

ULTIMAKER PLA

<u>Chemical Name</u>	Polylactic acid
<u>Description</u>	Ultimaker PLA filament provides a no-hassle 3D printing experience thanks to its reliability and good surface quality. Our PLA is made from organic and renewable sources. It's safe, easy to print with and it serves a wide range of applications for both novice and advanced users.
<u>Key features</u>	Good tensile strength and surface quality, easy to work with at high print speeds, user-friendly for both home and office environments, PLA allows the creation of high-resolution parts. There is a wide range of color options available.
<u>Applications</u>	Household tools, toys, educational projects, show objects, prototyping, architectural models, as well as lost casting methods to create metal parts.
<u>Non suitable for</u>	Food contact and in-vivo applications. Long term outdoor usage or applications where the printed part is exposed to temperatures higher than 50 °C.

FILAMENT SPECIFICATIONS

	VALUE	METHOD
<u>Diameter</u>	2.85±0.10 mm	-
<u>Max roundness deviation</u>	0.10 mm	-
<u>Net filament weight</u>	750 g	-

COLOR INFORMATION

PRODUCT NUMBER	COLOR	COLOR CODE
UM9013	PLA Green	RAL 6018
UM9014	PLA Black	RAL 9005
UM9015	PLA Silver Metallic	RAL 9006
UM9016	PLA White	RAL 9010
UM9020	PLA Transparent	n/a
UM9021	PLA Orange	RAL 2008
UM9022	PLA Blue	RAL 5002
UM9023	PLA Magenta	RAL 4010
UM9025	PLA Red	RAL 3020
UM9026	PLA Yellow	RAL 1003
UM9029	PLA Pearl White	RAL 1013

MECHANICAL PROPERTIES (*)	TYPICAL VALUE	TEST METHOD
<u>Tensile modulus</u>	2852±87 MPa	ISO 527-1
<u>Tensile stress at yield</u>	38.08±0.89 MPa	ISO 527-1
<u>Tensile stress at break</u>	36.28±1.14 MPa	ISO 527-1
<u>Elongation at yield</u>	2.10±0.00 %	ISO 527-1
<u>Elongation at break</u>	2.84±0.19 %	ISO 527-1
<u>Flexural strength</u>	65.7±5.3	ISO 178
<u>Flexural modulus</u>	2409±206	ISO 178
<u>Izod impact strength, notched (at 23°C)</u>	-	-
<u>Izod impact strength, unnotched (at 23°C)</u>	-	-
<u>Charpy impact strength, unnotched (at 23°C)</u>	13.1±0.7	ISO 179
<u>Hardness</u>	-	-
THERMAL PROPERTIES	TYPICAL VALUE	TEST METHOD
<u>Melt mass-flow rate (MFR)</u>	6.09 g/10min	ISO 1133 (210 °C, 2.16 kg)
<u>Heat deflection (HDT) at 0.455 MPa</u>	-	-
<u>Heat deflection (HDT) at 1.82 MPa</u>	-	-
<u>Glass transition</u>	60-65 °C	ISO 11357-2
<u>Coefficient of thermal expansion (flow)</u>	-	-
<u>Coefficient of thermal expansion (xflow)</u>	-	-
<u>Melting temperature</u>	145-160 °C	ISO 11357-3
<u>Thermal shrinkage (hot air, 100 °C, 30min)</u>	-	-
OTHER PROPERTIES	TYPICAL VALUE	TEST METHOD
<u>Specific gravity</u>	1.24	ASTM D1505
<u>Flame classification</u>	-	-

(*) On 3D printed bars, see notes.

NOTES

Properties reported here are average of a typical batch. The mechanical properties are from specimens printed flat at 100% infill under 45°, 2 shells, 100% fan speed, middle of the bed, nozzle temperature 210 °C, bed temperature 60 °C, no bed adhesive, nozzle diameter 0.4 mm, all print speeds are 40 mm/s, and layer height 0.1 mm

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VERSION

Version 2.001

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