

### ESSENTIUM PLA XTR

Essentium PLA XTR has been specifically designed for use in additive manufacturing. Our PLA formulation has superior tensile strength, modulus and impact resistance in comparison to standard PLA. This PLA prints with great detail at high speeds, provides less warping, and good bed adhesion. That means you get the performance of an engineering-grade material with the printability of standard PLA.



### MECHANICAL PROPERTIES

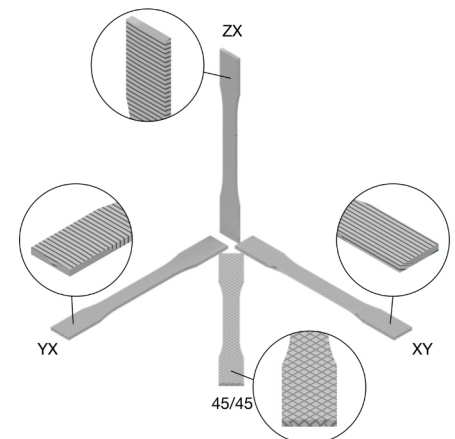
Metric	Test Method	Print Orientation		
		XY	45/45	ZX
Ultimate Tensile Strength, MPa	ISO 527-2	68.8 (0.9)	52.5 (0.1)	40.6 (3.5)
Tensile Modulus, GPa	ISO 527-2	3.46 (0.08)	3.25 (0.06)	3.13 (0.07)
Strain at Break, %	ISO 527-2	4.3 (1.5)	6.1 (1.5)	1.7 (0.5)
Flexural Strength, MPa	ISO 178	107.9 (2.8)	98.4 (0.9)	79.8 (3.5)
Flexural Modulus, GPa	ISO 178	2.96 (0.08)	2.99 (0.10)	2.88 (0.12)
Izod Impact Strength, Notched kJ/m <sup>2</sup>	ISO 180	2.7 (0.4)	2.8 (1.2)	2.2 (0.5)

Standard deviations listed in parentheses

### MATERIAL PROPERTIES

Property	Method	Value
Density <sup>1</sup> , g/cm <sup>3</sup>	ISO 1183	1.24
HDT @ 0.45 MPa <sup>1</sup> , °C	ISO 75	70
Melting Point, °C	ISO 11357	178
Glass Transition Temp, °C	ISO 11357	61

<sup>1</sup> Values taken from raw material TDS



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### MATERIAL HANDLING AND DRYING

Essentium PLA XTR is a hygroscopic thermoplastic and will absorb moisture from humid air. Keep the material in the vacuum sealed packaging until you are ready to print with it. PLA filament should always be fed to the printer in a dry container and stored in a dry cabinet to minimize absorbed moisture. If the material does absorb more than 250 ppm moisture, it should be dried in a low dew point oven or vacuum oven at 65 – 80°C for 4 – 12 hours or overnight in the Essentium DryBox™ with SmartBAKE™. Essentium recommends printing PLA on a G11 or G14 phenolic build sheet with a thin layer of Magigoo® applied to the surface.

### RECOMMENDED HSE PRINT SETTINGS

Contact Essentium for HSE Print Profiles or find our [Print Profiles online](#).

### RECOMMENDED FFF PRINT SETTINGS

Nozzle Temperature, °C	220 – 250	Fan Speed, %	0 – 40
Bed Temperature, °C	30 – 60	Bed Material	G11 or G14
Print Speed, mm/s	40 – 60	Bed Adhesion Method	Magigoo® or VM Nano
First Layer Speed, mm/s	25	Infill Density, %	10 – 90

### KEY FEATURES:

- Engineering-grade performance
- Decreased brittleness
- Superior tensile strength
- Better impact resistance

### APPLICATIONS INCLUDE:

- Mold work
- Lost foam casting
- Investment casting with molds
- Form and fit