

# HDPE Chemical Resistance Guide

Reagent	70° F (21° C)	140° F (60° C)	Reagent	70° F (21° C)	140° F (60° C)
<b>A</b>			<b>B</b>		
Acetaldehyde	S	O	Barium carbonate saturated	S	S
Acetic acid (1-10%)	S	S	Barium carbonate saturated	S	S
Acetic acid (10-60%)	S	O	Barium hydroxide	S	S
Acetic acid (80-100%)	S	O	Barium sulfate saturated	S	S
Acetic anhydride	S	S	Barium sulfite saturated	S	S
Acetone	S	S	Beer	S	S
Acids (aromatic)	S	S	Benzaldehyde	S	O
Acrylic emulsions	S	S	Benzene	O	U
Adipic acid	S	S	Benzene sulfonic acid	S	S
Aluminum chloride concentrated	S	S	Benzoic acid crystals	S	S
Aluminum chloride dilute	S	S	Benzoic acid saturated	S	S
Aluminum fluoride concentrated	S	S	Bismuth carbonate saturated	S	S
Aluminum sulfate concentrated	S	S	Black liquor	S	S
Alums (all types) concentrated	S	S	Bleach lye (10%)	S	S
Amino acetic acid	S	S	Borax cold saturated	S	S
Ammonia (100% dry gas)	S	S	Boric acid concentrated	S	S
Ammonium acetate	S	S	Boric acid dilute	S	S
Ammonium bromide	S	S	Brine	S	S
Ammonium carbonate	S	S	Bromic acid (10%)	S	S
Ammonium chloride saturated	S	S	Bromine liquid (100%)	O	U
Ammonium fluoride (20%)	S	S	Bromochloromethane	U	U
Ammonium hydroxide	S	S	Butadiene	U	U
Ammonium metaphosphate (sat.)	S	S	Butanediol (10%)	S	S
Ammonium nitrate saturated	S	S	Butanediol (60%)	S	S
Ammonium persulfate saturated	S	S	Butanediol (100%)	S	S
Ammonium phosphate	S	S	Butter	S	S
Ammonium sulfate saturated	S	S	Butyl acetate (100%)	O	U
Ammonium sulfide saturated	S	S	Butyl alcohol (100%)	S	S
Ammonium thiocyanate saturated	S	S	Butylene glycol	S	S
Amyl acetate (100%)	O	U	Butyric acid (100%)	S	S
Amyl alcohol (100%)	S	S	<b>C</b>		
Amyl Chloride (100%)	O	U	Caffeine citrate saturated	S	S
Aniline (100%)	S	U	Calcium bisulfide	S	S
Anise seed oil	O	U	Calcium bromide	S	S
Antimony chloride	S	S	Calcium carbonate saturated	S	S
Aqua Regia	O	U	Calcium Chlorate saturated	S	S
Aromatic hydrocarbons	U	U	Calcium hydroxide	S	S
Arsenic	S	S	Calcium hypochlorite bleach solution	S	S
Aspirin	S	S	Calcium nitrate (50%)	S	S
			Calcium sulfate	S	S

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

1 of 5

# HDPE Chemical Resistance Guide

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

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

# HDPE Chemical Resistance Guide

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

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

3 of 5

# HDPE Chemical Resistance Guide

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

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

# HDPE Chemical Resistance Guide

Reagent	70° F (21° C)	140° F (60° C)
<b>V</b>		
Vanilla extract	S	S
Vaseline	S	S
Vinegar (commercial)	S	S
<b>W</b>		
Wetting agents	S	S
Whiskey	S	S
Wines	S	S
<b>X</b>		
Xylene	U	U
<b>Y</b>		
Yeast	S	S
<b>Z</b>		
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.**

## Product inquiries:

### Marina View Headquarters

2600 South Shore Blvd.  
Suite 500  
League City, Texas 77573  
Telephone: 281-535-6600  
Fax: 281-535-6764  
Customer Service: 800-527-5419

### Battleground Manufacturing Complex

1230 Independence Parkway South  
La Porte, Texas 77571  
Telephone: 713-307-3000  
Fax: 713-307-3521  
Technical Center: 800-338-0489

[www.ineos-op.com](http://www.ineos-op.com)

<http://ordersonline.ineos-op.com>

Technical information contained herein is furnished without charge or obligation and is given and accepted at recipient's sole risk. As conditions of use may vary and are beyond the control of INEOS Olefins & Polymers USA, no representations or warranty, express or implied, are made with respect to the accuracy, reliability, or completeness of this information. This information in no way modifies, amends, enlarges, or creates any specification or warranty, and ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY EXCLUDED. INEOS Olefins & Polymers USA shall not be responsible for any damage or injury resulting from abnormal use, from any failure to follow appropriate practices, or from hazards inherent in the nature of the product and/or material, nor for toxicological effects or Industrial Hygiene associated with particular use of any product described herein. This information relates only to the specific product and/or material designated and may not be valid for such product and/or material used in combination with any other product and/or material or in any process, unless otherwise specified. This information shall not be construed as a recommendation for any use that may infringe any patent, trademark, or the like, or as an endorsement of any material, equipment, service, or other item not supplied by INEOS Olefins & Polymers USA.

The name and logo INEOS are trademarks of the INEOS Group and its affiliated companies and businesses.

© INEOS Olefins & Polymers USA February, 2012

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

5 of 5

**INEOS**  
Olefins & Polymers USA