TOUGH-PLA

Technical Data Sheet

Dynamism Tough-PLA's impact strength is much closer to ABS than regular PLA, so you can print parts for practical applications with heat resistance up to 60˚C.

PHYSICAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Density (g/cm3 at 21.5 °C)	ASTM D792	1.22 ± 0.1
Glass transition temperature (°C)	DSC, 10 °C/min	62.3
Vicat Softening temperature	ATM D1525	62.7 ± 0.2
Melt index (g/10 min)	210 °C, 2.16 kg	6.04
Melting temperature (°C)	DSC, 10 K/min	150.9

Tested with 3D printed specimen of 100% infill

MECHANICAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Young's modulus (MPa, X-Y)	ASTM D638 (ISO 527, GB/T 1040)	2681 ± 215
Tensile strength (MPa, X-Y)	ASTM D638 (ISO527, GB/T 1040)	35.65 ± 0.93
Elongation at break (%, X-Y)	ASTM D638 (ISO527, GB/T 1040)	2.45 ± 0.61
Bending modulus (MPa)	ASTM D790 (ISO 178, GB/T 9341)	2700 ± 154
Bending strength (MPa)	ASTM D790 (ISO 178, GB/T 9341)	68.08 ± 2.21
Impact strength (kJ/m2)	ASTM D256 (ISO 179, GB/T 1043)	13.44 ±1.17
Tensile strength (MPa, Z)	ASTM D638 (ISO527, GB/T 1040)	39.66 ± 0.60
Young's modulus (MPa, Z)	ASTM D638 (ISO527, GB/T 1040)	2551 ± 335
Elongation at break (%, Z)	ASTM D638 (ISO527, GB/T 1040)	6.02 ± 2.43

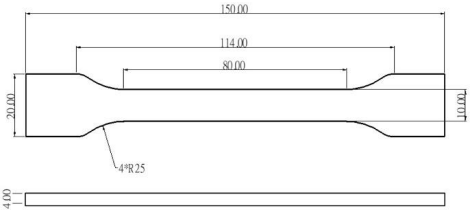
All testing specimens were printed under the following conditions:
nozzle temperature = 210 °C, printing speed = 45 mm/s, build plate temperature = 25 °C, infill = 100%
All specimens were conditioned at room temperature for 24h prior to testing

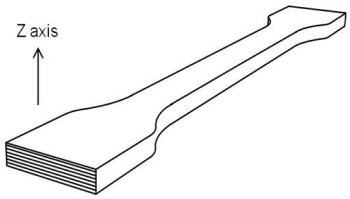
RECOMMENDED PRINTING CONDITIONS

PARAMETER	
Nozzle temperature	190 – 220 (°C)
Build plate temperature	30 - 60 (˚C)
Cooling fan	Turned on
Printing speed	30-70 (mm/s)
Retraction distance	1 – 3 (mm)
Retraction speed	30 - 60 (mm/s)
Recommended Environmental temperature	Room temperature - 45 (˚C)
Recommended support material	Self-support

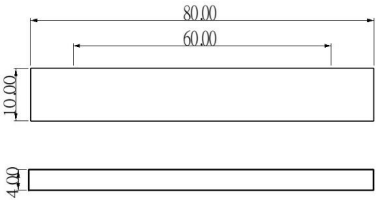
Based on 0.4 mm nozzle and Simplify 3D v.4.0. Printing conditions may vary with different nozzle diameters

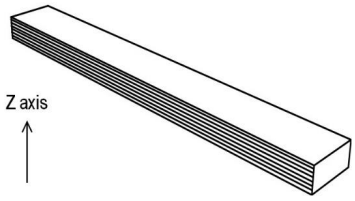
TENSILE TESTING SPECIMEN ISO 527, GB/T 1040



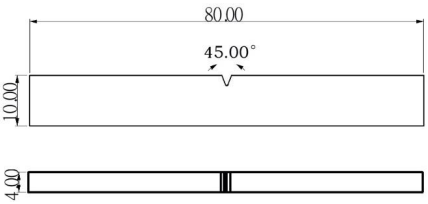


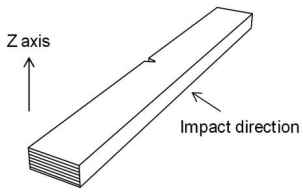
FLEXURAL TESTING SPECIMEN ISO 178, GB/T 9341





IMPACT TESTING SPECIMEN ISO 179, GB/T 1043





DISCLAMIER

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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