

TECHNICAL DATA SHEET



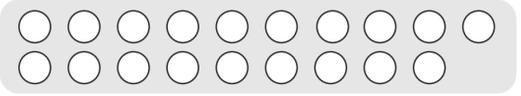
V1.0



POLYMAKER™ MATTE PLA FOR PRODUCTION

PolyTerra™ PLA is a bioplastic 3D printing filament designed for ease of use, quality, speed, and reliability. It has specific physical properties such as a density of 1.31 g/cm³ and a tensile strength of 20.9 MPa, but is not resistant to weak or strong acids and alkalis. Users must ensure the material's suitability for their applications, as actual performance can vary based on multiple factors.

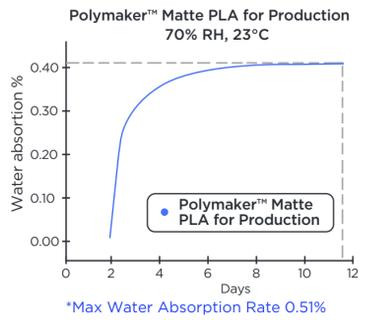
WWW.POLYMAKER.COM



PHYSICAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Density	ISO1183, GB/T1033	1.31 g/cm ³ at 21°C
Melt index	210°C, 2.16 kg	14-20 g/10min

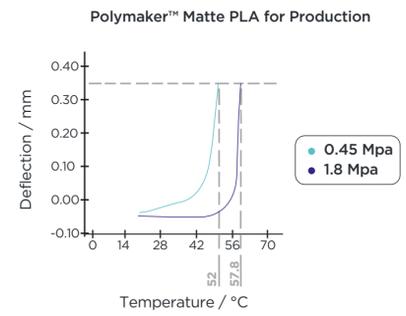
MOISTURE ABSORPTION CURVE



THERMAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Glass transition temp.	DSC, 10°C/min	60.6°C
Melting temp.	DSC, 10°C/min	162.6°C
Vicat softening temp.	ISO 306, GB/T 1633	62.7°C

HDT CURVE



MECHANICAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Young's modulus (X-Y)	ISO 527, GB/T 1040	1882 ± 141 MPa
Young's modulus (Z)		1869.7 ± 38 MPa
Tensile strength (X-Y)	ISO 527, GB/T 1040	20.9 ± 2.0 MPa
Tensile strength (Z)		18.0 ± 0.3 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	34.5 ± 8.1%
Elongation at break (Z)		2.51 ± 0.83%
Bending modulus (X-Y)	ISO 178, GB/T 9341	2695 ± 541 MPa
Bending modulus (Z)		N/A
Bending strength (X-Y)	ISO 178, GB/T 9341	39.6 ± 1.1 MPa
Bending strength (Z)		N/A
Charpy impact strength (X-Y)	ISO 179, GB/T 1043	5.7 ± 0.4 kJ/m ²
Charpy impact strength (Z)		N/A

CHEMICAL RESISTANCE DATA

PROPERTY	TYPICAL VALUE
Effect of weak acids	Poor
Effect of strong acids	Poor
Effect of weak alkalis	Poor
Effect of strong alkalis	Poor

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	190-230°C
Build surface material	BuildTak®, Glass, Blue Tape
Build surface temperature	Glue or Magigoo
Build plate treatment	25-60°C
Cooling fan	ON

Raft separation distance	0.2 (mm)
Retraction distance	1 (mm)
Environment temp.	1 (mm)
Threshold overhang angle	20 (mm/s)
Recommended support material	20 (mm/s)

*Based on 0.4mm nozzle and Simplify 3D v.4.0. Printing conditions may vary with different nozzle diameters.



PolySupport™ and PolyDissolve™ S1
Recommended support material



PolyBox™ or PolyDryer™ Box
Recommended storage for excellent printing quality

HOW TO MAKE SPECIMENS

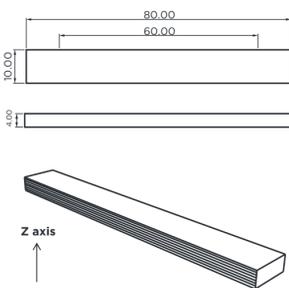
Printing temperature	200°C
Bed temperature	60°C
Top & bottom layer	4
Environmental Temperature	25°C

Infill	100%
Shell	2
Cooling fan	ON

*All Specimens were conditioned at room temperature for 24h prior to testing

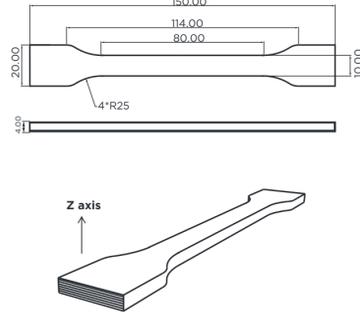
FLEXURAL TESTING SPECIMEN

ISO 178, GB/T 9341



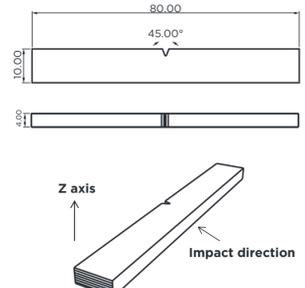
TENSILE TESTING SPECIMEN

ISO 527, GB/T 1040



IMPACT TESTING SPECIMEN

ISO 179, GB/T 1043



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 material, but also on part design, environmental conditions, printing conditions, etc. Product specifications are subject to change without notice. Each user is responsible for determining the safety, lawfulness, technical suitability, and disposal/recycling practices of Polymaker™ materials for the intended application. Polymaker™ makes no warranty of any kind, unless announced separately, to the fitness for any use or application. Polymaker™ shall not be made liable for any damage, injury or loss induced from the use of Polymaker™ materials in any application.