Polyvinylchloride (PVC)

Reference Information supplied by our sources:

POLYVINYL CHLORIDE (PVC) PROPERTIES

PVC is the most widely used member of the vinyl family. It is most commonly used in pipe and fittings. PVC offers excellent corrosion and weather resistance. It has a high strength-to-weight ratio and is a good electrical and thermal insulator. PVC is also self-extinguishing per UL flammability tests. PVC may be used to temperatures of 140°F (60°C) and is readily available in sheets, rods, and tubing. PVC may be cemented, welded, machined, bent and shaped readily.

CHLORINATED POLYVINYL CHLORIDE (CPVC) PROPERTIES

CPVC shares most of the features and properties of its close relative, PVC. It is also readily workable, including machining, welding, and forming. Because of its excellent corrosion resistance at elevated temperatures, CPVC is ideally suited for self-supporting constructions where temperatures up to 200°F (93°C) are present. The ability to bend, shape, and weld CPVC enables its use in a wide variety of process applications including tanks, scrubbers, and ventilation systems. It exhibits excellent fire resistance, chemical resistance, and is readily available in sheets, rods, and tubing.

TYPICAL PROPERTIES of PVC and CPVC

ASTM or UL test	Property	PVC	CPVC
	PHYSICAL		
D792	Density (lb/in³) (g/cm³)	0.051 1.41	0.055 1.52
D570	Water Absorption, 24 hrs (%)	0	0.04
	MECHANICAL		
D638	Tensile Strength (psi)	7,500	8,200
D638	Tensile Modulus (psi)	411,000	430,000
D638	Tensile Elongation at Break (%)	-	27
D790	Flexural Strength (psi)	12,800	15,000
D790	Flexural Modulus (psi)	481,000	410,000
D785	Hardness	115 (Rockwell R)	121 (Rockwell R)
D256	IZOD Notched Impact (ft-lb/in)	1.0	1.6

	THERMAL		
D696	Coefficient of Linear Thermal Expansion (x 10^{-5} in./in./°F)	6.1	3.7
D648	Heat Deflection Temp (°F / °C) at 264 psi	176 / 80	217 / 103
D3418	Melting Temp (°F / °C)	n.a.	n.a.
-	Max Operating Temp (°F / °C)	140 / 60	200 / 93
C177	Thermal Conductivity (BTU-in/ft²-hr-°F) (x 10^{-4} cal/cm-sec-°C)	0.90 3.1	0.95 3.3
UL94	Flammability Rating	V-O	V-O
	ELECTRICAL		
D149	Dielectric Strength (V/mil) short time, 1/8" thick	544	1250
D150	Dielectric Constant at 60 Hz	3.2	3.7
D150	Dissipation Factor at 60 Hz	.0096	-
D257	Volume Resistivity (ohm-cm)at 50% RH	5.4 x 10^{15}	3.4 x 10^{15}

NOTE: The information contained herein are typical values intended for reference and comparison purposes only. They should NOT be used as a basis for design specifications or quality control. Contact us for manufacturers' complete material property datasheets.
All values at 73°F (23°C) unless otherwise noted.