

NatureWorks® 6400D

NatureWorks® PLA polymer 6400D is a thermoplastic fiber-grade resin derived primarily from annually renewable resources. Available in pellet form, 6400D is designed for extrusion into mechanically drawn continuous filament using conventional fiber spinning and drawing equipment. 6400D is typically well suited for fiber that is processed into bulk continuous filament (BCF), which is typically used in the manufacturing of carpet. NatureWorks® PLA 6400D can be converted into BCF using a one step spin-draw process.

Physical Properties	Metric	English	Comments
Specific Gravity	1.24 g/cc	1.24 g/cc	ASTM D792
Melt Density	1.08 g/cc @Temperature 230 °C	0.0390 lb/in ³ @Temperature 446 °F	ASTM D1238
Viscosity Measurement	4.0	4.0	Relative Viscosity; CD Internal Viscotek Method

Melt Flow	4.0 - 8.0 g/10 min @Load 2.16 kg, Temperature 210 °C	4.0 - 8.0 g/10 min @Load 4.76 lb, Temperature 410 °F	ASTM D1238
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Mechanical Properties	Metric	English	Comments
Elongation at Break	35 - 45 %	35 - 45 %	Fiber; ASTM D2256/ASTM D3822

Tenacity	0.177 - 0.212 N/tex	2.00 - 2.40 g/denier	ASTM D2256/ASTM D3822
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Thermal Properties	Metric	English	Comments
Melting Point	160 - 170 °C	320 - 338 °F	ASTM D3418

Glass Transition Temp, Tg	55.0 - 60.0 °C	131 - 140 °F	ASTM D3417
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Shrinkage	15 - 20 %	15 - 20 %	Boiling Water, Bulk heat set; ASTM D2102
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	25 - 35 %	25 - 35 %	Boiling Water, Bulk non-heat set; ASTM D2102
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Processing Properties	Metric	English	Comments
Drying Temperature	80.0 °C @Time 14400 sec	176 °F @Time 4.00 hour	

Dew Point	-35.0 °C	-31.0 °F	
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Drying Air Flow Rate	>= 14.2 l/min	>= 0.500 ft ³ /min (CFM)	
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