

<u>Test</u>	<u>Description</u>	<u>Test Method</u>	<u>SI Units</u>	<u>US Customary</u>	<u>SI to US Conversion Multiply by:</u>
Apparent Density	The weight of the loose powder per unit volume including voids inherent in the powder as tested.	ASTM D1895	g/cc	lb/ft <sup>3</sup>	62.43
Specific Gravity	The density of a material in the molded form compared to the density of water.	ASTM D792			
Mold Shrinkage	The difference in dimension between the mold cavity when at room temperature and the molded test specimen after it has cooled to room temperature.	ASTM D955	m/m	in/in	
Post Shrinkage	The additional shrinkage of the molded test specimen when subjected to a given environment or condition over a period of time, expressed as a percent change in dimension.	PLENCO	%		
Izod Impact Strength	The energy necessary for a pendulum hammer to fracture a standard notched bar held vertically in a cantilever position.	ASTM D256	J/m	ft*lb/in	0.01873
Charpy Impact Strength	The energy necessary for a pendulum hammer to fracture a standard notched bar that is positioned horizontally, supported at the ends, and struck in the center.	ASTM D	J/m	ft*lb/in	0.01873

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Drop Ball	The energy necessary to fracture a 1/8" x 4" diameter molded disc supported on its circumference when subjected to the repeated drops of a ball of specified weight from ever increasing heights.	PLENCO	J/m	ft*lb/in	0.01873
Tensile Strength	The maximum tensile stress or pull required to break a standard test specimen.	ASTM D638	MPa	psi	145.04
Tensile Modulus	Tensile Modulus, or modulus of elasticity, or Young's modulus represents a material's ability to deform elastically when a force is applied to it. The elastic modulus of an object is defined as the slope of its stress-strain curve in the elastic deformation region.	ASTM D638	MPa	psi	145.04
Tensile Elongation	A measure of a material's ductility and represents the amount that a standard specimen stretches within a specific gage length before it fractures; it is expressed as a percent change in gage length.	ASTM D638	%		
Poisson's Ratio in Tensile	Poisson's Ratio is the ratio of the longitudinal elastic deformation produced by a simple tensile test to the lateral deformation that must simultaneously occur.	ASTM D638			

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Flexural Strength	The ability of a material to withstand a bending force calculated from the load required to break a standard test specimen when tested in a three point loading situation.	ASTM D790	MPa	psi	145.04
Flexural Modulus	The ratio of stress within the elastic limit of stress to corresponding strain, see tensile modulus.	ASTM D790	MPa	psi	145.04
Compressive Strength	The ability to resist a crushing force, calculated from the load at failure and the original cross sectional area of the specimen.	ASTM D695	MPa	psi	145.04
Heat Resistance	The temperature at which a molded test specimen can retain 75% of its original flexural strength after 7 days of exposure to that temperature.	ASTM D794	°C	°F	$(°C+1.8)+32$
Deflection Temperature	The oil temperature at which a submerged test specimen is deflected 0.010" under a fiber stress of 264 psi applied as a three point load over a 4" span.	ASTM D648	°C	°F	$(°C+1.8)+32$
Water Absorption	The amount of water absorbed by a standard test specimen after immersion for 24 hours at 23°, calculated as a percent gain in weight.	ASTM D570	%		



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Rockwell Hardness	A measure of a material's surface hardness. Rockwell Hardness is measured using different scales which correspond to different indenter diameters and loads. Comparisons between scales should be avoided.	ASTM D785			
Dielectric Strength Short Time	The ratio of the dielectric breakdown voltage required to cause a puncture of the specimen, to the thickness of an insulating material. The short time test is conducted using a continuous ramp up of electrical voltage.	ASTM D149	kV/mm	V/mil	25.4
Dielectric Strength Step by Step	The ratio of the dielectric breakdown voltage required to cause a puncture of the specimen, to the thickness of an insulating material. The step by step test is conducted using a series of incremental voltage increases after a specified application time.	ASTM D149	kV/mm	V/mil	25.4
Dissipation Factor (Power Factor)	The ratio of the power loss in a dielectric material to the total power transmitted through the dielectric.	ASTM D150			



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Permittivity (Dielectric Constant)	The ratio of the capacitance of a given configuration of electrodes with a plastic insulating material as the dielectric, to the capacitance of the same electrode configuration with a vacuum (or air for most practical purposes) as the dielectric.	ASTM D150			
Volume Resistivity	The ratio of the potential gradient parallel to the current in the material, to the current density.	ASTM D257	ohm*cm	ohm*in	0.3974
Arc Resistance	A measure of the ability of an insulating material to withstand the formation of a conducting path when subjected to an interrupting arc on or near the surface at high voltage, low current arcing conditions.	ASTM D495	sec	sec	
Comparative Tracking Index (CTI)	A measure of the ability of an insulating material to withstand the formation of a conducting path when subjected to a constant current flow through a conductive film on the surface.	ASTM D3638	V		



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Flammability Rating	The relative rating of the burning characteristics of the material in various orientations and thicknesses. Flammability is most commonly expressed using the following Underwriters Laboratory Classifications, (in order from least to highest flame resistant) HB, V1, or V0 along with the test specimen thickness.	UL 94			
Oxygen Index	The minimum oxygen concentration, in an oxygen and nitrogen environment, required to sustain ignition of a standard test sample.	ASTM D2863	%		
Coefficient of Thermal Expansion	Linear thermal expansion is a one-dimensional length change with respect to temperature. It is expressed as the fractional change in length per degree temperature change.	ASTM E831	1/°C	1/°F	1.8
Thermal Conductivity	A measure of a materials' ability to conduct heat.	ASTM E1461	W/m/°C	BTU/hr/ft/°F	0.5778