polymaker

Innovators in 3D printing

Technical Data Sheet

PolyLite™ CosPLA Version B

www.polymaker.com

V5.4

PolyLite™ CosPLA

PolyLite™ CosPLA is a special PLA formula designed for cosplay props application. It has been enhanced for ease of sanding, durability and paint-ability.
Both version of the formula features more durability and ease of sanding compare to regular PLA

PHYSICAL PROPERTIES

Property	Testing Method	Typical Value
Density	ISO1183, GB/T1033	1.22 g/cm^3 at 21.5°C
Melt index	210°C, 2.16 kg	6 g/10min
Light transmission	N/A	N/A
Flame retardancy	N/A	N/A

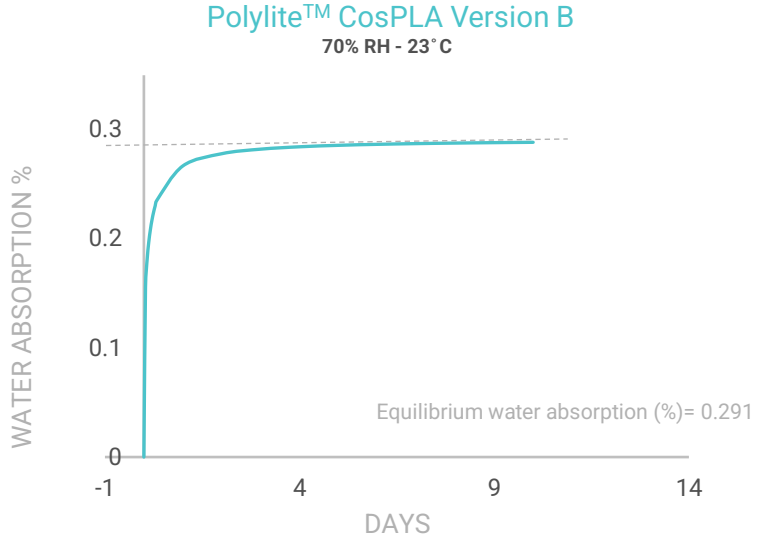
CHEMICAL RESISTANCE DATA

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

Note:

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

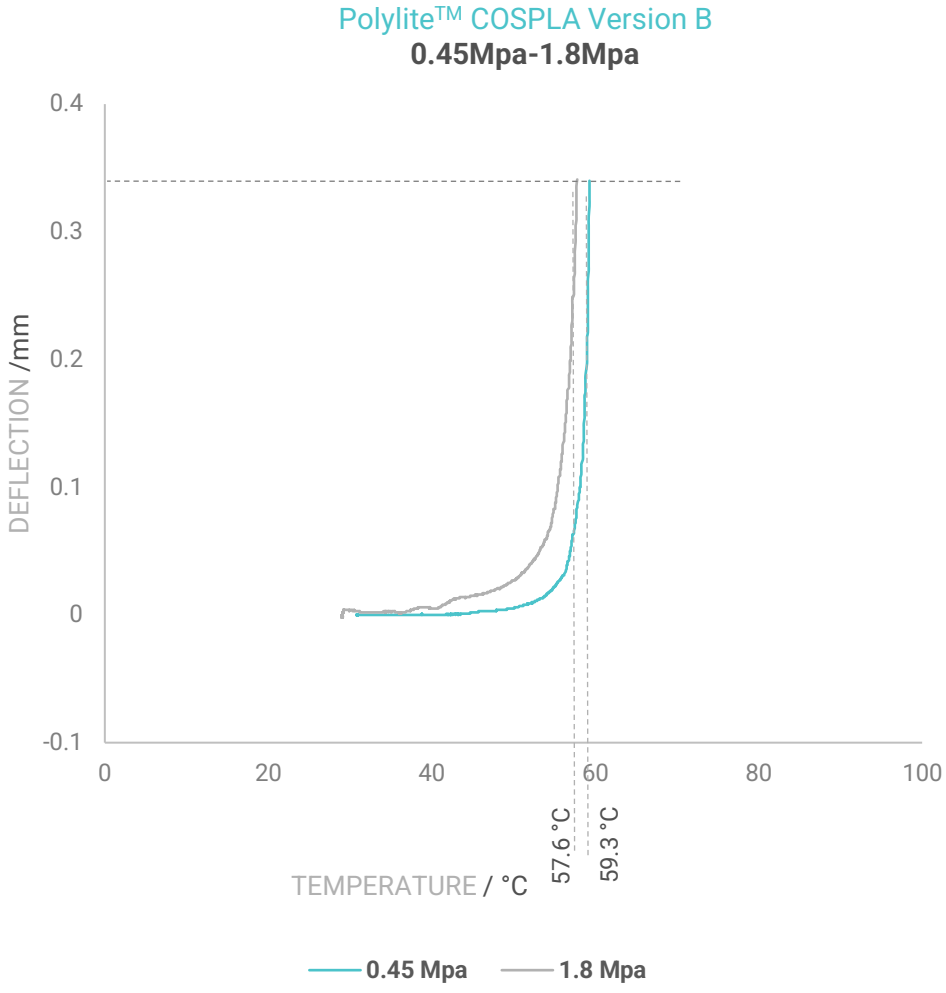
MOISTURE ABSORPTION CURVE



THERMAL PROPERTIES

Property	Testing Method	Typical Value
Glass transition temperature	DSC, 10°C/min	62 °C
Melting temperature	DSC, 10°C/min	150 °C
Crystallization temperature	DSC, 10°C/min	N/A
Decomposition temperature	TGA, 20°C/min	N/A
Vicat softening temperature	ISO 306, GB/T 1633	63 °C
Heat deflection temperature	ISO 75 1.8MPa	58 °C
Heat deflection temperature	ISO 75 0.45MPa	59 °C

HDT CURVE



MECHANICAL PROPERTIES

Property	Testing Method	Typical Value
Young's modulus (X-Y)	ISO 527, GB/T 1040	2932.2 ± 55.3 MPa
Young's modulus (Z)		2633.0 ± 117.4 MPa
Tensile strength (X-Y)	ISO 527, GB/T 1040	49.8 ± 0.4 MPa
Tensile strength (Z)		36.5 ±0.6 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	6.3 ± 0.9 %
Elongation at break (Z)		2.4 ± 0.3 %
Bending modulus (X-Y)	ISO 178, GB/T 9341	2933.8 ± 78.3 MPa
Bending modulus (Z)		N/A
Bending strength (X-Y)	ISO 178, GB/T 9341	77.9 ± 0.4 MPa
Bending strength (Z)		N/A
Notched Charpy impact strength (X-Y)	ISO 179, GB/T 1043	17.1 ±1.2 kJ/m^2
Notched Charpy impact strength (Z)		N/A

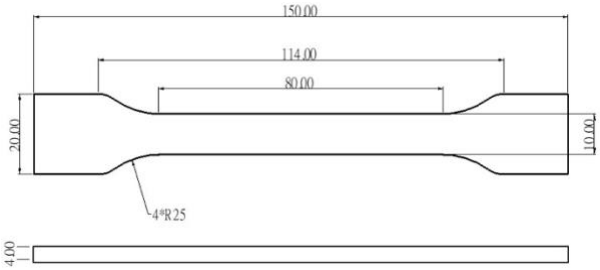
RECOMMENDED PRINTING CONDITIONS

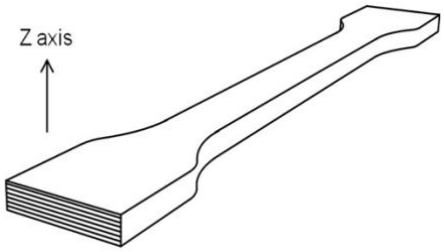
Parameter	
Nozzle temperature	190 – 230 (℃)
Build surface treatment	PC and Texture PEI (Glue when needed)
Build plate temperature	30 - 60 (˚C)
Cooling fan	ON
Printing speed	50 - 200 (mm/s)
Retraction distance	1 - 3 (mm)
Retraction speed	20 - 40 (mm/s)
Closure Chamber	No Needed
Recommended support material	PolySupport™ and PolyDissolve™ S1
Drying setting	55˚C for 6h
Annealing setting	-

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

TENSILE TESTING SPECIMEN

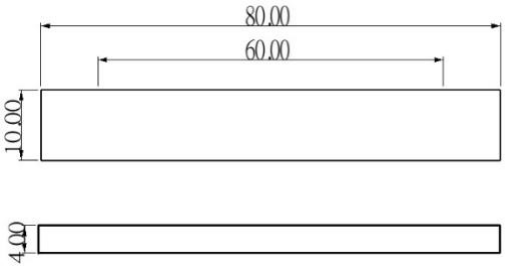
ISO 527, GB/T 1040

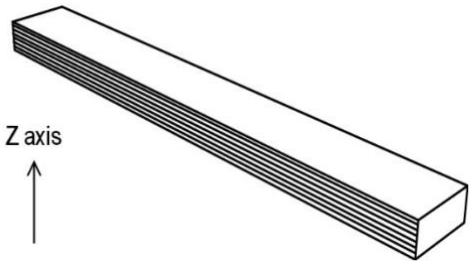




FLEXURAL TESTING SPECIMEN

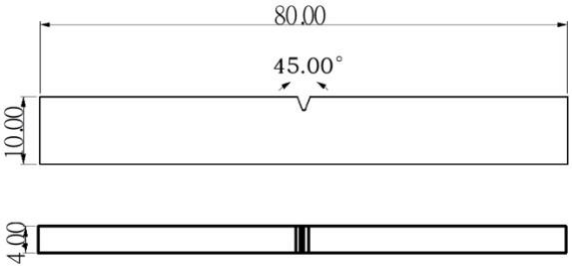
ISO 178, GB/T 9341

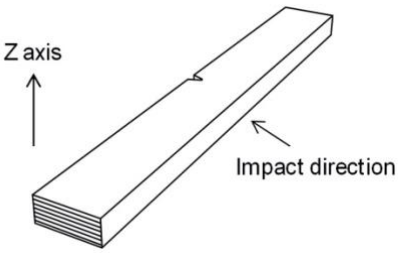




IMPACT TESTING SPECIMEN

ISO 179, GB/T 1043





HOW TO MAKE SPECIMENS

Printing temperature	230 °C
Bed temperature	50 °C
Shell	2
Top & bottom layer	3
Infill	100 %
Environmental temperature	Ambient temperature
Cooling fan	ON

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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