# Ingeo™ 6201D

## Polylactic Acid

#### NatureWorks® LLC

#### Message:

Ingeo biopolymer 6201D, a NatureWorks LLC product, is a thermoplastic fiber-grade resin derived primarily from annually renewable resources. Available in pellet form, 6201D is designed for extrusion into mechanically drawn staple fibers or continuous filament, using conventional fiber spinning and drawing equipment. 6201D is typically well suited for fiber processes where lower fiber shrinkage is desired: partially orientated yarn (POY), fully drawn yarn (FDY), staple fibers, and continuous filament. Ingeo biopolymer 6201D can be converted into a broad range of fiber products.

Potential applications for PLA polymer 6201D include:

Woven and knitted 100% continuous filament apparel

Woven and knitted, intimate

Staple blend fabrics including blends with cotton, wool, and other fibers

Woven and knitted fabrics and netting for civil engineering applications

Home furnishings

General Information				
Features	Biodegradable			
	Compostable			
	Food Contact Acceptable			
	Low Shrinkage			
	Renewable Resource Content			
Uses	Fabrics			
	Filaments			
	Household Goods			
	Staple Fibers			
	Textile Applications			
	Yarn			
Agency Ratings	EU 10/2011			
	EU 2002/72/EC			
	FDA Food Contact, Unspecified Rating			
Forms	Pellets			
Processing Method	Fiber (Spinning) Extrusion			
Physical	Nominal Value	Unit	Test Method	
Specific Gravity	1.24	g/cm³	ASTM D792	
Melt Mass-Flow Rate (MFR) (210°C/2.16	15 to 30	g/10 min	ASTM D1238	
kg)		g/ to min		
Relative Viscosity	3.10		Internal Method	
Shrinkage		•	ASTM D2102	
Boiling Water	5.0 to 15	%		
Hot Air: 130°C <sup>1</sup>	5.0 to 15	%		

Modulus of Elasticity	30.0 to 40.0	g/denier	ASTM D2256
Denier - per filament	> 0.500		
Elongation of Fibers	10 to 70	%	ASTM D2256
Tenacity of Fibers	2.50 to 5.00	g/denier	ASTM D2256
Thermal	Nominal Value	Unit	Test Method
Glass Transition Temperature	55.0 to 60.0	°C	ASTM D3417
Peak Crystallization Temperature (DSC)	155 to 170	°C	ASTM D3418
Fill Analysis	Nominal Value	Unit	Test Method
Melt Density (230°C)	1.08	g/cm³	
Extrusion	Nominal Value	Unit	
Drying Temperature	80.0	°C	
Drying Time	4.0 to 6.0	hr	
Suggested Max Moisture	< 5.0E-3	%	
Melt Temperature	220 to 240	°C	
NOTE			
1.	10 min		

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