

Polylactic Acid (PLA) Typical Properties

[Polylactic Acid \(PLA\)](#) - [Manufacturers](#) - [Materials](#) - [Classification](#)

Product Description

This data represents typical values that have been calculated from all products classified as: Generic PLA

This information is provided for comparative purposes only.

General

Material Status

- Commercial: Active

Availability

- Africa & Middle East
- Asia Pacific
- Europe
- Latin America
- North America

Physical	Nominal Value	Unit	Test Method
Specific Gravity	--		ASTM D792
	1,24		
	73°F	1,24 to 1,26	g/cm ³ ISO 1183
Melt Mass-Flow Rate (MFR)			
	210°C/2.16 kg	6,0 to 78	g/10 min ASTM D1238
	190°C/2.16 kg	1,5 to 36	g/10 min ISO 1133
Molding Shrinkage			
	Flow : 73°F	3,7E-3 to 4,1E-3	in/in ASTM D955
	73°F	0,30 to 1,1	% ISO 294-4
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
	73°F	293000 to 514000	psi ASTM D638
	73°F	45000 to 815000	psi ISO 527-2
Tensile Strength			
	Yield, 73°F	8840 to 9500	psi ASTM D638
	Yield, 73°F	2250 to 10400	psi ISO 527-2
	Break, 73°F	7080 to 8150	psi ASTM D638
	Break, 73°F	2000 to 10200	psi ISO 527-2
	73°F	6930 to 10000	psi ASTM D638
Tensile Elongation			
	Yield, 73°F	9,8 to 10	% ASTM D638
	Yield, 73°F	1,0 to 8,5	% ISO 527-2
	Break, 73°F	0,50 to 9,2	% ASTM D638
	Break, 73°F	1,0 to 12	% ISO 527-2

Flexural Modulus			
73°F	347000 to 715000	psi	ASTM D790
73°F	44200 to 1,38E+6	psi	ISO 178
Flexural Strength			
73°F	6950 to 16000	psi	ASTM D790
73°F	1310 to 16100	psi	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (73°F)	0,67 to 2,6	ft·lb/in ²	ISO 179
Charpy Unnotched Impact Strength (73°F)	4,0 to 11	ft·lb/in ²	ISO 179
Notched Izod Impact			
73°F	0,30 to 0,88	ft·lb/in	ASTM D256
73°F	1,6 to 3,0	ft·lb/in ²	ISO 180
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
66 psi, Unannealed	121 to 126	°F	ASTM D648
66 psi, Unannealed	122 to 248	°F	ISO 75-2/B
264 psi, Unannealed	118 to 122	°F	ISO 75-2/A
Glass Transition Temperature			
--	134 to 136	°F	ASTM E1356
--	111 to 145	°F	DSC
Vicat Softening Temperature	130 to 146	°F	ISO 306
Melting Temperature	315 to 338	°F	
Peak Crystallization Temperature (DSC)	266 to 327	°F	ASTM D3418
Injection	Nominal Value	Unit	
Drying Temperature	113 to 172	°F	
Drying Time	2,9 to 6,0	hr	
Suggested Max Moisture	0,010 to 0,30	%	
Rear Temperature	302 to 365	°F	
Middle Temperature	338 to 410	°F	
Front Temperature	374 to 393	°F	
Nozzle Temperature	375 to 402	°F	
Processing (Melt) Temp	353 to 464	°F	
Mold Temperature	61 to 224	°F	
Injection Pressure	11400 to 11500	psi	
Back Pressure	72,5 to 160	psi	
Screw Speed	75 to 153	rpm	

Injection Notes

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Extrusion	Nominal Value	Unit
Drying Temperature	120 to 195	°F
Drying Time	2,8 to 10	hr
Suggested Max Moisture	5,0E-3 to 0,30	%
Cylinder Zone 1 Temp.	327 to 374	°F
Cylinder Zone 2 Temp.	331 to 377	°F
Cylinder Zone 3 Temp.	335 to 402	°F
Adapter Temperature	338 to 390	°F
Melt Temperature	373 to 446	°F
Die Temperature	329 to 392	°F

Extrusion Notes

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Notes

¹Typical properties: these are not to be construed as specifications