its full term is Poly-Lactic Acid and it is a thermoplastic polymer. Because it is derived from natural sources like corn and sometimes sugarcane, PLA is sometimes referred to a bioplastic. The majority of other thermoplastics are distilled from non-renewable resources like petroleum.

In addition, because it is a natural product, it is also long-term biodegradable. This means that when discarded into a composting system, PLA will naturally break down into its constituent parts typically within a few years.

Pros

Can be printed on a cold surface
more environmental-friendly
shinier and smoother appearance
More detail

Cons

Can deform because of heat
Less sturdy

Uses

Consumer products

1. Identification of the material

Trade name	HotOrange3D PLA
Chemical name	Poly-Lactic Acid
Use	3D printing
Origin	HotOrange3D Netherlands

2. Material properties

Melt temperature	145-160	˚C	ASTM D3418
Glass transition temperature	55-60	˚C	ASTM D3419
Heat distortion temperature HDTB (0,45 MPa)	56	˚C	ISO 75
Vicat Softening Temperature	60	˚C	ASTM D1525
Met Flow Rate (210 C/2.16 kg)	9,56	g	ASTM D1238
Density	1.24	g/cm^3	ASTM D790
Water absorption, 24 u	0.1	%	ASTM D570
Shrink rate	0.5 - 0.7	%	ASTM D955

3. Mechanical properties

Tensile Strength (break, 3.20 mm/50 mm/min)	52	MPa	ISO 527
Tensile Modulus (3.20 mm/1.0 mm/min)	1320	MPa	ISO 527
Tensile elongation, (break, 3.20 mm/50 mm/min)	5	%	ISO 527
Flexural Modulus (3.20 mm/15 mm/min)	3600	MPa	ISO 178
Flexural Strength (3.20 mm/15 mm/min)	108	MPa	ISO 178
Rockwell hardness (R-scale)	95		ASTM D785

4. Printer settings

Printer	Desktop FFF printer
Nozzle	0.4 mm A2 hardened
Layer height	0.2 mm
Infill	100% ±45
Extrusion Temperature	190 - 220 ˚C
Bed temperature	46 - 60 ˚C
Bed preparation	Kapton tape, Glass, 3D laque
Print speed	20-40 mm/sec
Requirements	Cooling fan