TECHNICAL DATA SHEET

V7.0

polymaker
3D PRINTING FILAMENT



PolyLite™ LW-PLA

PolyLite™ LW-PLA enabled by the foaming technology. PolyLite™ Light Weight PLA has a low-density to print lightweight parts (0.9g/cm³). It features a very matte surface finish which hides the layers.

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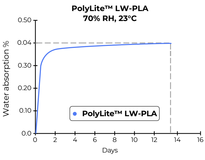
PHYSICAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Density	ISO1183, GB/T1033	0.9 g/cm³ at 23°C
Melt index	N/A	N/A

MOISTURE ABSORPTION CURVE

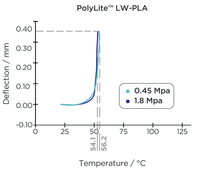


Equilibrium water absorption (%)= 0.40%

THERMAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Glass transition temp.	DSC, 10°C/min	59°C
Melting temp.	DSC, 10°C/min	150°C
Crystalization temp.	DSC, 10°C/min	N/A
Decomposition temp.	TGA, 20°C/min	274°C
Vicat softening temp.	ISO 306, GB/T 1633	60°C
Heat deflection temp.	ISO 75 1.8MPa	50°C
Heat deflection temp.	ISO 75 0.45MPa	54°C

HDT CURVE



*Curve results are the average of 3 samples

MECHANICAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Young's modulus (X-Y)	ISO 527, GB/T 1040	1688.5 ± 80.8 MPa
Young's modulus (Z)		1726.3 ± 199.8 MPa
Tensile strength (X-Y)	ISO 527, GB/T 1040	24.4 ± 0.3 MPa
Tensile strength (Z)		20.8 ± 0.9 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	8.8 ± 0.3 %
Elongation at break (Z)		2.0 ± 0.4 %
Bending modulus (X-Y)	ISO 527, GB/T 1040	1958.9 ± 72.6 MPa
Bending modulus (Z)		N/A
Bending strength (X-Y)	ISO 527, GB/T 1040	50.2 ± 1.6 MPa
Bending strength (Z)		N/A
Notched charpy impact strength (X-Y)	ISO 179, GB/T 1043	2.4 ± 0.3 kJ/m²
Notched charpy impact strength (Z)		N/A

CHEMICAL RESISTANCE DATA

PROPERTY	TYPICAL VALUE
Effect of weak acids	Good
Effect of strong acids	Poor
Effect of weak alkalis	Fair
Effect of strong alkalis	Poor
Effect of oils and grease	Good

Good:
Material may get minor attack after long periods of storage with chemical at ambient temperature

Fair:
Material can be used for short time contact with chemicals at ambient temperature

Poor:
Material becomes unstable on contact with chemical at ambient temperature

RECOMMENDED PRINTING CONDITIONS

Nozzle temperature	190-210°C
Build plate temperature	25-60°C
Build surface treatment	PC and Textured PEI
Cooling fan	ON
Closure chamber	Not needed

Printing Speed	50-100mm/s
Drying temp. and time	55°C/6H
Retraction distance	3-6 (mm)
Retraction Speed	40-60 (mm/s)

*Based on 0.4mm nozzle. Printing conditions may vary with different nozzle diameters.



PolySupport™ PolyDissolve™ S1

Recommended support material



PolyBox™ or PolyDryer™ Box

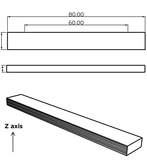
Recommended storage for excellent printing quality

HOW TO MAKE SPECIMENS

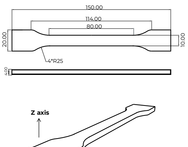
Printing temperature	210°C
Bed temperature	50°C
Top & bottom layer	3
Environmental Temperature	Ambient temp.

Infill	100%
Shell	2
Cooling fan	OFF

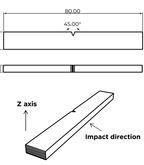
FLEXURAL TESTING SPECIMEN
ISO 178, GB/T 9341



TENSILE TESTING SPECIMEN
ISO 527, GB/T 1040



IMPACT TESTING SPECIMEN
ISO 179, GB/T 1043



*Based on testing with Polymaker™ PolyLite™ PLA-LW (SKU: PA08003)

DISCLAIMER

The typical values presented in this data sheet are intended for reference and comparison purposes only. They should not be used for design specifications or quality control purposes. Actual values may vary significantly with printing conditions. End-use performance of printed parts depends not only on materials, but also on part design, environmental conditions, printing conditions, etc. Product specifications are subject to change without notice.
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