

# HDPE Chemical Resistance Guide

| Reagent                        | 70° F<br>(21° C) | 140° F<br>(60° C) | Reagent                              | 70° F<br>(21° C) | 140° F<br>(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                 |                                      |                  |                   |
| Amyl Chloride (100%)           | O                | U                 | <b>C</b>                             |                  |                   |
| Aniline (100%)                 | S                | U                 | Caffeine citrate saturated           | S                | S                 |
| Anise seed oil                 | O                | U                 | Calcium bisulfide                    | S                | S                 |
| Antimony chloride              | S                | S                 | Calcium bromide                      | S                | S                 |
| Aqua Regia                     | O                | U                 | Calcium carbonate saturated          | S                | S                 |
| Aromatic hydrocarbons          | U                | U                 | Calcium Chlorate saturated           | S                | S                 |
| Arsenic                        | S                | S                 | Calcium hydroxide                    | S                | S                 |
| Aspirin                        | S                | S                 | Calcium hypochlorite bleach solution | S                | S                 |
|                                |                  |                   | Calcium nitrate (50%)                | S                | S                 |
|                                |                  |                   | Calcium sulfate                      | S                | S                 |

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| 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                 |                                  |                  |                   |

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| 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                 |

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|---------------------------------|---------|---------|-----------------------------------|---------|---------|
| 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       | Sulfuric acid (0-50%)             | S       | S       |
| Potassium permanganate (20%)    | S       | S       | Sulfuric acid (70%)               | S       | O       |
| Potassium persulfate saturated  | S       | S       | Sulfuric acid (80%)               | S       | U       |
| Potassium sulfate concentrated  | S       | S       | Sulfuric acid (96%)               | O       | U       |
| Potassium sulfide concentrated  | S       | S       | Sulfuric acid (98% concentrated)  | O       | U       |
| Potassium sulfite concentrated  | S       | S       | Sulfuric acid (fuming)            | U       | U       |
| Propane gas                     | S       | S       | Sulfurous acid                    | S       | S       |
| Propargyl alcohol               | 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       |
|                                 |         |         | Tea                               | S       | S       |
| <b>R</b>                        |         |         | Tetrahydrofuran                   | O       | O       |
| Rayon coagulating bath          | S       | S       | Toluene                           | U       | U       |
| Resorcinol                      | S       | S       | Tomato juice                      | S       | S       |
|                                 |         |         | Transformer oil                   | S       | O       |
| <b>S</b>                        |         |         | Trichloroethylene                 | U       | U       |
| Salicylic acid                  | S       | S       | Trisodium phosphate saturated     | S       | S       |
| Seawater                        | S       | S       | Turpentine                        | O       | U       |
| Shortening                      | S       | S       |                                   |         |         |
| Silicic acid                    | S       | S       | <b>U</b>                          |         |         |
| Silver nitrate solution         | S       | S       | Urea                              | S       | S       |
| Soap solution concentrated      | S       | S       | Urine                             | S       | S       |
| Sodium acetate saturated        | S       | S       |                                   |         |         |

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|-------------------------|------------------|-------------------|
| <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.**

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