



PEEK CHEMICAL COMPATIBILITY GUIDE

PEEK (polyetheretherketone) maintains robust properties when exposed to a broader range of chemicals compared to many other thermoplastics. This attribute, along with its inherent mechanical strength, bearing and wear properties, and stability at high temperatures have been behind countless applications across a wide span of industries where components must perform reliably in chemicals under severe conditions.

NOTE: This chart provides general information as a starting point for evaluating PEEK as a material candidate, and should not be used for specification purposes. Results are based on specimens that are exposed to chemicals for 48 hours, then tested at room temperature in an unstressed condition. Standard industry tests typically base results on discoloration, loss of sample weight, and tensile elongation only.

Many variables affect the chemical resistance of a part made from any plastic, and it is not feasible to test materials in any chemical under all possible conditions to which an application may be exposed. High chemical concentration and elevated temperatures can have a particularly aggressive affect. Other variables that can negatively affect a plastic include additives in different grades of the material, stresses from physical loads and fasteners, design complexity and wall thicknesses, and stresses that may result from melt processing conditions.

It is the specifier's responsibility to test actual parts in the chemical environment under actual operating conditions to validate PEEK's performance in use.

INDEX	CHEMICAL	COMPATIBILITY
A	Acetaldehyde	A - Excellent
	Acetic Acid	A - Excellent
	Acetic Acid 20%	A - Excellent
	Acetic Acid 80%	A - Excellent
	Acetone	A - Excellent
	Acetylene	A - Excellent
	Acrylonitrile	A - Excellent
	Alcohols: Amyl	A - Excellent
	Alcohols Benzyl	A - Excellent
	Alcohols: Butyl	A - Excellent
	Alcohols: Isopropyl	A - Excellent
	Alcohols: Methyl	A - Excellent
	Alcohols: Propyl	A - Excellent
	Aluminum Chloride	A - Excellent
	Aluminum Chloride 20%	A - Excellent
	Aluminum Potassium Sulfate 10%	A - Excellent
	Aluminum Potassium Sulfate 100%	A - Excellent
	Aluminum Sulfate	A - Excellent
	Amines	A - Excellent
	Ammonia 100%	A - Excellent

INDEX	CHEMICAL	COMPATIBILITY	
B	Ammonia, anhydrous	A - Excellent	
	Ammonia, liquid	B - Good	
	Ammonium Hydroxide	A - Excellent	
	Ammonium Nitrate	A - Excellent	
	Amyl Acetate	A - Excellent	
	Amyl Alcohol	A - Excellent	
	Aniline	A - Excellent	
	Antifreeze	A - Excellent	
	Antimony Trichloride	A - Excellent	
	Aqua Regia (80% HCl, 20% HNO ₃)	D - Severe Effect	
	Arochlor 1248	A - Excellent	
	Aromatic Hydrocarbons	A - Excellent	
	Asphalt	A - Excellent	
	Barium Chloride	A - Excellent	
	Barium Sulfide	A - Excellent	
	Beer	A - Excellent	
	Benzaldehyde	A - Excellent	
	Benzene	A - Excellent	
	Benzene Sulfonic Acid	D - Severe Effect	
	Benzoic Acid	A - Excellent	
	Borax (Sodium Borate)	A - Excellent	
	Boric Acid	A - Excellent	
	Bromine	D - Severe Effect	
	Butane	A - Excellent	
	Butanol (Butyl Alcohol)	A - Excellent	
	Butyl Amine	A - Excellent	
	Butyl Phthalate	A - Excellent	
	Butylacetate	A - Excellent	
	Butylene	B - Good	
	Butyric Acid	A - Excellent	
	C	Calcium Bisulfide	A - Excellent
		Calcium Carbonate	A - Excellent
Calcium Chloride		A - Excellent	
Calcium Hydroxide		D - Severe Effect	
Calcium Hypochlorite		A - Excellent	
Calcium Nitrate		A - Excellent	
Calcium Oxide		A - Excellent	
Calcium Sulfate		A - Excellent	
Calgon		A - Excellent	
Carbolic Acid (Phenol)		D - Severe Effect	
Carbon Bisulfide		D - Severe Effect	
Carbon Dioxide (Dry)		A - Excellent	

INDEX	CHEMICAL	COMPATIBILITY
	Carbon Dioxide (Wet)	B - Good
	Carbon Disulfide	D - Severe Effect
	Carbon Monoxide	B - Good
	Carbon Tetrachloride	A - Excellent
	Carbonic Acid	A - Excellent
	Catsup	A - Excellent
	Chlorine (Dry)	A - Excellent
	Chlorine Water	D - Severe Effect
	Chlorine, Anhydrous Liquid	D - Severe Effect
	Chloroacetic Acid	A - Excellent
	Chlorobenzene (Mono)	A - Excellent
	Chloroform	A - Excellent
	Chlorosulfonic Acid	A - Excellent
	Chromic Acid 10%	D - Severe Effect
	Chromic Acid 30%	A - Excellent
	Chromic Acid 5%	A - Excellent
	Chromic Acid 50%	D - Severe Effect
	Citric Acid	A - Excellent
	Citric Oils	A - Excellent
	Clorox (Bleach)	B - Good
	Copper Chloride	A - Excellent
	Copper Cyanide	A - Excellent
	Copper Nitrate	A - Excellent
	Copper Sulfate > 5%	A - Excellent
	Copper Sulfate 5%	A - Excellent
	Cresols	A - Excellent
	Cresylic Acid	A - Excellent
	Cyclohexane	A - Excellent
	Cyclohexanone	A - Excellent
D	Detergents	A - Excellent
	Dichlorobenzene	A - Excellent
	Dichloroethane	A - Excellent
	Diesel Fuel	A - Excellent
	Diethyl Ether	A - Excellent
	Diethylamine	A - Excellent
	Dimethyl Formamide	A - Excellent
E	Epsom Salts (Magnesium Sulfate)	A - Excellent
	Ethane	B - Good
	Ethanol	A - Excellent
	Ether	A - Excellent
	Ethyl Acetate	A - Excellent
	Ethyl Chloride	A - Excellent

INDEX	CHEMICAL	COMPATIBILITY
F	Ethylene Chloride	A - Excellent
	Ethylene Chlorohydrin	A - Excellent
	Ethylene Diamine	A - Excellent
	Ethylene Dichloride	A - Excellent
	Ethylene Glycol	A - Excellent
	Ethylene Oxide	A - Excellent
	Fatty Acids	A - Excellent
	Ferric Chloride	B - Good
	Ferric Nitrate	A - Excellent
	Ferric Sulfate	A - Excellent
	Ferrous Chloride	A - Excellent
	Ferrous Sulfate	A - Excellent
	Fluorine	D - Severe Effect
	Formaldehyde 100%	A - Excellent
	Formaldehyde 40%	A - Excellent
	Formic Acid	C - Fair
	Freon 113	A - Excellent
	Freon 12	A - Excellent
	Freon 22	A - Excellent
	Freon TF	A - Excellent
Freon R-11	A - Excellent	
G	Fruit Juice	A - Excellent
	Fuel Oils	A - Excellent
	Gasoline, leaded, ref.	A - Excellent
H	Gelatin	A - Excellent
	Glycerin	A - Excellent
H	Heptane	A - Excellent
	Hexane	A - Excellent
	Hydraulic Oil (Petro)	A - Excellent
	Hydraulic Oil (Synthetic)	A - Excellent
	Hydrazine	A - Excellent
	Hydrobromic Acid 20%	D - Severe Effect
	Hydrobromic Acid 100%	D - Severe Effect
	Hydrochloric Acid 20%	A - Excellent
	Hydrochloric Acid 37%	A - Excellent
	Hydrochloric Acid 100%	A - Excellent
	Hydrochloric Acid, Dry Grass	A - Excellent
	Hydrocyanic Acid	A - Excellent
	Hydrocyanic Acid (Gas 10%)	A - Excellent
	Hydrofluoric Acid 20%	D - Severe Effect
	Hydrofluoric Acid 50%	D - Severe Effect
Hydrofluoric Acid 75%	D - Severe Effect	

INDEX	CHEMICAL	COMPATIBILITY
	Hydrofluoric Acid 100%	D - Severe Effect
	Hydrogen Peroxide 10%	A - Excellent
	Hydrogen Peroxide 30%	A - Excellent
	Hydrogen Peroxide 50%	A - Excellent
	Hydrogen Peroxide 100%	A - Excellent
	Hydrogen Sulfide (aqua)	A - Excellent
	Hydrogen Sulfide (dry)	A - Excellent
I	Iodine	C - Fair
	Iodine (in alcohol)	A - Excellent
	Isooctane	A - Excellent
	Isopropyl Ether	A - Excellent
J	Jet Fuel (JP3, JP4, JP5)	A - Excellent
K	Kerosene	A - Excellent
	Ketones	A - Excellent
L	Lactic Acid	A - Excellent
	Lard	A - Excellent
	Lead Acetate	A - Excellent
	Ligroin	A - Excellent
	Lubricants	A - Excellent
	Lye: Ca(OH) ₂ Calcium Hydroxide	B - Good
	Lye: KOH Potassium Hydroxide	B - Good
	Lye NaOH Sodium Hydroxide	B - Good
M	Magnesium Chloride	B - Good
	Magnesium Hydroxide	A - Excellent
	Magnesium Sulfate (Epsom Salts)	A - Excellent
	Maleic Acid	A - Excellent
	Mercuric Chloride (dilute)	A - Excellent
	Mercury	A - Excellent
	Methane	A - Excellent
	Methanol (Methyl Alcohol)	A - Excellent
	Methyl Acetate	A - Excellent
	Methyl Alcohol 10%	A - Excellent
	Methyl Butyl Ketone	A - Excellent
	Methyl Ethyl Ketone	A - Excellent
	Methyl Isobutyl Ketone	A - Excellent
	Methyl Isopropyl Ketone	A - Excellent
	Methylene Chloride	A - Excellent
	Milk	A - Excellent
	Molasses	A - Excellent
	Monochloroacetic Acid	A - Excellent
	Motor Oil	A - Excellent
N	Naphtha	A - Excellent

INDEX	CHEMICAL	COMPATIBILITY
	Naphthalene	A - Excellent
	Natural Gas	A - Excellent
	Nickel Chloride	A - Excellent
	Nickel Nitrate	A - Excellent
	Nickel Sulfate	A -Excellent
	Nitric Acid (5-10 %)	A - Excellent
	Nitric Acid (20%)	A - Excellent
	Nitric Acid (50%)	D - Severe Effect
	Nitric Acid (Concentrated)	D - Severe Effect
	Nitrobenzene	A - Excellent
	Nitromethane	A - Excellent
	Nitrous Oxide	A - Excellent
O	Oils: Aniline	A - Excellent
	Oils: Castor	A - Excellent
	Oils: Coconut	A - Excellent
	Oils: Creosote	A - Excellent
	Oils: Diesel Fuel (20, 30, 40, 50)	A - Excellent
	Oils: Fuel (1, 2, 3, 5A, 5B, 6)	A - Excellent
	Oils: Hydraulic Oil (Petro)	A - Excellent
	Oils: Hydraulic Oil (Synthetic)	A - Excellent
	Oils: Linseed	A - Excellent
	Oils: Mineral	A - Excellent
	Oils: Peanut	A - Excellent
	Oils: Silicone	A - Excellent
	Oils: Soybean	A - Excellent
	Oils: Transformer	A - Excellent
	Oleic Acid	A - Excellent
	Oxalic Acid (cold)	A - Excellent
	Ozone	A - Excellent
P	Paraffin	A - Excellent
	Pentane	A - Excellent
	Perchloric Acid	A - Excellent
	Perchloroethylene	A - Excellent
	Petrolatum	A - Excellent
	Petroleum	A - Excellent
	Phenol (Carbonic Acid)	D - Severe Effect
	Phosphoric Acid (>40%)	A - Excellent
	Phosphoric Acid (crude)	A - Excellent
	Phosphorus Trichloride	A - Excellent
	Photographic Solutions	A - Excellent
	Phthalic Acid	A - Excellent
	Picric Acid	A - Excellent

INDEX	CHEMICAL	COMPATIBILITY
R S	Potash (Potassium Carbonate)	A - Excellent
	Potassium Bicarbonate	A - Excellent
	Potassium Chlorate	A - Excellent
	Potassium Chloride	A - Excellent
	Potassium Ferricyanide	A - Excellent
	Potassium Ferrocyanide	A - Excellent
	Potassium Hydroxide (Caustic Potash)	A - Excellent
	Potassium Nitrate	A - Excellent
	Potassium Permanganate	A - Excellent
	Potassium Sulfate	A - Excellent
	Potassium Sulfide	A - Excellent
	Propane (liquefied)	A - Excellent
	Pyridine	A - Excellent
	Resorcinal	A - Excellent
	Salicylic Acid	A - Excellent
	Salt Brine (NaCl saturated)	A - Excellent
	Sea Water	A - Excellent
	Silicone	A - Excellent
	Silver Nitrate	A - Excellent
	Soap Solutions	A - Excellent
	Soda Ash (see Sodium Carbonate)	A - Excellent
	Sodium Acetate	A - Excellent
	Sodium Benzoate	A - Excellent
	Sodium Bicarbonate	A - Excellent
	Sodium Bisulfate	A - Excellent
	Sodium Bisulfite	A - Excellent
	Sodium Borate (Borax)	A - Excellent
	Sodium Carbonate	A - Excellent
	Sodium Chlorate	A - Excellent
	Sodium Chloride	A - Excellent
	Sodium Chromate	A - Excellent
	Sodium Cyanide	A - Excellent
	Sodium Ferrocyanide	A - Excellent
	Sodium Fluoride	A - Excellent
Sodium Hydrosulfite	A - Excellent	
Sodium Hydroxide (20%)	A - Excellent	
Sodium Hydroxide (50%)	A - Excellent	
Sodium Hydroxide (80%)	A - Excellent	
Sodium Hypochlorite (<20%)	B - Good	
Sodium Hypochlorite (100%)	B - Good	
Sodium Metaphosphate	A - Excellent	
Sodium Metasilicate	A - Excellent	

INDEX	CHEMICAL	COMPATIBILITY
	Sodium Nitrate	A - Excellent
	Sodium Perborate	A - Excellent
	Sodium Peroxide	A - Excellent
	Sodium Polyphosphate	A - Excellent
	Sodium Silicate	A - Excellent
	Sodium Sulfate	A - Excellent
	Sodium Sulfide	A - Excellent
	Sodium Sulfite	A - Excellent
	Sodium Tetraborate	A - Excellent
	Sodium Thiosulfate (hypo)	A - Excellent
	Stannic Chloride	A - Excellent
	Stannous Chloride	A - Excellent
	Starch	A - Excellent
	Stearic Acid	A - Excellent
	Stoddard Solvent	A - Excellent
	Styrene	A - Excellent
	Sulfur Chloride	A - Excellent
	Sulfur Dioxide	A - Excellent
	Sulfur Dioxide (dry)	A - Excellent
	Sulfur Hexafluoride	A - Excellent
	Sulfur Trioxide	A - Excellent
	Sulfur Trioxide (dry)	A - Excellent
	Sulfuric Acid (<10%)	A - Excellent
	Sulfuric Acid (10 - 75%)	D - Severe Effect
	Sulfuric Acid (75 - 100%)	D - Severe Effect
	Sulfuric Acid (cold concentrated)	D - Severe Effect
	Sulfuric Acid (hot concentrated)	D - Severe Effect
	Sulfurous Acid	A - Excellent
T	Tallow	A - Excellent
	Tartaric Acid	A - Excellent
	Tetrachloroethylene	A - Excellent
	Tetrahydrofuran	A - Excellent
	Tin Salts	A - Excellent
	Toluene (Toluol)	A - Excellent
	Trichlorethane	A - Excellent
	Trichloroethylene	A - Excellent
	Trisodium Phosphate	A - Excellent
	Turpentine	A - Excellent
U	Urea	A - Excellent
V	Varnish	A - Excellent
	Vinegar	A - Excellent
	Vinyl Chloride	A - Excellent

INDEX	CHEMICAL	COMPATIBILITY
W	Water, Distilled	A - Excellent
	Water, Fresh	A - Excellent
	Water, Salt	A - Excellent
	Whiskey & Wines	A - Excellent
X	Xylene	A - Excellent
	Zinc Chloride	A - Excellent
Z	Zinc Sulfate	A - Excellent

Ratings: Chemical Effect

A = Compatible with PEEK

B = Samples show slight corrosion or discoloration at test conditions.

C = PEEK withstands chemical for brief exposure periods at test conditions.

Softening, loss of strength, or swelling likely with continuous exposure.

D = Chemical severely affects PEEK. Not recommended for any level of contact.

Compatibility information in this chart is based on laboratory testing of unstressed samples exposed to chemicals at room temperature for up to 48 hours. It is intended as a basic overview and is not valid for material specification purposes.

The information in this chart is derived from several sources including public information aggregated and posted at: <https://www.calpaclab.com/polyetherether-ketone-peek-chemical-compatibility-chart/>.

Additional Resources for Information on Specific PEEK Grades

For chemical resistance data on PEEK grades being considered for an application, specifiers should contact the leading global PEEK resin suppliers.

- **KetaSpire® PEEK – SYENSQO:** www.syensqo.com
- **VICTREX® PEEK – VICTREX:** www.victrex.com

→ For PEEK part design, material options, and production support: www.drakeplastics.com