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 application.

Physical Properties

Property	Testing method	Typical value
Density	ASTM D792 (ISO 1183, GB/T 1033)	1.1 (g/cm3 at 21.5˚C)
Glass transition temperature	DSC, 10 °C/min	97.8 (°C)
Vicat Softening temperature	ASTM D1525 (ISO 306 GB/T 1633)	105.3 (˚C)
Melt index	220°C, 10kg	25 (g/10 min)

Tested with 3D printed specimen of 100% infill

Mechanical Properties

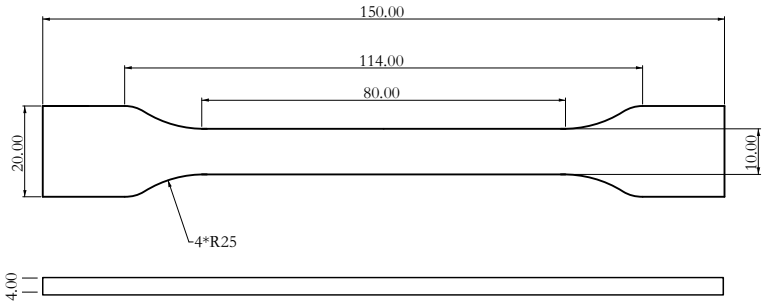
Property	Testing method	Typical value
Young's modulus (X-Y)	ASTM D638 (ISO 527, GB/T 1040)	2379 ± 157 (MPa)
Tensile strength (X-Y)	ASTM D638 (ISO 527, GB/T 1040)	43.8 ± 0.8 (MPa)
Elongation at break (X-Y)	ASTM D638 (ISO 527, GB/T 1040)	6.7 ± 0.6 (%)
Bending modulus (X-Y)	ASTMD790 (ISO 178, GB/T 9341)	3206 ± 108 (MPa)
Bending strength (X-Y)	ASTMD790 (ISO 178, GB/T 9341)	73.4 ± 2.1 (MPa)
Charpy impact strength (X-Y)	ASTM D256 (ISO 179, GB/T 1043)	10.3 ± 0.4 (kJ/m^2)
Tensile strength (Z)	ASTM D638 (ISO 527, GB/T 1040)	27.4 ± 1.8 (MPa)

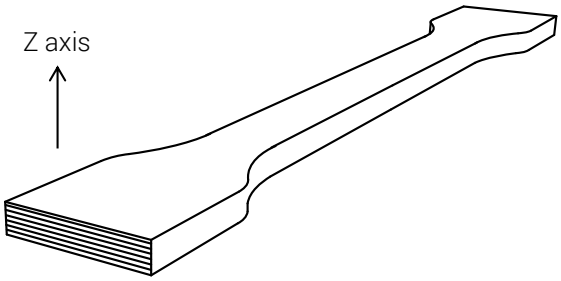
All testing specimens were printed under the following conditions:
nozzle temperature = 260 °C, printing speed = 50 mm/s, build plate temperature = 80 °C, infill = 100%
All specimens were conditioned at room temperature for 24h prior to testing

Recommended printing conditions

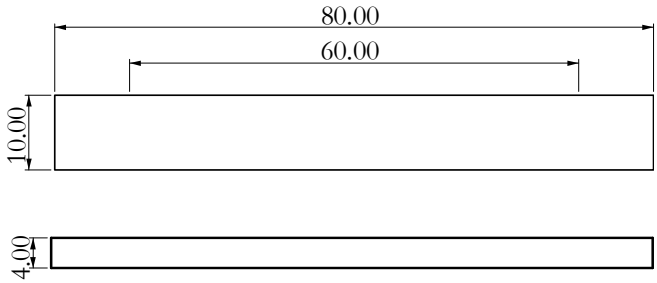
Parameter	
Nozzle temperature	240 - 260 (˚C)
Build Surface material	BuildTak®
Build surface treatment	Magigoo
Build plate temperature	75 - 95 (˚C)
Cooling fan	Turned off
Printing speed	30 - 50 (mm/s)
Raft separation distance	0.15 – 0.20 (mm)
Retraction distance	1 - 3 (mm)
Retraction speed	20 - 40 (mm/s)
Recommended environmental temperature	50 - 70 (˚C)
Threshold overhang angle	50 (˚)

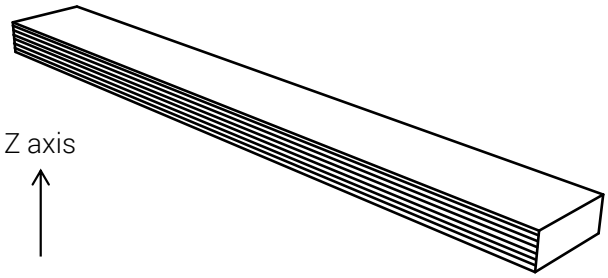
Based on 0.4 mm nozzle and Simplify 3D v.4.0. Printing conditions may vary with different nozzle diameters



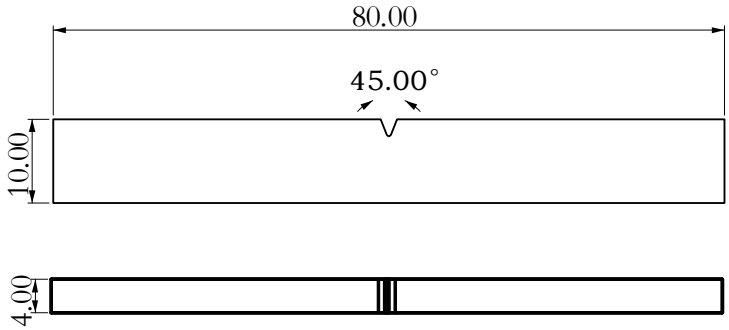


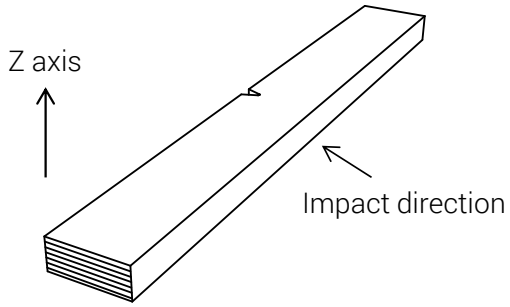
Tensile testing specimen; ASTM D638 (ISO 527, GB/T 1040)





Flexural testing specimen; ASTMD790 (ISO 178, GB/T 9341)





Impact testing specimen; ASTM D256 (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 materials, but also on part design, environmental conditions, printing conditions, etc. Product specifications are subject to change without notice.

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