

Chemical Resistance of Polycarbonate

Polycarbonate is resistant to several chemicals, including: mineral acids up to high concentrations, many organic acids, oxidizing and reducing agents, neutral and acid salt solutions, many fats, waxes and oils, saturated aliphatics and cycloaliphatics and alcohols, except methyl alcohol.

Polycarbonate is chemically decomposed by watery or alcoholic alkaline solutions, ammonia gas or its solutions, and amines.

The following lists the resistance of polycarbonate to chemicals and various other products. The test results are for stress-free moldings, stored in the agents without mechanical pressure at 65°F for a period of 6 months, or where contact was otherwise established.

Resistance is not only a function of the agent, but its concentration, temperature at the time of contact, duration of exposure, as well as the degree of pressure. All these factors affect resistance.

Our accelerated laboratory tests represent only a sampling of possible exposure conditions. Chemical resistance can best be determined when tests are conducted under actual conditions.

- + Ammonium sulphate, saturated solution in water
- Ammonium sulphide, saturated solution in water
- Amyl acetate
- Aniline
- + Antimony chloride, saturated solution in water
- + Arsenic acid, 20%
- Benzaldehyde
- Benzoic acid
- Benzene
- Benzyl alcohol
- + Benzine (Petroleum Benzine) (non-aromatic)
- + Borax, saturated solution in water
- + Boric acid
- Bromine
- Bromobenzene
- + Butane (liquid and gaseous)
- Butyric acid
- Butyl acetate
- + Butyl alcohol
- + Butylene glycol
- + Calcium chloride, saturated solution in water
- + Calcium nitrate, saturated solution in water
- + Calcium soap fat, pure
- + Calcium hypochloride
- Carbon bisulphide
- + Carbon dioxide, moist
- + Carbon monoxide
- Chloric gas, dry
- Chloric gas, moist
- + Chloride of lime magma
- + Chloride of lime solution, 2% in water
- Chlorobenzene
- Chloroform
- + Chromic alum, saturated solution in water
- + Chromic acid, 20% in water
- + Citric acid 10%
- Caustic potash
- Caustic potash solution
- Caustic soda
- + Copper chloride, saturated solution in water
- + Copper chloride, saturated solution in water
- Cresol
- + Cupric sulphate, saturated solution in water
- 0 Cyclohexanal
- 0 Cyclohexane
- Cyclohexanone
- + Decalin
- Diamyl phthalate
- Diethyl ether
- + Diethylene glycol
- Dibutyl phthalate (softener)
- + Diglycol acid, saturated solution in water
- 0 Dinonyl phthalate (softener)
- 0 Dioctyl phthalate (softener)
- Dimethyl formamide
- Dioxan
- 0 Diphenyl 5.3
- Ether
- + Ethyl alcohol, 96% pure
- Ethyl amine
- Ethyl bromide
- Ethylene chlorohydrine
- Ethyl dichloride
- + Ethylene glycol
- + Formalin 10%
- 0 Formic acid
- + Ferric chloride, saturated solution in water
- + Ferrous sulphate

Table 5: Chemical Resistance

LEGEND:

- + Resistant
- 0 Conditionally Resistant
- Non-Resistant

A. Chemicals

- Acetaldehyde
- Acetone
- + Acetic acid, up to 10%
- + Acetylene
- Acrylonitrile
- 0 Allyl alcohol
- + Alumen
- + Aluminium chloride anhydrous, saturated solution in water
- + Aluminium alumen potash, saturated solution in water
- + Aluminium oxalate
- + Aluminium sulphate, saturated solution in water
- Ammonia
- Ammonia water
- + Ammonium chloride, saturated solution in water
- Ammonium fluoride, saturated solution in water
- + Ammonium nitrate, saturated solution in water

- 0 Glycerin
- + Glycol
- + Heptane
- + Hexane
- + Hydrochloric acid, 20%
- Hydrochloric acid, concentrated
- + Hydrofluoric acid, 30%
- + Hydrofluoric acid, 5%
- Hydrofluoric acid, concentrated
- + Hydrogen superoxide, 30%
- + Illuminating gas
- Iodine
- 0 Isopropyl alcohol
- + Lactic acid, 10% solution in water
- 0 Lead tetraethyl, 10% in benzine
- + Ligroine (carbon-hydrogen mixture)
- + Magnesium chloride, saturated solution in water
- + Magnesium sulphate, saturated solution in water
- + Manganese sulphate, saturated solution in water
- + Mercury
- + Mercuric chloride, saturated
- Methyl methacrylate
- + Methane
- Methanol
- Methyl amine
- Methyl ethyl ketone
- Methylene chloride
- 0 Milk of lime, 30% slurry in water
- Natron solution
- + Nitric acid, 10%
- 0 Nitric acid, 10-20%
- Nitric acid, 20%
- Nitro benzene
- Nitrous fumes, dry
- + Oxalic acid, 10% in water
- + Oxide of zinc
- + Oxygen
- + Ozone
- + Pentane
- Perchloroethylene
- + Perchloric acid, 10% in water
- 0 Perchloric acid, concentrated
- + Perhydrol, 30%
- 0 Petroleum ether (carbon hydrogen mixture)
- 0 Petroleum
- Phenol
- Phenyl ethyl alcohol
- Phosphorus oxychloride
- 0 Potato-spirit oil
- + Potassium bichromate, saturated solution in water
- + Potassium bromate, saturated solution in water
- + Potassium carbonate, saturated solution in water
- + Potassium chloride, saturated solution in water
- Potassium cyanide
- + Potassium nitrate, saturated solution in water
- + Potassium metabisulphite, 4% in water
- + Potassium rhodanide, saturated solution in water
- + Potassium perchlorate, 10% in water
- + Potassium permanganate, 10% in water
- + Potassium persulphate, 10% in water
- + Potassium sulphate, saturated solution in water
- + Propane gas
- + Propanyl alcohol
- + Propionic acid, concentrated
- + Propyl alcohol
- Pyridine
- + Resorcin solution, 1%

- + Soda
- + Sodium bicarbonate, saturated solution in water
- + Sodium bisulphate, saturated solution in water
- + Sodium bisulphite, saturated solution in water
- + Sodium carbonate, saturated solution in water
- + Sodium chlorate, saturated solution in water
- + Sodium chloride, saturated solution in water
- + Sodium hypochloride, 0.5% solution in water
- + Sodium sulphate, saturated solution in water
- 0 Sodium sulphite, saturated solution in water
- + Spirit, pure
- Styrene
- + Sublimate, saturated solution in water
- + Sulphur
- 0 Sulphur dioxide
- + Sulphuric acid, 50%
- 0 Sulphuric acid, 70%
- Sulphuric acid, concentrated
- Sulphurous acid, 10%
- + Sulphuretted hydrogen
- Sulphury chloride
- + Tartaric acid, 10%
- Tetrachloroethane
- Tetrahydrofurane
- Tetraline
- Thiophene
- Toluol
- Trichloroethylamine
- Trichloroethylene
- 0 Trichloroethyl phosphate (softener)
- 0 Trichloroacetic acid, 10%
- Tricresylol phosphate (softener)
- + Urea, saturated solution in water
- + Water
- Xylol
- + Zinc chloride, saturated solution in water
- + Zinc sulphate, saturated solution in water

B. Germicides

- + Baktol, 5%
- Carbolic acid
- + Chloramine
- DDT
- + Delekol, 5%
- 0 Dimamine T, 5%
- + Hydrogen superoxide
- + Lysoform, 2%
- TB-Lysoform
- + Maktol
- + Merfen, 2%
- + Oktozon, 1%
- + Perhydrol
- + Resorcin solution, 1%
- 0 Sagrotan, 5%
- + Spirit, pure
- + Sublimate
- 0 Tincture of Iodine
- + Trosilon G extra, 1.5%
- 0 Zephirol

C. Detergents

- + Ajax[®]
- + Javel water
- + Laundry soap
- + Silicone fluid-emulsion
- + Soft soap

D. Technical Oils & Lubricants

- + Aral BG® 58
- + Automatic switch grease
- + Baysilon® — silicone oils
- + BP Energol HL 100®
- + BP Energol EM 100®
- + BP H LR 65®
- Brake fluid (ATE)
- + Burnishing oil Brunofix®
- + Cable insulating oil IG 1402
- + Cable insulating oil KH 190
- + Calcium soap fat
- Camphor oil
- + Castor oil
- + Contact oil 61 I
- 0 Diesel oil
- Drilling oil
- + Esso Estic 42-45®
- + Fish oil
- + Grease R Z Darina®
- 0 Heating fuel oil
- + Hydraulic oil Vac HLP 16
- 0 Jet propulsion fuel JP 4 (kp 97-209°C)
- + Mobil DTE oil light®
- + Mobil special oil 10 w 30®
- + Molikote® — paste
- + Molikote® — powder
- + Nato-turbine oil 0-250
- + Naphtenic lubricating oil
- + Paraffin oil
- + Polyran® MM25 (lubricating oil)
- + Rape seed oil
- + Renocalor N®
- + Sewing machine oil
- + Shell Spriax 90 EP®
- 0 Shell Tellus 11-33®
- + Shell Tellus 33®
- + Silicone fluid
- Skydrol 500 A®
- + Sodium soap fat
- + Texaco Regal oil BRUO®
- + Texaco Regal oil CRUO®
- + Train oil
- + Turbo oil 29
- 0 Turpentine oil
- 0 Valvoline WA 4-7
- 0 Varnish

E. Adhesives & Sealing Materials

- 0 All-purpose glue
- + Cellux® — adhesive film
- + Gypsum
- + Insulating tape
- + Perbunan C®
- + Putty
- + Rubber (softener-free)
- + Terostat®
- + Tesafilm®
- + Tesamoll®

F. Polishing Agents & Antistatics

- Antistatic C, 5%
- 0 Antistaticum 58
- 0 Arquad 18®, 50%
- + Delu-Antistatic solution®
- + Persoftal®, 2%

- + Perspex Polish 3®
- + Plexiklar®
- + Polifax — polishing paste®
- + Statexan AN®

G. Inks & China Inks

- 0 Ball point pen paste — Othello
- 0 Ball point pen paste — Diplomat
- + Ball point pen paste V77 (Linz)
- Drawing ink S
- + Drawing ink T
- + Geha-Stamping ink
- 0 Multi-Marker (Faber Castell)
- + Pelikan Royal Blue 4001
- + Registering ink DIA type U red
- + Visor pen 7 blue

H. Miscellaneous

- + Basilit® UAK, 20% in water (wood preservative)
- 0 Battery acid
- + Blood
- + Castor oil
- + Cement
- + Chrome oxide green (polishing paste)
- + Cleaning benzene
- + E 605®, 0.5% (plant protective)
- E 605®, concentrated
- + Final photographic developer, readied concentration
- + Floor polish
- + Frigen® 113, R 113 (sponging agent)
- + Freon® TF (sponging agent)
- + Freon® T-WD 602 (sponging agent)
- + Gypsum
- + Illuminating gas
- + Insulating tape
- + Kaltron® 113 MDR (sponging agent)
- + Kerosene (aviation gasoline)
- + Marlon® 1% (wetting agent)
- Metasystox®, 0.5% (plant protective)
- + Natural rubber
- + Nekal BX®, 2% (wetting agent)
- + Neutrol photographic developer, readied concentration
- + Ocean water
- + Oleic acid, concentrated
- + Orthozid® 50, 0.5% (plant protective)
- 0 Petrol, regular
- Petrol, super
- + PLK 4 (wood preservative)
- + Polyamide
- + Polyethylene
- + Polyvinyl chloride
- 0 Polyvinyl chloride, with softener
- Shell IP 4 (motor fuel)
- 0 Soap suds
- + Sweat, acetous (pH 4.7)
- 0 Sweat, alkaline (pH 9.5)
- + Starch
- Tannic acid
- 0 Tanigan® CV, acidic
- 0 Tanigan® CLS, 30%
- + Waste gas
- White spirit