



CHEMICAL RESISTANCE

ADVANCED POLYURETHANES

CHEMICAL RESISTANCE POLYURETHANE ELASTOMERS

This is a general guide for the exposure of Polyurethane elastomers to a wide range of chemicals. It must be emphasized that this is a guide only, and all other requirements for satisfactory performance must be considered such as operational temperature ranges, aeration, length of time exposed, and other pertinent factors.

Concentrations of aqueous solutions, unless specified, are understood to be saturated. Temperatures, unless specified, are understood to be room temperature.

A-Little or no effect,

B-Minor to moderate effect.

C-Severe effect to complete destruction

T- Test before using. No data but most likely to be satisfactory.

X- No data but most likely to be unsatisfactory

| Chemical | Effect | Chemical | Effect |
|------------------------------|----------|-----------------------------|----------|
| Acetaldehyde | C | Barium Chloride | A |
| Acetic acid. 20% | B | Barium sulfate | A |
| Acetic anhydride | X | Barium sulfide | A |
| Acetone | C | Benzaldehyde | X |
| Acetyl Bromide | C | Benzene | C (70°C) |
| Acetyl Chloride | C | Benzoic Acid | B |
| Acetylene | X | Benzoyl Chloride | T |
| Adipic Acid | A | Borax solutions | A |
| Aluminium chloride solutions | T | Boric acid solutions | A |
| Aluminium sulfate solutions | T | Bromine, anhydrous liquid | X |
| Aluminium sulfide | B | Butane | A |
| Ammonia, anhydrous | T | Butyl acetate | C |
| Ammonium acetate | C | Butyl Alcohol | B |
| Ammonium carbonate | B | Butyraldehyde | T |
| Ammonium hydroxide solutions | C | Calcium bisulfite solutions | A |
| Ammonium chloride solutions | T | Calcium chloride solutions | T |
| Ammonium sulfate solutions | T | Calcium hydroxide solutions | A |
| Ammonium sulfide | B | Calcium Hypochlorite, 5% | T |
| Ammonium Thiocyanide | B | Calcium nitrate | A |
| Ammonium Nitrate | X | Carbon bisulfide | T |
| Amyl acetate | C (50°C) | Carbon dioxide | A |
| Amyl alcohol | X | Carbon monoxide | A |
| ASTM hydrocarbon test fluid | T | Carbon tetrachloride | C (50°C) |
| ASTM oil No 1 | A (70°C) | Castor oil | A |
| ASTM oil No 3 | B(70°C) | Chlorine gas | C |

A: Little or no effect, **B:** Minor to moderate effect, **C:** Severe effect to complete destruction, **T:** No testdata but most likely to be satisfactory, **X:** No testdata but most likely to be unsatisfactory.

| Chemical | Effect | Chemical | Effect |
|----------------------------|----------|---------------------|----------|
| ASTM reference fuel A | A | Chlorine, wet | C |
| ASTM reference fuel B | B (50°C) | Chloroacetic acid | X |
| ASTM reference fuel C | C | Chlorobenzene | X |
| Barium hydroxide solutions | A | Chloroform | C |
| Barium carbonate | B | Chlorosulfonic acid | X |
| Copper cyanide | A | Ferric nitrate | B |
| Copper sulfate solutions | A | Ferrous chloride | B |
| Cottonseed oil | A | Ferrous sulfate | B |
| Creosote oil | T | Fluosilicic acid | T |
| Cupric Chloride | A | Formaldehyde, 37% | C |
| Cupric Nitrate | B | Formaldehyde, 40% | C |
| Cupric Sulphate | B | Formic acid | C |
| Cyclohexane | A | FREON-11 | B |
| Cyclohexanone | C | FREON-11 | B (55°C) |
| Dibutyl ether | B | FREON-12 | A |
| Dibutyl phthalate | C(70°C) | FREON-12 | A (55°C) |
| Diethyl sebacate | C | FREON-22 | C |
| Dichlorobenzene | C | FREON-22 | C (55°C) |
| Dimethyl acetamide | C | FREON-113 | A |
| Dimethyl formamide | C | FREON-113 | T (55°C) |
| Dioctyl phthalate | C | FREON-114 | T |
| Ethyl acetate | C (50°C) | FREON-114 | T (55°C) |
| Ethyl alcohol | C | Fuel oil | B |
| Ethyl Bromide | C | Furfural | C |
| Ethyl chloride | C | Gasoline | C |

A: Little or no effect, **B:** Minor to moderate effect, **C:** Severe effect to complete destruction, **T:** No testdata but most likely to be satisfactory, **X:** No testdata but most likely to be unsatisfactory.

| Chemical | Effect | Chemical | Effect |
|---------------------------|----------|------------------------|----------|
| Ethylene dichloride | C | Gelatin | A |
| Ethylene glycol | B | Glucose | A |
| Ethylene oxide | C | Giue | A |
| Ferric chloride solutions | T | Glycerin | A |
| Ferric chloride | B | n-Hexane | B (50°C) |
| Ferric nitrate | B | Heptane | A |
| Ferrous chloride | B | Hydraulic oils | B |
| Ferrous sulfate | B | Hydrochloric acid, 20% | B |
| Hydrochloric acid, 20% | B | Methylene chloride | C |
| Hydrochloric acid, 37% | C | Mineral oil | A |
| Hydrocyanic acid | T | Mixed acids | C |
| Hydrofluoric acid | C | Naphtha | B |
| Hydrogen | A | Naphthalene | 8 |
| Hydrogen peroxide (30%) | C | Nickel sulfete | A |
| Hydrogen sulfide | B | Nitric acid | C |
| Iodine solution | C | Nitrobenzene | C |
| Isooctane | B (70°C) | Oleic acid | B |
| Isopropyl alcohol | C | Oleurn, 20% | C |
| Isopropyl acetate | A | Oleum, 25% | C |
| Isopropyl ether | B | Oxalic acid, 5% | B |
| JP-4 | C | Palmitic acid | A |
| JP-5 | C | Perchloric acid | C |
| JP-6 | X | Perchloroethyiene | C |
| Kerosene | C | Phenol | C |
| Lacquer solvents | X | Phosphoric acid, 20% | T |

A: Little or no effect, **B:** Minor to moderate effect, **C:** Severe effect to complete destruction, **T:** No testdata but most likely to be satisfactory, **X:** No testdata but most likely to be unsatisfactory.

| Chemical | Effect | Chemical | Effect |
|-------------------------------|----------|--|----------|
| Lactic acid | T | Phosphoric acid, 60% | C |
| Lead acetate | B | Pickling solution (20% nitric acid, Picric Acid | X |
| Linseed oil | B | Potassium dichromate solutions | T |
| Liquified Petroleum Gas | A | Potassium hydroxide solutions | A |
| Lubricating oils | B | Potassium chloride | A |
| Magnesium chloride solutions | A | Potassium cupro cyanide | A |
| Magnesium hydroxide solutions | A | Potassium cyanide | A |
| Malaic acid | C | Potassium Nitrate | A |
| Mercury | A | Potassium sulfate | A |
| Metnyl Alcohol | C | Propyl Alcohol | B |
| Methyl ethyl ketone | C (55°C) | Stannic chloride | T |
| Propylene glycol | B | Stannous chloride, 15% | T |
| SAE No 10 oil | A (70°C) | Steanc acid | A |
| Sea water | A | Steam | C |
| SKYDROL 500 | C (50°C) | Styrene | B |
| Soap solutions | A | Sulfur, molten | C |
| Sodium acetate | A | Sulfur dioxide. liquid | C |
| Sodium bicarbonate | B | Sulfur trioxide | C |
| Sodium bisulfate | B | Sulfuric acid | C |
| Sodium borate | B | Tannic acid, 10% | A |
| Sodium carbonate | B | Tartaric acid | A |
| Sodium chlorate | B | Tin salts | B |
| Sodium cyanide | B | Titanium salts | C |
| Sodium dichromate | B | Toluene | C (50°C) |
| Sodium ferrocyanide | B | | |

A: Little or no effect, **B:** Minor to moderate effect, **C:** Severe effect to complete destruction, **T:** No testdata but most likely to be satisfactory, **X:** No testdata but most likely to be unsatisfactory.

| Chemical | Effect | Chemical | Effect |
|---------------------------|--------|------------------------------|--------|
| Sodium fluoride | B | Tributyl phosphate | C |
| Sodium hydrosulfite | B | Trichloroacetic Acid | C |
| Sodium hydroxide (10%) | B | Trichloroethylene | C |
| Sodium hydroxide (50%) | C | Tricresyl phosphate | B |
| Sodium hypochlorite, 20% | C | Triethanolamine | T |
| Sodium nitrate | B | Tosodium phosphate solutions | A |
| Sodium phosphate | A | Tung oil | B |
| Sodium peroxide solutions | T | Turpentine | C |
| Sodium thiosulfate | A | Urea | B |
| Sodium silicate | A | Water | A |
| Sodium sulfate | B | Xylene | C |
| Sodium sulfide | B | Zinc sulfate | B |
| Sodium hypochlorite 5% | C | Zinc chloride solutions | C |
| Soybean oil | B | | |

A: Little or no effect, **B:** Minor to moderate effect, **C:** Severe effect to complete destruction, **T:** No testdata but most likely to be satisfactory, **X:** No testdata but most likely to be unsatisfactory.