%)	S	S

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Reagent	70° F (21° C)	140° F (60° C)
Hydrochloric acid (10%)	S	S
Hydrochloric acid (30%)	S	S
Hydrochloric acid (35%)	S	S
Hydrocyanic acid	S	S
Hydrocyanic acid saturated	S	S
Hydrofluoric acid (40%)	S	S
Hydrofluoric acid (60%)	S	S
Hydrofluoric acid (75%)	S	S
Hydrogen (100%)	S	S
Hydrogen bromide (10%)	S	S
Hydrogen chloride dry gas	S	S
Hydrogen peroxide (30%)	S	O
Hydrogen sulfide	S	S
Hydroquinone	S	S
Hypochlorous acid concentrated	S	S
I		
Inks	S	S
Iodine crystals	O	O
Isobutyl alcohol	S	S
Isopropyl alcohol	S	S
Isopropyl ether	O	U
K		
Kerosene	O	O
L		
Lactic acid (10%)	S	S
Lactic acid (90%)	S	S
Lanolin	S	S
Lard	S	S
Lead acetate saturated	S	S
Lead nitrate	S	S
Lemon juice	S	S
Lemon oil	O	U
Lime juice	S	S
Linseed oil	S	S
M		
Magnesium carbonate saturated	S	S
Magnesium chloride saturated	S	S
Magnesium hydroxide saturated	S	S
Magnesium nitrate saturated	S	S
Magnesium sulfate saturated	S	S
Margarine	S	S
Mercuric chloride	S	S
Mercuric cyanide saturated	S	S
Mercurous nitrate saturated	S	S
Mercury	S	S
Methyl alcohol (100%)	S	S
Methyl ethyl ketone (100%)	U	U
Methylene chloride (100%)	U	U
Methylsulfuric acid	S	S
Milk	S	S
Mineral oils	S	U
Molasses	S	S
Mustard (prepared)	S	S
N		
Naphtha	O	U
Naphthalene	S	U
Natural gas (wet)	S	S
Nickel chloride saturated	S	S
Nickel nitrate concentrated	S	S
Nickel sulfate	S	S
Nicotinic acid	S	S
Nitric acid (0-30%)	S	S
Nitric acid (30-50%)	S	O
Nitric acid (70%)	S	O
Nitric acid (95-98%)	U	U
Nitrobenzene (100%)	U	U
Nitroglycerine	O	U
O		
Octane	S	S
Oleum concentrated	U	U
Olive oil	S	S
Orange juice	S	S
Oxalic acid dilute	S	S
Oxalic acid saturated	S	S
Ozone	O	O
P		
Palm oil	S	S
Paraffin oil	S	O
Peanut butter	S	S
Pepper (fresh ground)	S	S
Peppermint oil	O	U
Perchloric acid (50%)	S	O
Perchloroethylene	U	U
Petroleum ether	U	U
Petroleum jelly	S	S
Phenol	S	S
Phosphoric acid (0-30%)	S	S
Phosphoric acid (30-90%)	S	S
Phosphoric acid (over 90%)	S	S
Photographic solutions	S	S
Phthalic anhydride	S	S
Pickling baths	S	S
Hydrochloric acid	S	S
Sulfuric acid	S	S
Sulfuric-nitric	S	U

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HDPE Chemical Resistance Guide

Reagent	70° F (21° C)	140° F (60° C)
Pine oil	O	U
Plating solutions		
Brass	S	S
Cadmium	S	S
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
Potassium bicarbonate saturated	S	S
Potassium borate (1%)	S	S
Potassium bromate (10%)	S	S
Potassium bromide saturated	S	S
Potassium carbonate	S	S
Potassium chlorate saturated	S	S
Potassium chloride saturated	S	S
Potassium chromate (40%)	S	S
Potassium cyanide saturated	S	S
Potassium dichromate (40%)	S	S
Potassium ferri / ferro cyanide	S	S
Potassium nitrate saturated	S	S
Potassium perborate saturated	S	S
Potassium perchlorate (10%)	S	S
Potassium permanganate (20%)	S	S
Potassium persulfate saturated	S	S
Potassium sulfate concentrated	S	S
Potassium sulfide concentrated	S	S
Potassium sulfite concentrated	S	S
Propane gas	S	S
Propargyl alcohol	S	S
Propyl alcohol	S	S
Propylene glycol	S	S
Pyridine	S	O
R		
Rayon coagulating bath	S	S
Resorcinol	S	S
S		
Salicylic acid	S	S
Seawater	S	S
Shortening	S	S
Silicic acid	S	S
Silver nitrate solution	S	S
Soap solution concentrated	S	S
Sodium acetate saturated	S	S
Sodium benzoate (35%)	S	S
Sodium bicarbonate saturated	S	S
Sodium bisulfate saturated	S	S
Sodium bisulfite saturated	S	S
Sodium borate	S	S
Sodium carbonate concentrated	S	S
Sodium chlorate saturated	S	S
Sodium chloride saturated	S	S
Sodium cyanide	S	S
Sodium dichromate saturated	S	S
Sodium ferricyanide	S	S
Sodium ferricyanide concentrated	S	S
Sodium fluoride saturated	S	S
Sodium hydroxide concentrated	S	S
Sodium hypochlorite	S	S
Sodium nitrate	S	S
Sodium nitrite	S	S
Sodium perborate	S	S
Sodium phosphate	S	S
Sodium sulfide (25% to saturated)	S	S
Sodium sulfite saturated	S	S
Sodium thiosulphate	S	S
Soybean oil	S	S
Stannic chloride saturated	S	S
Stannous chloride saturated	S	S
Starch solution saturated	S	S
Stearic acid (100%)	S	S
Styrene	U	U
Sulfuric acid (0-50%)	S	S
Sulfuric acid (70%)	S	O
Sulfuric acid (80%)	S	U
Sulfuric acid (96%)	O	U
Sulfuric acid (98% concentrated)	O	U
Sulfuric acid (fuming)	U	U
Sulfurous acid	S	S
T		
Tannic acid (10%)	S	S
Tartaric acid	S	S
Tea	S	S
Tetrahydrofuran	O	O
Toluene	U	U
Tomato juice	S	S
Transformer oil	S	O
Trichloroethylene	U	U
Trisodium phosphate saturated	S	S
Turpentine	O	U
U		
Urea	S	S
Urine	S	S

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HDPE Chemical Resistance Guide

Reagent	70° F (21° C)	140° F (60° C)
V		
Vanilla extract	S	S
Vaseline	S	S
Vinegar (commercial)	S	S
W		
Wetting agents	S	S
Whiskey	S	S
Wines	S	S
X		
Xylene	U	U
Y		
Yeast	S	S
Z		
Zinc chloride saturated	S	S
Zinc oxide	S	S
Zinc sulfate saturated	S	S

Note: The proceeding information concerns general chemical resistance only. Since other factors such as permeation, ESCR and container design are involved, full compatibility testing is recommended.

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