CHEMICAL RESISTANCE

VICTREX PEEK Polymers

victrex®

HIGH PERFORMANCE PEEK POLYMERS

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Chemical	73°F 23°C	212°F 100°C	392°F 200°C
ACIDS			
Acetic Acid, 10% Conc.	A	A	
Acetic Acid, Conc.	A	A	A
Acetic Acid, Glacial	A	A	
Acrylic Acid	A	A	
Aqua Regia	C	C	C
Benzene Sulfonic Acid	C		
Benzoic Acid	A	A	
Boric Acid	A	A	
Carbolic Acid	A		
Carbonic Acid	A	A	
Chloroacetic Acid	A	A	
Chlorosulfonic Acid	C	C	C
Chromic Acid, 40% Conc.	A		
Chromic Acid, Conc.	C	C	C
Citric Acid	A	A	
Formic Acid	B	B	
Hydrobromic Acid	C	C	C
Hydrochloric Acid, 10% Conc.	A	A	
Hydrochloric Acid, Conc.	A	B	
Hydrocyanic Acid	A	A	
Hydrofluoric Acid, 40% Conc.	C	C	C
Lactic Acid	A	A	
Maleic Acid	A	A	
Nitric Acid, 10% Conc.	A	A	
Nitric Acid, 30% Conc.	B		
Nitric Acid, 50% Conc.	C	C	C
Nitric Acid, Conc.	C	C	C
Nitrous Acid, 10% Conc.	A		
Oleic Acid	A		
Oleum	C	C	C
Oxalic Acid	A	A	
Perchloric Acid	A	A	
Phosphoric Acid, 10% Conc.	A	A	A
Phosphoric Acid, 50% Conc.	A	A	A
Phosphoric Acid, 80% Conc.	A	A	
Phthalic Acid	A	A	
Picric Acid	A	A	
Silicic Acid	A	A	
Sulfuric Acid, < 40% Conc.	B	B	B
Sulfuric Acid, > 40% Conc.	C	C	C
Sulfurous Acid	A	A	
Tannic Acid, 10% Conc.	A	A	
Tartaric Acid	A	A	
Trifluoromethyl Sulfonic Acid	C	C	C

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ALCOHOLS			
Benzyl Alcohol	A		
Butanol	A		
Cyclohexanol	A		
Ethanol	A	A	
Ethylene Glycol	A	A	B
Ethylene Glycol, 50% Conc.	A	A	A
Glycerol	A		
Gylcols	A	A	
Isopropanol	A		
Methanol	A	A	
Propanol	A		
ALDEHYDES AND KETONES			
Acetaldehyde	A	A	
Acetone	A	A	
Benzaldehyde	A		
Cyclohexanone	A		
Formaldehyde	A	A	
Formalin	A		
Ketones	A		
Methylethyl Ketone (MEK)	A	B	C
N-Methyl-2-Pyrrolidone (NMP)	A		
BASES			
Ammonia 880	A		
Ammonia Anhydrous	A	A	A
Ammonia Liquid	A	A	A
Ammonium Hydroxide, 10% Conc.	A		
Ammonium Hydroxide, Conc.	A		
Calcium Hydroxide	A		
Hydrazine	A	A	
Hydroxides	A		
Magnesium Hydroxide	A		
Potassium Hydroxide, 10% Conc.	A		
Potassium Hydroxide, 70% Conc.	A		
Sodium Hydroxide, 10% Conc.	A	A	A
Sodium Hydroxide, 50% Conc.	A	A	A
Sodium Hydroxide, Conc.	A		
ESTERS			
Aliphatic Esters	A	A	
Amyl Acetate	A	A	
Butyl Acetate	A		
Dibutyl Phthalate	A		
Dimethyl Phthalate	A		
Dioctyl Phthalate	A		
Ethyl Acetate	A		
Oils (Di-Ester and Phosphate Ester Based)	A	A	

See key on last page

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ETHERS			
Diethylether	A	A	
Dioxane	A		
Ether	A	A	
Ethylene Oxide (EtO)	A		
Tetrahydrofuran (THF)	A		
HALOGENATED ORGANICS			
1,1,1 Trichloroethane (Genklene[1])	A		
1,2 Dichloroethane	A		
Carbon Tetrachloride	A	A	
Chorobenzene	A	A	
Chloroform	A	A	
Dibromoethane	A		
Dichlorobenzene	A		
Dichloroethane	A		
Ethylene Dichloride	A		
Freon[2] 11 Trichlorofluoromethane	A		
Freon 113 Trichlorotrifluoroethane	A		
Freon 114 1,1 Dichloro 1,2,2,2 Tetrafluoroethane	A		
Freon 12 Dichlorodifluoromethane	A		
Freon 22 Chlorodifluoromethane	A	A	
Freon 134a	A		
Freon 502	A	A	
Methylene Chloride	A		
Perchloroethylene	A	A	
Trichloroethylene	A	A	
HYDROCARBONS			
Acetylene	A	A	
Aromatic Solvents	A	A	
Aviation Hydraulic Fluid	A		
Benzene	A	A	
Brake Fluid (Mineral)	A	A	A
Brake Fluid (Polyglycol)	A	A	A
Butane	A		
Crude Oil	A		
Cyclohexane	A	A	
Diesel Oil	A		
Dowtherm[3] A			C
Dowtherm G			B
Dowtherm HT			B
Dowtherm LF			B
Ethane	A		
Fuel Oil	A		
Gas (Manufactured)	A		
Gas (Natural)	A		
Gasoline	A	A	
Heptane	A		
Hexane	A		
Hydraulic Fluid	A		
Iso-Octane	A		

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HYDROCARBONS (CONT.)			
Kerosene	A		
Lubricating Oil	A		
Methane (Gas)	A	A	A
Motor Oil	A	A	A
Naphtha	A	A	
Naphthalene	A	A	
Oils (Petroleum)	A	A	
Oils (Vegetable)	A	A	
Pentane	A		
Petroleum Ether	A		
Propane	A		
Skydrol[4] Hydraulic Fluid	A		
Styrene (Liquid)	A		
Toluene	A		
Transformer Oil	A	A	
Vaseline[5]	A		
Xylene	A		
INORGANICS			
Aluminum Chloride	A	A	
Aluminum Sulfate	A	A	
Alum, Saturated	A	A	
Ammonium Chloride, 10% Conc.	A	A	
Ammonium Nitrate	A	A	
Antimony Trichloride	A	A	
Barium Salts (Chloride, Sulfide)	A		
Bleach	A	A	
Brine	A	A	
Bromine	C	C	C
Bromine (Dry)	C	C	C
Bromine (Wet)	C	C	C
Bromine Water, Saturated	A	A	
Calcium Bisulfide	A	A	
Calcium Carbonate	A		
Calcium Chloride	A	A	
Calcium Hypochlorite	A	A	
Calcium Nitrate	A		
Calcium Sulfate	A	A	
Carbon Dioxide (Dry)	A		
Carbon Monoxide (Gas)	A	A	A
Chlorine	C	C	C
Copper Acetate	A	A	
Copper Carbonate	A	A	
Copper Chloride	A	A	
Copper Cyanide	A	A	
Copper Fluoride	A	A	
Copper Nitrate	A	A	
Copper Sulfate	A	A	
Cupric Fluoride	A	A	
Cupric Sulfate	A	A	
Cuprous Chloride	A	A	

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INORGANICS (CONT.)			
Ethylene Nitrate	A		
Ferric Chloride	B	B	
Ferric Nitrate	A		
Ferric Oxide	A	A	
Ferric Sulfate	A		
Ferrous Chloride	A		
Ferrous Nitrate	A		
Ferrous Sulfate	A	A	
Fluorine	C	C	C
Hydrogen Peroxide	A	A	
Hydrogen Sulfide (Gas)	A	A	A
Iodine	B		
Lead Acetate	A	A	
Lime	A	A	
Magnesium Chloride	A	A	
Magnesium Sulfate	A	A	
Mercuric Chloride	A	A	
Mercurous Chloride	A		
Mercury	A	A	
Nickel Acetate	A	A	
Nickel Chloride	A	A	
Nickel Nitrate	A	A	
Nickel Salts	A		
Nickel Sulfate	A	A	
Nitrogen	A		
Nitrous Oxide	A		
Oxygen	A		
Ozone	A	B	
Phosphorous Chlorides	A	A	
Phosphorous Pentoxide	A	A	
Potassium Aluminum Sulfate	A	A	
Potassium Bicarbonate	A		
Potassium Bromide	A	A	
Potassium Carbonate	A		
Potassium Chlorate	A	A	
Potassium Chloride	A	A	
Potassium Dichromate	A		
Potassium Ferricyanide	A		
Potassium Ferrocyanide	A		
Potassium Hydroxide	A	A	
Potassium Nitrate	A	A	
Potassium Permanganate	A		
Potassium Sulfate	A	A	
Potassium Sulfide	A		
Silicone Fluids	A	A	
Silver Nitrate	A	A	
Sodium Acetate	A		
Sodium Bicarbonate	A		
Sodium Carbonate	A	A	
Sodium Chlorate	A	A	

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INORGANICS (CONT.)			
Sodium Chloride	A	A	
Soldium Hypochlorite	A	A	
Sodium Nitrate	A	A	
Sodium Nitrite	A		
Sodium Peroxide	A	A	
Sodium Salts	A		
Sodium Silicate	A	A	
Sodium Sulfate	A	A	
Sodium Sulfide	A	A	
Sodium Sulfite	A	A	
Sodium (Hot)	C	C	C
Stannic Chloride	A	A	
Stannous Chloride	A	A	
Steam	A	A	A
Sulfites	A	A	
Sulfur	A	A	
Sulfur Chloride	A	A	
Sulfur Dichloride	A	A	
Sulfur Dioxide	A	A	A
Sulfur Hexafluoride (Gas)	A		
Sulfur Trioxide	A	A	
Tar	A		
Tetraethyl Lead	A		
Water, Distilled	A	A	
Water	A	A	A
Water, Sea/Salt	A	A	
Zinc Chloride	A	A	
Zinc Sulfate	A	A	
MISCELLANEOUS			
Adhesives (not cyanoacrylates)	A		
Apple Juice	A		
Aviation Spirit	A		
Beer	A	A	
Cooking Oil	A		
Creosote	A		
Detergent Solutions (non-phenolic)	A	A	
Edible Fats and Oils	A		
Fatty Acids	A	A	
Fruit Juice	A	A	
Gelatin	A	A	
Ketchup	A		
Linseed Oil	A		
Milk	A	A	
Mineral Oil	A		
Molasses	A	A	
Olive Oil	A	A	
Peanut Oil	A	A	
Paraffin	A	A	
Sewage	A	A	

See key on last page

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MISCELLANEOUS (CONT.)			
Soap Solution	A		
Starch	A	A	
Tallow	A	A	
Turpentine	A		
Urea	A	A	
Varnish	A		
Vinegar	A	A	
Wax	A		
White Spirit	A		
Wines and Spirits	A		
Yeast	A	A	

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ORGANO-NITROGENS			
Acetonitrile	A		
Aniline	A	B	
Dimethyl Formamide (DMF)	A		
Diethylamine	A		
Nitrobenzene	A		C
Pyridine	A	A	
PHENOLS			
Phenol, Conc.	C	C	C
Phenol, Dilute	A		
SULFUR COMPOUNDS			
Carbon Disulfide	A	A	
Dimethylsulfoxide (DMSO)	B	B	
Diphenylsulfone (DPS)	B	C	C
Ethylene Sulfate	A		

KEY AND INTERPRETATION

Test bars of unfilled PEEK were immersed in chemicals at constant temperature for a minimum of 7 days (concentrated, unless otherwise stated). Chemical compatibility was assessed via retention of mechanical properties, supplemented by weight or dimensional changes when applicable. Compatibility was then classified into A, B, or C which should be interpreted as follows:

A – No interaction. Victrex materials are likely to operate in these chemicals. It is nevertheless recommended to validate the application performance.

B – Slight interaction. Victrex materials could be used in some applications exposed to these chemicals. It is necessary to evaluate the application specific performance criteria.

C – Severe interaction. Victrex materials should only be considered for applications with exposure to these chemicals under exceptional circumstances.

[1] Genklene is a registered trademark of ICI
[2] Freon is a registered trademark of DuPont
[3] Dowtherm is a registered trademark of Dow Chemical
[4] Skydrol is a registered trademark of Monsanto
[5] Vaseline is a registered trademark of Chesebrough-Pond's, Inc.

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