



Materials of Construction

At Industrial Fiberglass, the focus is on products fabricated from thermoplastics and on composite fabrications using thermoplastics as a lining material.

Thermoplastics

Industrial Fiberglass' thermoplastic materials are inert, solid polymers that can be heated to a formable state and, upon cooling, retain the same physical, chemical and reactive properties they had before heating. The thermoplastic property allows bending, welding, and bonding into shapes appropriate for pipes, tanks, and custom fluid handling equipment.

Our work concentrates on ten primary thermoplastics as shown below:

Designation	Name	Working Temp. Limits (°F)	Examples of Chemical Resistance
PVC	polyvinyl chloride	0 to 140°	Suitable for mild acids, non aromatic organic solvents, ethylene glycol and fuel oil.
CPVC	chlorinated polyvinyl chloride	0 to 195°	Compare to PVC, CPVC offers better chemical resistance particularly at increased temperatures.
PP	polypropylene	+32 to 215°	Suitable for 10% chromic acid, 20% hydrochloric acid, 10% nitric acid, 5% sulfuric acid.
HDPE	high density polyethylene	-60 to 180°	Increased resistance at higher temperatures than conventional polyethylene. Suitable for 60% sulfuric acid.
UHMW	ultra-high molecular weight polyethylene		Excellent physical properties (particularly abrasion resistant). Used in solid form and machined into parts like valves, spacers, and gears.
PVDF	polyvinylidene fluoride (SOLEF [®] , KYNAR [®])	-50 to 275°	Excellent resistance across a broad range of organic and inorganic chemicals. Suitable for use with aromatic and chlorinated solvents below 160°F. Limited usage with ketones and esters.
ECTFE	ethylene chlorotrifluoroethylene (HALAR [®])	-105 to 356°	Very good resistance against high-concentrated chemicals. Suitable for strong alkalis (up to pH of 14). Good weathering characteristics.
ETFE	copolymer resin (TEFZEL [®])	-370 to 300°	Excellent chemical resistance. Suitable with strong mineral acids and organic solvents. Good physical properties.



Designation	Name	Working Temp. Limits (°F)	Examples of Chemical Resistance
FEP	fluorinated ethylene propylene (TEFLON®)	-50 to 400°	Virtually chemically inert. Only limitations are high temperature fluorine and molten alkali metals.
PFA	perfluoroalkoxy	-310 to 500°	Same exceptional chemical resistance and physical properties as FEP. High purity makes it suitable for use in food applications.

Composite Materials

To extend the range of suitable applications, thermoplastics can be fabricated in combination with stronger and/or less costly materials for outer walls and shells.

- # **RTP/thermoplastic dual laminates** In 1974, Industrial Fiberglass pioneered the development of dual laminate equipment that combines the corrosion resistant properties of thermoplastics with the structural properties of reinforced thermosetting plastics (RTP).
- # **Metal/thermoplastic fabrications** The Industrial Fiberglass corporate umbrella offers customers the unique benefit of single source manufacturing of custom equipment combining thermoplastics with carbon steel, stainless steel, and special application alloys.