



# PLA

MECHANICAL PROPERTIES	TEST METHOD	ENGLISH		METRIC	
		XZ AXIS	ZX AXIS	XZ AXIS	ZX AXIS
<b>Tensile Strength, Yield</b> (Type 1, 0.125", 0.2"/min)	ASTM D638	6,580 psi	3,790 psi	45 mPa	26 mPa
<b>Tensile Strength, Ultimate</b> (Type 1, 0.125", 0.2"/min)	ASTM D638	6,990 psi	3,830 psi	48 mPa	26 mPa
<b>Tensile Modulus</b> (Type 1, 0.125", 0.2"/min)	ASTM D638	440,730 psi	368,200 psi	3,039 mPa	2,539 mPa
<b>Elongation at Break</b> (Type 1, 0.125", 0.2"/min)	ASTM D638	2.5%	1.0%	2.5%	1.0%
<b>Elongation at Yield</b> (Type 1, 0.125", 0.2"/min)	ASTM D638	1.5%	1.0%	1.5%	1.0%
<b>Flexural Strength</b> (Method 1, 0.05"/min)	ASTM D790	12,190 psi	6,570 psi	84 mPa	45 mPa
<b>Flexural Modulus</b> (Method 1, 0.05"/min)	ASTM D790	425,010 psi	358,290 psi	2,930 mPa	2,470 mPa
<b>Flexural Strain at Break</b>	ASTM D790	4.1%	1.9%	4.1%	1.9%
<b>IZOD impact - notched</b> (Method A, 23°C)	ASTM D256	0.5 ft-lb/in	N/A	27 J/m	N/A
<b>IZOD impact - unnotched</b> (Method A, 23°C)	ASTM D256	3.6 ft-lb/in	N/A	192 J/m	N/A

THERMAL PROPERTIES	TEST METHOD	ENGLISH	METRIC
<b>Heat Deflection (HDT) @ 66 psi</b>	ASTM D648	127°F	53°C
<b>Heat Deflection (HDT) @ 264 psi</b>	ASTM D648	124°F	51°C
<b>Vicat Softening Temperature (Rate B/50)</b>	ASTM D1525	129°F	54°C
<b>Glass Transition Temperature (Tg)</b>	DMA (SSYS)	145°F	63°C
<b>Coefficient of Thermal Expansion (flow)</b>	ASTM E831	56x10 <sup>-6</sup> μin/(in.°F)	101x10 <sup>-6</sup> μm/(m.°C)
<b>Coefficient of Thermal Expansion (xflow)</b>	ASTM E831	57x10 <sup>-6</sup> μin/(in.°F)	102x10 <sup>-6</sup> μm/(m.°C)



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ELECTRICAL PROPERTIES	TEST METHOD	VALUE	
		XY	ZX
Volume Resistivity	ASTM D257	2.9E+15 ohm-cm	3.24E+15 ohm-cm
Dielectric Constant	ASTM D150-98	1.51	2.33
Dissipation Factor	ASTM D150-98	0.003	0.005
Dielectric Strength	ASTM D149-09, Method A	154 V/mil	293 V/mil

OTHER	TEST METHOD	VALUE
Specific Gravity	ASTM D792	1.264 g/cc

SYSTEM AVAILABILITY	LAYER THICKNESS CAPABILITY	SUPPORT STRUCTURE	AVAILABLE COLORS
F123 Series	0.010 in. (0.254 mm)	Breakaway	<ul style="list-style-type: none"><li>■ Black</li><li>□ White</li><li>■ Light Gray</li><li>■ Medium Gray</li><li>■ Red</li><li>■ Blue</li><li>■ Natural Trans</li><li>■ Red Trans</li><li>■ Blue Trans</li><li>■ Yellow Trans</li><li>■ Green Trans</li></ul>