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Innovating Tomorrow's Materials

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Technical Data Sheet: Essentials PLA

Description: Matter3D Essentials PLA is a high-quality, general-purpose PLA filament engineered for reliable printing, dimensional accuracy, and consistent surface finish. Manufactured using premium NatureWorks Ingeo PLA resin, Essentials PLA offers excellent stiffness, high tensile strength, and low warping characteristics. Its straightforward formulation makes it an ideal choice for rapid prototyping, detailed models, educational applications, and everyday 3D printing where rigidity and ease of use are priorities.

Physical Properties	Standard	Units	Recorded Value
Density	ISO 1183	g/mL	1.24

Mechanical Properties	Standard	Unit	Recorded Value
Tensile Strength, Break	ISO 527	MPa	53
Elongation at break	ISO 527	%	6
Flexural Strength	ISO 178	MPa	83
Flexural Modulus	ISO 178	MPa	3800
IZOD Impact, charpy	GB/T 1843	kJ/m^2	9

Thermal Properties	Standard	Unit	Recorded Value
Glass Transition Temp. Tg	DSC	°C	55
Heat Deflection Temperature at 0.45 MPa	ISO 75	°C	55

Electrical Properties	Standard	Unit	Recorded Value
Surface Resistance	ASTM D257	Ω / sq	$>10^{13}$

Printer Settings:
Extruder Temperature: 200-220°C
Build Plate Temperature: 65°C
Fan speed: 100%
Print Speed: < 1000 mm/s
Max Volumetric Flow: < 30 mm^3 / s on 800 micron nozzles

Notice:
Typical values, not specifications. Performance varies with printer, part geometry, and settings. Users must verify fitness for purpose and comply with regulations. Matter Industries Inc. provides no warranties and assumes no liability.