

# HDPE Chemical Compatibility & Resistance Chart

## Explanation of Footnotes

1. Satisfactory to 72°F (22°C)
2. Satisfactory to 120°F (48°C)

## Ratings -- Chemical Effect

- **A = Excellent.**
- **B = Good** -- Minor Effect, slight corrosion or discoloration.
- **C = Fair** -- Moderate Effect, not recommended for continuous use. Softening, loss of strength, swelling may occur.
- **D = Severe Effect**, not recommended for ANY use.
- **N/A = Information not available.**

Chemical	Compatibility
Acetaldehyde	C-Fair
Acetamide	A-Excellent
Acetate Solvent	A-Excellent
Acetic Acid	A-Excellent
Acetic Acid 20%	A-Excellent
Acetic Acid 80%	A-Excellent
Acetic Acid, Glacial	A-Excellent
Acetic Anhydride	C-Fair
Acetone	D-Severe Effect
Acrylonitrile	A-Excellent
Adipic Acid	A-Excellent
Alcohols: Amyl	A-Excellent
Alcohols: Benzyl	B-Good
Alcohols: Diacetone	A-Excellent
Alcohols: Ethyl	A-Excellent
Alcohols: Isobutyl	A-Excellent
Alcohols: Isopropyl	A-Excellent
Alcohols: Methyl	A-Excellent
Allyl Chloride	A-Excellent
Aluminum Chloride	A-Excellent
Aluminum Chloride 20%	A-Excellent
Aluminum Fluoride	A-Excellent
Aluminum Hydroxide	A-Excellent
Aluminum Potassium Sulfate 10%	A-Excellent
Aluminum Potassium Sulfate 100%	A-Excellent
Aluminum Sulfate	A-Excellent
Amines	B-Good
Ammonia 10%	A-Excellent
Ammonia, anhydrous	A-Excellent
Ammonia, liquid	A-Excellent
Ammonium Acetate	A-Excellent
Ammonium Carbonate	B-Good
Ammonium Chloride	A-Excellent

Ammonium Fluoride 25%	A-Excellent
Ammonium Hydroxide	A-Excellent
Ammonium Nitrate	A-Excellent
Ammonium Oxalate	A-Excellent
Ammonium Persulfate	A-Excellent
Ammonium Sulfate	A-Excellent
Ammonium Sulfite	B-Good
Amyl Alcohol	A-Excellent
Amyl Chloride	B-Good
Aniline	B-Good
Antimony Trichloride	B-Good
Aqua Regia (80% HCl, 20% HNO <sub>3</sub> )	D-Severe Effect
Arsenic Acid	B-Good
Barium Chloride	B-Good
Barium Sulfate	B-Good
Barium Sulfide	A-Excellent
Beer	A-Excellent
Benzaldehyde	B-Good
Benzene	D-Severe Effect
Benzene Sulfonic Acid	A-Excellent
Benzoic Acid	A-Excellent
Borax (Sodium Borate)	A-Excellent
Boric Acid	A-Excellent
Bromine	D-Severe Effect
Butadiene	D-Severe Effect
Butyl Phthalate	A-Excellent
Butylacetate	B-Good
Butyric Acid	D-Severe Effect
Calcium Bisulfite	A-Excellent
Calcium Chloride (30% in water)	A-Excellent
Calcium Chloride (saturated)	A-Excellent
Calcium Hydroxide	A-Excellent
Calcium Hydroxide (saturated)	A-Excellent
Calcium Hydroxide 10%	A-Excellent
Calcium Hypochlorite	A-Excellent
Calcium Hypochlorite (saturated)	A-Excellent
Calcium Hypochlorite 30%	A-Excellent
Calcium Nitrate	B-Good
Carbon Disulfide	D-Severe Effect
Carbon Tetrachloride	C-Fair
Carbon Tetrachloride (dry)	C-Fair
Carbon Tetrachloride (wet)	C-Fair
Carbonic Acid	B-Good
Chloral Hydrate	D-Severe Effect
Chlorine (dry)	B-Good
Chlorine Water	C-Fair
Chlorine, Anhydrous Liquid	C-Fair

Chloroacetic Acid	A-Excellent
Chlorobenzene (Mono)	D-Severe Effect
Chloroform	D-Severe Effect
Chlorosulfonic Acid	D-Severe Effect
Chromic Acid 10%	A-Excellent
Chromic Acid 30%	A-Excellent
Chromic Acid 5%	A-Excellent
Chromic Acid 50%	A-Excellent
Citric Acid	A-Excellent
Citric Oils	B-Good
Copper Sulfate >5%	A-Excellent
Copper Sulfate 5%	A-Excellent
Creosote	A-Excellent
Cresols	D-Severe Effect
Cyclohexane	D-Severe Effect
Cyclohexanone	B-Good
Detergents	A-Excellent
Dextrin	A-Excellent
Dextrose	A-Excellent
Diacetone Alcohol	A-Excellent
Dichloroethane	C-Fair
Diesel Fuel	D-Severe Effect
Diethyl Ether	D-Severe Effect
Diethylamine	D-Severe Effect
Diethylene Glycol	A-Excellent
Dimethyl Aniline	B-Good
Dimethyl Formamide	A-Excellent
Disodium Phosphate	A-Excellent
Ethanol	A-Excellent
Ether	D-Severe Effect
Ethyl Acetate	A-Excellent
Ethyl Benzoate	B-Good
Ethyl Chloride	C-Fair
Ethyl Ether	D-Severe Effect
Ethylene Chloride	C-Fair
Ethylene Diamine	B-Good
Ethylene Dichloride	D-Severe Effect
Ethylene Glycol	A-Excellent
Ethylene Oxide	B-Good
Fatty Acids	A-Excellent
Ferric Chloride	D-Severe Effect
Ferrous Chloride	A-Excellent
Fluoboric Acid	A-Excellent
Fluorine	D-Severe Effect
Fluosilicic Acid	B-Good
Formaldehyde 100%	A-Excellent
Formaldehyde 40%	A-Excellent

Formic Acid	A-Excellent
Freon® 11	A-Excellent
Freon® TF	B-Good
Fuel Oils	C-Fair
Furfural	A-Excellent
Gallic Acid	A-Excellent
Gasoline (high-aromatic)	B-Good
Gasoline, leaded, ref.	B-Good
Gasoline, unleaded	B-Good
Gelatin	A-Excellent
Glucose	A-Excellent
Glue, P.V.A.	A-Excellent
Glycerin	A-Excellent
Heptane	B-Good
Hexane	C-Fair
Hydraulic Oil (Petro)	A-Excellent
Hydraulic Oil (Synthetic)	A-Excellent
Hydrazine	D-Severe Effect
Hydrobromic Acid 100%	D-Severe Effect
Hydrobromic Acid 20%	D-Severe Effect
Hydrochloric Acid 100%	D-Severe Effect
Hydrochloric Acid 20%	A-Excellent
Hydrochloric Acid 37%	A-Excellent
Hydrochloric Acid, Dry Gas	D-Severe Effect
Hydrocyanic Acid	A-Excellent
Hydrocyanic Acid (Gas 10%)	A-Excellent
Hydrofluoric Acid 100%	D-Severe Effect
Hydrofluoric Acid 20%	A-Excellent
Hydrofluoric Acid 50%	A-Excellent
Hydrofluoric Acid 75%	B-Good
Hydrofluosilicic Acid 100%	C-Fair
Hydrofluosilicic Acid 20%	B-Good
Hydrogen Gas	A-Excellent
Hydrogen Peroxide 10%	A-Excellent
Hydrogen Peroxide 100%	A-Excellent
Hydrogen Peroxide 30%	A-Excellent
Hydrogen Peroxide 50%	A-Excellent
Hydrogen Sulfide (aqua)	A-Excellent
Hydrogen Sulfide (dry)	A-Excellent
Iodine	B-Good
Iodine (in alcohol)	B-Good
Isooctane	B-Good
Isopropyl Acetate	B-Good
Isopropyl Ether	D-Severe Effect
Jet Fuel (JP3, JP4, JP5, JP8)	D-Severe Effect
Kerosene	B-Good
Ketones	D-Severe Effect

Lacquer Thinners	D-Severe Effect
Lacquers	D-Severe Effect
Lactic Acid	A-Excellent
Lard	A-Excellent
Lead Acetate	A-Excellent
Lead Nitrate	A-Excellent
Lithium Chloride	D-Severe Effect
Lithium Hydroxide	D-Severe Effect
Lubricants	B-Good
Lye: Ca(OH) <sub>2</sub> Calcium Hydroxide	B-Good
Lye: KOH Potassium Hydroxide	B-Good
Lye: NaOH Sodium Hydroxide	B-Good
Magnesium Chloride	A-Excellent
Magnesium Hydroxide	B-Good
Magnesium Nitrate	B-Good
Magnesium Sulfate (Epsom Salts)	A-Excellent
Maleic Acid	A-Excellent
Maleic Anhydride	A-Excellent
Mercuric Chloride (dilute)	A-Excellent
Mercury	A-Excellent
Methanol (Methyl Alcohol)	A-Excellent
Methyl Acetate	C-Fair
Methyl Alcohol 10%	A-Excellent
Methyl Ethyl Ketone	D-Severe Effect
Methyl Isobutyl Ketone	D-Severe Effect
Methylene Chloride	D-Severe Effect
Mineral Spirits	D-Severe Effect
Molasses	A-Excellent
Monochloroacetic Acid	D-Severe Effect
Naphthalene	B-Good
Nickel Chloride	B-Good
Nickel Nitrate	B-Good
Nickel Sulfate	B-Good
Nitric Acid (20%)	B-Good
Nitric Acid (5 to10%)	A-Excellent
Nitric Acid (50%)	D-Severe Effect
Nitric Acid (Concentrated)	D-Severe Effect
Nitrobenzene	D-Severe Effect
Nitromethane	D-Severe Effect
Oils: Cinnamon	D-Severe Effect
Oils: Crude Oil	D-Severe Effect
Oils: Mineral	A-Excellent
Oils: Olive	A-Excellent
Oils: Orange	C-Fair
Oils: Pine	B-Good
Oils: Silicone	A-Excellent
Oleic Acid	C-Fair

Oxalic Acid (cold)	A-Excellent
Ozone	C <sup>2</sup> -Fair
Paraffin	B-Good
Perchloric Acid	D-Severe Effect
Perchloroethylene	D-Severe Effect
Petroleum	D-Severe Effect
Phenol (10%)	D-Severe Effect
Phenol (Carbolic Acid)	D-Severe Effect
Phosphoric Acid (<40%)	A-Excellent
Phosphoric Acid (>40%)	A-Excellent
Phosphoric Acid (crude)	B-Good
Phosphoric Acid (molten)	D-Severe Effect
Phosphoric Acid Anhydride	A-Excellent
Phosphorus Trichloride	A-Excellent
Photographic Solutions	A-Excellent
Phthalic Acid	B-Good
Picric Acid	D-Severe Effect
Potash (Potassium Carbonate)	B-Good
Potassium Bicarbonate	B-Good
Potassium Bromide	B-Good
Potassium Chlorate	B-Good
Potassium Chloride	A-Excellent
Potassium Dichromate	B-Good
Potassium Hydroxide (Caustic Potash)	A-Excellent
Potassium Iodide	B-Good
Potassium Nitrate	B-Good
Potassium Permanganate	A-Excellent
Potassium Sulfate	B-Good
Propane (liquefied)	D-Severe Effect
Propylene Glycol	A-Excellent
Pyridine	D-Severe Effect
Rosins	B-Good
Salt Brine (NaCl saturated)	A-Excellent
Sea Water	A-Excellent
Silver Nitrate	A-Excellent
Soap Solutions	B-Good
Soda Ash (see Sodium Carbonate)	A-Excellent
Sodium Acetate	A-Excellent
Sodium Benzoate	B-Good
Sodium Bicarbonate	A-Excellent
Sodium Bisulfate	B-Good
Sodium Bisulfite	B-Good
Sodium Borate (Borax)	B-Good
Sodium Carbonate	A-Excellent
Sodium Chloride	A-Excellent
Sodium Cyanide	B-Good
Sodium Hydroxide (20%)	C-Fair

Sodium Hydroxide (50%)	C-Fair
Sodium Hydroxide (80%)	C-Fair
Sodium Hypochlorite (<20%)	A-Excellent
Sodium Hypochlorite (100%)	C-Fair
Sodium Iodide	D-Severe Effect
Sodium Metaphosphate	B-Good
Sodium Nitrate	B-Good
Sodium Peroxide	B-Good
Sodium Polyphosphate	B-Good
Sodium Silicate	A-Excellent
Sodium Sulfide	B-Good
Sodium Sulfite	B-Good
Sodium Tetraborate	B-Good
Stearic Acid	A-Excellent
Sulfate (Liquors)	A-Excellent
Sulfur Dioxide	D-Severe Effect
Sulfur Dioxide (dry)	A-Excellent
Sulfuric Acid (<10%)	A-Excellent
Sulfuric Acid (10-75%)	A-Excellent
Sulfuric Acid (75-100%)	B-Good
Sulfuric Acid (cold concentrated)	B-Good
Sulfuric Acid (hot concentrated)	B-Good
Sulfurous Acid	B-Good
Tallow	A-Excellent
Tannic Acid	A-Excellent
Tartaric Acid	A-Excellent
Tetrachloroethylene	C-Fair
Tetrahydrofuran	C-Fair
Toluene (Toluol)	D-Severe Effect
Tomato Juice	A-Excellent
Trichloroacetic Acid	C-Fair
Trichloroethane	D-Severe Effect
Trichloroethylene	D-Severe Effect
Trisodium Phosphate	A-Excellent
Turpentine	B-Good
Urea	A-Excellent
Urine	A-Excellent
Varnish	B-Good
Vinegar	A-Excellent
Vinyl Acetate	D-Severe Effect
Water, Acid, Mine	A-Excellent
Water, Deionized	A-Excellent
Water, Distilled	A-Excellent
Water, Fresh	A-Excellent
Water, Salt	A-Excellent
Whiskey and Wines	B-Good
Xylene	D-Severe Effect

Zinc Chloride	A-Excellent
Zinc Sulfate	A-Excellent

#### WARNING

The information in this chart has been supplied by reputable sources and is to be used ONLY as a guide in selecting equipment for appropriate chemical compatibility. Before permanent installation, test the equipment with the chemicals and under the specific conditions of your application.

Ratings of chemical behavior listed in this chart apply at a 48-hr exposure period. There exists no specific knowledge of possible effects beyond this period. There exists no warranty (neither express nor implied) that the information in this chart is accurate or complete or that any material is suitable for any purpose.

#### DANGER

Variations in chemical behavior during handling due to factors such as temperature, pressure, and concentrations can cause equipment to fail, even though it passed an initial test.

#### SERIOUS INJURY MAY RESULT

Use suitable guards and/or personal protections when handling chemicals.

*Last Modified December 9, 2015*