polymaker

Innovators in 3D printing

Technical Data Sheet

PolyLite™ ASA

www.polymaker.com

V5.4

PolyLite™ ASA

PolyLite™ ASA is an alternative to ABS with an improved weather resistance. Its UV resistance and excellent mechanical properties make it the perfect choice for real life applications.

PHYSICAL PROPERTIES

Property	Testing Method	Typical Value
Density	ISO1183, GB/T1033	1.13 g/cm^3 at 23°C
Melt index	220°C, 10 kg	25 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	Good
Effect of strong alkalis	Fair
Effect of oils and grease	Good

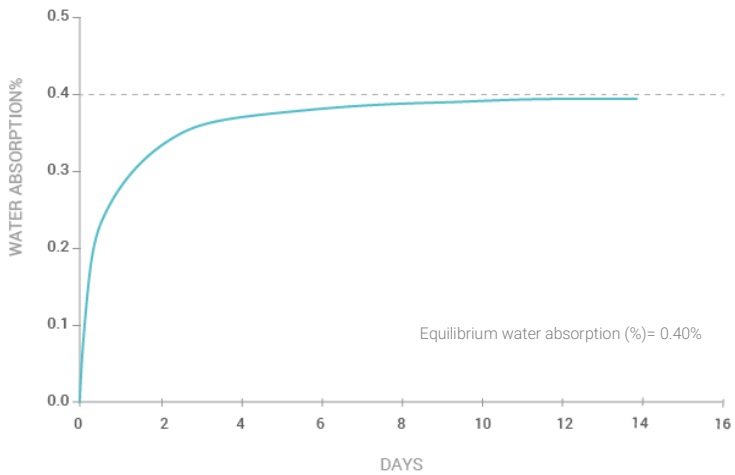
Note:

- 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

PolyLite™ ASA

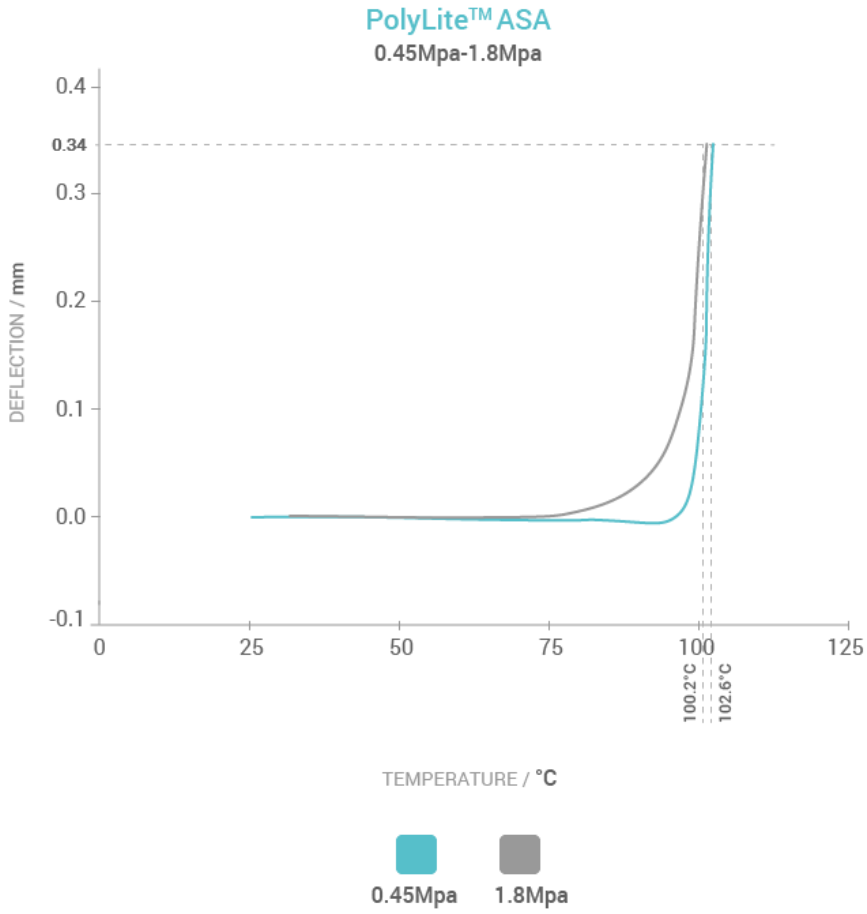
70%RH - 23°C



THERMAL PROPERTIES

Property	Testing Method	Typical Value
Glass transition temperature	DSC, 10°C/min	98 °C
Melting temperature	DSC, 10°C/min	N/A
Crystallization temperature	DSC, 10°C/min	N/A
Decomposition temperature	TGA, 20°C/min	N/A
Vicat softening temperature	ISO 306, GB/T 1633	105 °C
Heat deflection temperature	ISO 75 1.8MPa	100 °C
Heat deflection temperature	ISO 75 0.45MPa	103 °C

HDT CURVE



MECHANICAL PROPERTIES

Property	Testing Method	Typical Value
Young's modulus (X-Y)	ISO 527, GB/T 1040	2379 ± 157 MPa
Young's modulus (Z)		1965 ± 136 MPa
Tensile strength (X-Y)	ISO 527, GB/T 1040	43.8 ± 0.8 MPa
Tensile strength (Z)		32 ± 1.8 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	6.7 ± 0.6 %
Elongation at break (Z)		1.65 ± 0.2 %
Bending modulus (X-Y)	ISO 178, GB/T 9341	3206 ± 108 MPa
Bending modulus (Z)		N/A
Bending strength (X-Y)	ISO 178, GB/T 9341	73.4 ± 2.1 MPa
Bending strength (Z)		N/A
Notched Charpy impact strength (X-Y)	ISO 179, GB/T 1043	10.3 ± 0.4 kJ/m^2
Notched Charpy impact strength (Z)		6.7 ± 1.4 kJ/m^2

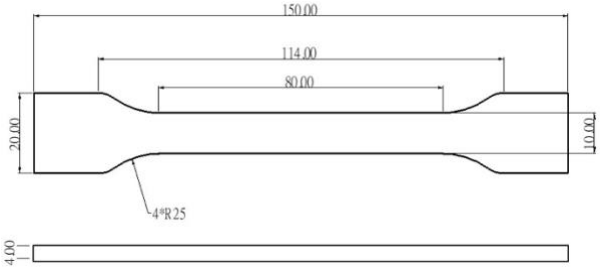
RECOMMENDED PRINTING CONDITIONS

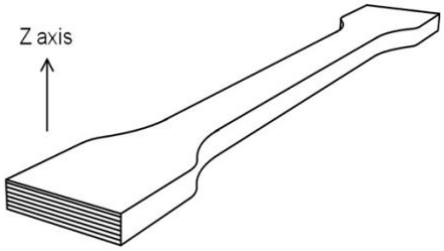
Parameter	
Nozzle temperature	230 – 260 (℃)
Build surface treatment	PC and Texture PEI (Glue when needed)
Build plate temperature	75 – 95 (˚C)
Cooling fan	OFF
Printing speed	50 - 200 (mm/s)
Retraction distance	1 - 3 (mm)
Retraction speed	20 - 40 (mm/s)
Closure Chamber	Needed (ambient temperature)
Recommended support material	-
Drying setting	70˚C for 7h
Annealing setting	-

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

TENSILE TESTING SPECIMEN

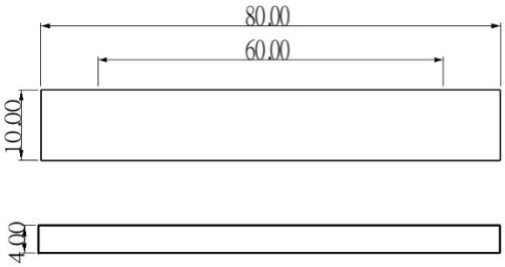
ISO 527, GB/T 1040

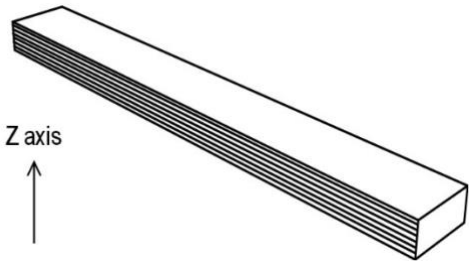




FLEXURAL TESTING SPECIMEN

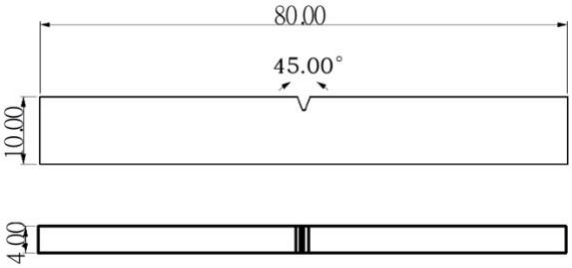
ISO 178, GB/T 9341

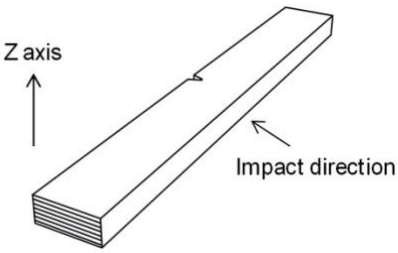




IMPACT TESTING SPECIMEN

ISO 179, GB/T 1043





HOW TO MAKE SPECIMENS

Printing temperature	260 °C
Bed temperature	90 °C
Shell	2
Top & bottom layer	3
Infill	100 %
Environmental temperature	90 °C
Cooling fan	OFF

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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