

## PLA

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### **Description**

PLA (Polylactic Acid) is a biodegradable, sustainable and food safe polymer made from organic sources.

It is the most common used filament in FFF 3D printers for its ease of use and a wide range of applications, especially those not mechanically or thermally demanding. Definitely a good starting point to learn about the 3D Printing manufacturing process.

### **Properties**

- Detailed and glossy surface quality
- Good tensile strength
- Rigid, fragile behaviour
- Good UV resistance
- Withstand operating temperatures up to 50 °C.
- Odor-free, ideal for educational and office environments
- Compatible with PVA supports
- Low humidity resistance

### **Recommendations**

Plastics absorb moisture from the air. For long periods of time without printing, it is recommended to keep the PLA spools in a box or airtight container with desiccant to keep them dry.

PLA emits low levels of gasses and particles when printed. We recommend printing it in a well-ventilated area to ensure a healthy environment.

## PLA - Technical information including:

Thermal properties		
	Typical value <sup>T</sup>	est method
Melting temp.	115±35°C <sup>I</sup>	ISO 11357
Vicat softening temp. <sup>6</sup>	0 °C	ISO 306
Glass transition temp.	57 °C <sup>I</sup>	ISO 11357

Filament specifications	
Diameter	Ø 2.85 mm
Max roundness deviation	≥ 95%
Net filament weight	750 g
Specific gravity (ISO 1183)	1,24 g/cm <sup>3</sup>

Mechanical properties		
	Typical value <sup>T</sup>	est method
MFR 210°C/2,16 kg <sup>9</sup>	,56 gr/10 min	ISO 1133
Tensile strength at yield	70 Mpa	ISO 527
Strain at yield	5 % <sup>I</sup>	ISO 527
Strain at break	20 %	ISO 527
Tensile Modulus	3120 MPa	ISO 527
Impact strength-Charpy method 23 °C	3,4 kJ/m <sup>2</sup>	ISO 179
Moisture absorption <sup>1</sup>	968 ppm	ISO 62

Printing settings	
Extruder temperature <sup>1</sup>	90 °C - 220 °C
Bed temperature	65 °C
Speed	10-70 mm/s
Retraction speed	40 mm/s
Retraction distance	4 mm
Cooling fan	Yes
Minimum layer height	0.05 mm