



Copolymer Polypropylene Chemical Resistance

Copolymer Polypropylene is a tough and chemical resistant material. As proof, it is the material automotive storage (lead acid) batteries are made of. As the steel reinforcement of the American Step manhole steps is totally encapsulated within the Copolymer Polypropylene plastic, they are a manhole step which has excellent corrosion resistance in the sewer manhole environment.

The following compiled test data addresses the chemical resistance of Copolymer Polypropylene.

Rating System:

This chart rates the chemical resistance of Copolymer Polypropylene according to the following:

A: Negligible Effect - Should be suitable for all applications where these environmental conditions exist.

B: Limited Absorption or Attack - Should be suitable for most applications, but the user is advised to make his own tests to determine the suitability of polypropylene in the particular environment.

C: Extensive Absorption and/or Rapid Permeation - Should be suitable for applications where only intermittent service is involved, or where the swelling produced has no detrimental effect on the part. The user should make his own tests to determine the suitability of polypropylene in the particular environment.

D: Extensive Attack - The specimen dissolves or disintegrates. Polypropylene is not Recommended.

| Environment | Conc. % | Temperature, °C | | |
|--|------------|-----------------|--------------|-----|
| | | 20 | 60 | 100 |
| -A- | | | | |
| Acetic Acid (glacial) | 97 | A | B (80 °C) | — |
| Acetic Acid | 50 | A | A (80 °C) | — |
| Acetic Acid | 40 | A | — | — |
| Acetic Acid | 10 | A | A | — |
| Acetone | 100 | A | A | — |
| Acetophenone | 100 | B | B | — |
| Acriflavine (2% solution in H ₂ O) | 2 | A | A (80 °C) | — |
| Acrylic Emulsions | | A | A | — |
| Aluminum Chloride | | A | A | — |
| Aluminum Fluoride | | A | A | — |
| Aluminum Sulfate | | A | A | — |
| Alums (all types) | | A | A | — |
| Ammonia (aqueous) | 30 | A | — | — |
| Ammonia Gas (dry) | | A | A | — |
| Ammonium Carbonate | Satd. | A | A | — |
| Ammonium Chloride | Satd. | A | A | — |
| Ammonium Fluoride | 20 | A | A | — |
| Ammonium Hydroxide | 10 | A | A | — |
| Ammonium Metaphosphate | Satd. | A | A | — |
| Ammonium Nitrate | Satd. | A | A | — |
| Ammonium Persulfate | Satd. | A | A | — |
| Ammonium Sulfate | Satd. | A | A | — |
| Ammonium Sulfide | Satd. | A | A | — |
| Ammonium Thiocyanate | Satd. | A | A | — |
| Amyl Acetate | 100 | B | C | — |
| Amyl Alcohol | 100 | A | B | — |
| Amyl Chloride | 100 | C | C | — |
| Aniline | 100 | A | A | — |
| Anisole | 100 | B | B | — |
| Antimony Chloride | | A | A | — |
| Aqua Regia | (a) | B | B | — |
| Aviation Fuel (115.145 Octane) | 100 | B | C | — |
| Aviation Turbine Fuel | 100 | B | C | — |
| -B- | | | | |
| Barium Carbonate | Satd. | A | A | — |
| Barium Chloride | Satd. | A | A | — |
| Barium Hydroxide | | A | A | — |
| Barium Sulfate | Satd. | A | A | — |
| Barium Sulfide | Satd. | A | A | — |
| Beer | | A | A | — |
| Benzene | 100 | B | C | C |
| Benzoic Acid | | A | A | — |
| Benzyl Alcohol | | A | A (80 °C) | — |

| Environment | Conc. % | Temperature, °C | | |
|-----------------------------|------------|-----------------|----|-----|
| | | 20 | 60 | 100 |
| Bismuth Carbonate | Satd. | A | A | — |
| Borax | | A | A | — |
| Boric Acid | | A | A | — |
| Brine | Satd. | A | A | — |
| Bromine Liquid | 100 | D | — | — |
| Bromine Water | (a) | C | — | — |
| Butyl Acetate | 100 | C | C | — |
| Butyl Alcohol | 100 | A | A | — |
| -C- | | | | |
| Calcium Carbonate | Satd. | A | A | — |
| Calcium Chlorate | Satd. | A | A | — |
| Calcium Chloride | 50 | A | A | — |
| Calcium Hydroxide | | A | A | — |
| Calcium Hypochlorite Bleach | 20(a) | A | B | — |
| Calcium Nitrate | | A | A | — |
| Calcium Phosphate | 50 | A | — | — |
| Calcium Sulfate | | A | A | — |
| Calcium Sulfite | | A | A | — |
| Carbon Dioxide (dry) | | A | A | — |
| Carbon Dioxide (wet) | | A | A | — |
| Carbon Disulfide | 100 | B | C | — |
| Carbon Monoxide | | A | A | — |
| Carbon Tetrachloride | 100 | C | C | C |
| Carbonic Acid | | A | A | — |
| Castor Oil | | A | — | — |
| Cetyl Alcohol | 100 | A | — | — |
| Chlorine (gas) | 100 | D | D | — |
| Chlorobenzene | 100 | C | C | — |
| Chloroform | 100 | C | D | D |
| Chlorosulfonic Acid | 100 | D | D | D |
| Chrome Alum | | A | A | — |
| Chromic Acid | 80 (a) | A | — | — |
| Chromic Acid | 50(a) | A | A | — |
| Chromic Acid | 10(a) | A | A | — |
| Chromic, Sulfuric Acid | | D | D | — |
| Cider | | A | A | — |
| Citric Acid | 10 | A | A | — |
| Copper Chloride | Satd. | A | A | — |
| Copper Cyanide | Satd. | A | A | — |
| Copper Fluoride | Satd. | A | A | — |
| Copper Nitrate | Satd. | A | A | — |
| Copper Sulfate | Satd. | A | A | — |
| Cottonseed Oil | | A | A | — |
| Cuprous Chloride | Satd. | A | A | — |

| Environment | Conc. % | Temperature, °C | | |
|-------------------------------|------------|-----------------|----|--------------|
| | | 20 | 60 | 100 |
| Cyclohexanol | 100 | A | B | — |
| Cyclohexanone | 100 | B | C | — |
| —D— | | | | |
| Decalin | 100 | C | C | C |
| Detergents | 2 | A | A | A |
| Developers (photographic) | | A | A | — |
| Dibutyl Phthalate | 100 | A | B | D |
| Dichloroethylene | 100 | A | — | — |
| Diethanolamine | 100 | A | A | — |
| Diisooctyl Phthalate | 100 | A | A | — |
| —E— | | | | |
| Emulsifiers | | A | A | — |
| Ethanolamine | 100 | A | A | — |
| Ethyl Acetate | 100 | B | B | — |
| Ethyl Alcohol | 96 | A | A | A (80 °C) |
| Ethyl Chloride | 100 | C | C | — |
| Ethylene Dichloride | 100 | B | — | — |
| Ethylene Glycol | | A | A | — |
| Ethylene Oxide | 100 | B (10 °C) | — | — |
| Ethyl Ether | 100 | B | — | — |
| —F— | | | | |
| Fatty Acids (C ₆) | 100 | A | A | — |
| Ferric Chloride | Satd. | A | A | — |
| Ferric Nitrate | Satd. | A | A | — |
| Ferric Sulfate | Satd. | A | A | — |
| Ferrous Chloride | Satd. | A | A | — |
| Ferrous Sulfate | Satd. | A | A | — |
| Fluosilicic Acid | | A | A | — |
| Formaldehyde | 40 | A | A | — |
| Formic Acid | 100 | A | — | — |
| Formic Acid | 10 | A | A | — |
| Fructose | | A | A | — |
| Fruit Juices | | A | A | — |
| Furfural | 100 | C | C | — |
| —G— | | | | |
| Gas Liquor | | C | — | — |
| Gasoline | 100 | B | C | C |
| Gearbox Oil | 100 | A | B | — |
| Gelatin | | A | A | — |

| Environment | Conc. % | Temperature, °C | | |
|-----------------------------------|------------|-----------------|----------------------|-----|
| | | 20 | 60 | 100 |
| Glucose | 20 | A | A | — |
| Glycerin | 100 | A | A | A |
| Glycol | | A | A | — |
| —H— | | | | |
| Hexane | 100 | A | B | — |
| Hydrobromic Acid | 50(a) | A | A | — |
| Hydrochloric Acid | 30(a) | A | B | D |
| Hydrochloric Acid | 20 | A | A (80 °C) | — |
| Hydrochloric Acid | 10 | A | A (80 °C) | B |
| Hydrochloric Acid | 2 | A | A | A |
| 50-50 HCl-HNO ₃ | (a) | B | D (80 °C) | — |
| Hydrofluoric Acid | 40 | A | — | — |
| Hydrofluoric Acid | 60(a) | A | A (40 °C) | — |
| Hydrogen Chloride Gas (dry) | 100 | A | A | — |
| Hydrogen Peroxide | 30 | A | — | D |
| Hydrogen Peroxide | 10 | A | B | — |
| Hydrogen Peroxide | 3 | A | — | — |
| Hydrogen Sulfide | | A | A | — |
| Hydroquinone | | A | A | — |
| —I— | | | | |
| Inks | | A | A | — |
| Iodine Tincture | | A | — | — |
| Isooctane | 100 | C | C | — |
| Isopropyl Alcohol | 100 | A | A | — |
| —K— | | | | |
| Ketones | | A | — | — |
| —L— | | | | |
| Lactic Acid | 20 | A | A | — |
| Lanolin | 100 | A | A | — |
| Lead Acetate | Satd. | A | A | — |
| Linseed Oil | 100 | A | A | — |
| Lubricating Oil | 100 | A | B | — |
| —M— | | | | |
| Magenta Dye (aqueous solution) | 2 | A | A (some staining) | — |
| Magnesium Carbonate | Satd. | A | A | — |
| Magnesium Chloride | Satd. | A | A | — |
| Magnesium Hydroxide | Satd. | A | A | — |
| Magnesium Nitrate | Satd. | A | A | — |
| Magnesium Sulfate | Satd. | A | A | — |

| Environment | Conc. % | Temperature, °C | | |
|--|---------|-----------------|--------------|-----|
| | | 20 | 60 | 100 |
| Magnesium Sulfite | Satd. | A | A | — |
| Meat Juices | | A | A | — |
| Mercuric Chloride | 40 | A | A | — |
| Mercuric Cyanide | Satd. | A | A | — |
| Mercurous Nitrate | Satd. | A | A | — |
| Mercury | 100 | A | A | — |
| Methyl Alcohol | 100 | A | A | — |
| Methylene Chloride | 100 | A | — | — |
| Methyl Ethyl Ketone | 100 | A | B | — |
| Milk and its Products | | A | A | A |
| Mineral Oil | 100 | A | B | — |
| Molasses | | A | A | — |
| Motor Oil | 100 | A | B | — |
| —N— | | | | |
| Naphthalene | 100 | A | A | A |
| Nickel Chloride | Satd. | A | A | — |
| Nickel Nitrate | Satd. | A | A | — |
| Nickel Sulfate | Satd. | A | A | — |
| Nitric Acid | Fuming | D | D | D |
| Nitric Acid | 70 (a) | C | D | — |
| Nitric Acid | 60 | A | D (80 °C) | — |
| Nitric Acid | 10 | A | A | A |
| 50-50 HNO ₃ -HCL | (a) | A | D (80 °C) | — |
| 50-50 HNO ₃ -H ₂ SO ₄ | (a) | C | D (80 °C) | — |
| Nitrobenzene | 100 | A | A | — |
| —O— | | | | |
| Oleic Acid | | A | B | — |
| Oleum | | — | — | D |
| Olive Oil | 100 | A | A | — |
| Oxalic Acid (aqueous) | 50 | A | B | — |
| —P— | | | | |
| Paraffin | 100 | A | B | — |
| Paraffin Wax | 100 | A | A | — |
| Petrol | 100 | B | C | — |
| Petroleum Ether (boiling point 100-140°C) | 100 | C | C | — |
| Petroleum Jelly | | A | A | — |
| Phenol | 100 | A | A | — |
| Phosphoric Acid | 95 | A | A | — |
| Plating Solutions, Brass | | A | A | — |
| Plating Solutions, Cadmium | | A | A | — |
| Plating Solutions, Chromium | | A | A | — |
| Plating Solutions, Copper | | A | A | — |
| Plating Solutions, Gold | | A | A | — |

| Environment | Conc. % | Temperature, °C | | |
|------------------------------|---------|-----------------|--------------|-----|
| | | 20 | 60 | 100 |
| Plating Solutions, Indium | | A | A | — |
| Plating Solutions, Lead | | A | A | — |
| Plating Solutions, Nickel | | A | A | — |
| Plating Solutions, Rhodium | | A | A | — |
| Plating Solutions, Silver | | A | A | — |
| Plating Solutions, Tin | | A | A | — |
| Plating Solutions, Zinc | | A | A | — |
| Potassium Bicarbonate | Satd. | A | A | — |
| Potassium Borate | 1 | A | A | — |
| Potassium Bromate | 10 | A | A | — |
| Potassium Bromide | Satd. | A | A | — |
| Potassium Carbonate | Satd. | A | A | — |
| Potassium Chlorate | Satd. | A | A | — |
| Potassium Chloride | Satd. | A | A | — |
| Potassium Chromate | 40 | A | A | — |
| Potassium Cyanide | Satd. | A | A | — |
| Potassium Dichromate | 40 | A | A | — |
| Potassium Ferri-Ferrocyanide | | A | A | — |
| Potassium Fluoride | | A | A | — |
| Potassium Hydroxide | 50 | A | A | — |
| Potassium Hydroxide | 10 | A | A | A |
| Potassium Nitrate | Satd. | A | A | — |
| Potassium Perborate | Satd. | A | A | — |
| Potassium Perchlorate | 10 | A | A | — |
| Potassium Permanganate | 20 | A | A | — |
| Potassium Sulfate | | A | A | — |
| Potassium Sulfide | | A | A | — |
| Potassium Sulfite | | A | A | — |
| Propyl Alcohol | 100 | A | A | — |
| Pyridine | 100 | A | — | — |
| —S— | | | | |
| Silicone Oil | 100 | A | A | — |
| Soap Solution (concentrated) | | A | A | — |
| Sodium Acetate | | A | A | — |
| Sodium Bicarbonate | Satd. | A | A | — |
| Sodium Bisulfate | Satd. | A | A | — |
| Sodium Bisulfite | Satd. | A | A | — |
| Sodium Borate | | A | A | — |
| Sodium Bromide Oil Solution | | A | A | — |
| Sodium Carbonate | Satd. | A | A | — |
| Sodium Chlorate | Satd. | A | A | — |
| Sodium Chloride | Satd. | A | A | A |
| Sodium Chlorite | 2 | A | A (80 °C) | — |

| Environment | Conc. % | Temperature, °C | | |
|---|---------|-----------------|--------------|-----|
| | | 20 | 60 | 100 |
| Sodium Chlorite | 5 | A | A (80 °C) | — |
| Sodium Chlorite | 10 | A | A (80 °C) | — |
| Sodium Chlorite | 20 | A | A (80 °C) | — |
| Sodium Cyanide | Satd. | A | A | — |
| Sodium Dichromate | Satd. | A | A | — |
| Sodium Ferricyanide | Satd. | A | A | — |
| Sodium Ferrocyanide | Satd. | A | A | — |
| Sodium Fluoride | Satd. | A | A | — |
| Sodium Hydroxide | 50 | A | A | — |
| Sodium Hydroxide | 10 | A | A | A |
| Sodium Hypochlorite | 20 | A | B | B |
| Sodium Nitrate | | A | A | — |
| Sodium Nitrite | | A | A | — |
| Sodium Silicate | | A | A | — |
| Sodium Sulfate | Satd. | A | A | — |
| Sodium Sulfide | 25 | A | A | — |
| Sodium Sulfite | Satd. | A | A | — |
| Stannic Chloride | Satd. | A | A | — |
| Stannous Chloride | Satd. | A | A | — |
| Starch | | A | A | — |
| Sugars and Syrups | | A | A | — |
| Sulfamic Acid | | A | A (80 °C) | — |
| Sulfates of: Calcium and Magnesium | Satd. | A | A | — |
| Sulfites of: Potassium and Sodium | Satd. | A | A | — |
| Sulfur | | A | A | — |
| Sulfuric Acid | 98 (a) | C | — | D |
| Sulfuric Acid | 60 | A | B (80 °C) | — |
| Sulfuric Acid | 50 | A | B | — |
| Sulfuric Acid | 10 | A | A | A |
| 50-50 H ₂ SO ₄ HNO ₃ | (a) | C | D (80 °C) | — |
| —T— | | | | |
| Tallow | | A | A | — |

| Environment | Conc. % | Temperature, °C | | |
|---|---------|-----------------|--------------|-----|
| | | 20 | 60 | 100 |
| Tannic Acid | 10 | A | A | — |
| Tartaric Acid | | A | A | — |
| Tetrahydrofuran | 100 | C | C | C |
| Tetralin | 100 | C | C | C |
| Toluene | 100 | C | C | — |
| Transformer Oil | 100 | A | C | — |
| Trichloroacetic Acid | 10 | A | A | — |
| Trichloroethylene | 100 | C | C | C |
| Triethanolamine | 100 | A | A (80 °C) | — |
| Turpentine | 100 | C | C | C |
| —U— | | | | |
| Urea | | A | A | — |
| Urine | | A | A | — |
| —V— | | | | |
| Vinegar | | A | A | — |
| —W— | | | | |
| Water (distilled, soft, hard, and vapor) | | A | A | A |
| Wet Chlorine Gas | | — | D (70°C) | — |
| Whisky | | A | A | A |
| White Paraffin | 100 | A | B (80 °C) | — |
| White Spirit | 100 | B | C | — |
| Wines | | A | A | — |
| —X— | | | | |
| Xylene | 100 | C | C | C |
| —Y— | | | | |
| Yeast | | A | A | — |
| —Z— | | | | |
| Zinc Chloride | Satd. | A | A | — |
| Zinc Oxide | | A | A | — |
| Zinc Sulfate | Satd. | A | A | — |

(a) May produce cracking in material under stress.