version 1.0
08/2024

Technical Data Sheet (TDS)

TPU 90A

ERYONE TPU 90A is a 3D printing filament designed for applications requiring top-tier flexibility and durability. As a core product in its line, it excels in shock absorption and cushioning. Softer than stiffer variants in the same series, it also offers enhanced wear and flexural fatigue resistance. Even under repeated compression and high-frequency bending, it retains elasticity and structural stability, resisting cracking and performance loss. Ideal for making shock-absorbing electronic cases, ergonomic medical supports, printing pads, soft toys and protective accessories, it meets diverse needs with great pliability and reliable support. Compatible with mainstream FDM 3D printers, it ensures smooth, clog-free printing.Note: Cannot be used with AMS

Part I: Suggests Printing Parameters

Parameter	Set up
Nozzle temperature	200-220 ℃
Bed temperature	0-60℃
Bed material	glass, PEI, spring steel plate
Bottom printing temperature	200-220 ℃
Sealed printing	Supports open/closed printing
Printing speed	≤40mm/s
Drying conditions	65℃, 8H

Part II: Physical Properties of Materials

Property	Testing Method	Unit	Typical Value
Density(g/cm³ at 21.5 ° C)	ASTM D792 (ISO 1183, GB/T 1033)	g/cm³	1.2
Heat distortion temperature(° C)	ASTM D648 0.45MPa	℃	70
Melt Index(g/10 min)	210 ° C, 2.16 kg	g/10min	36

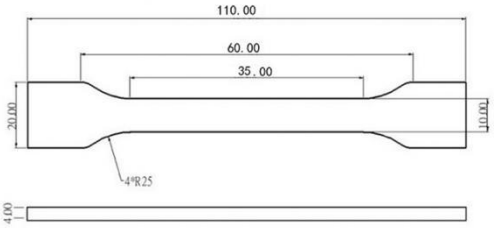
Part III: Mechanical Properties of Printed Samples

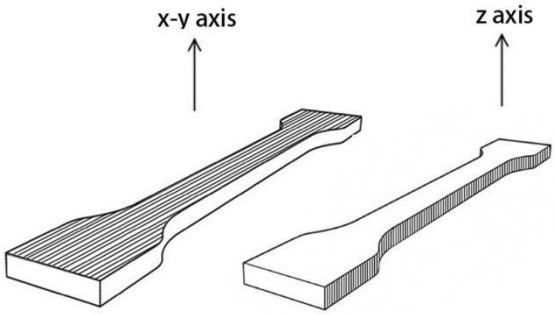
Property	Test conditions	Test standards	unit	Typical Value
Tensile strength X-Y	50mm/min	GB/T 1040.4	MPa	23.7
Elastic modulus X-Y	50mm/min	GB/T 1040.1-2006	MPa	27
Elongation at break X-Y	50mm/min	GB/T 1040.4	%	573.9
100% Modulus	/	ASTM D412	MPa	8
300% Modulus	/	ASTM D412	MPa	11
Tear Strength	/	ASTM D624	N/mm	116

Note: All splines are printed under the following conditions: printing temperature=220 ° C, printing speed=40mm/s, base plate 55° C, filling=100%, nozzle diameter=0.4mm

TENSILE TESTING SPECIMEN

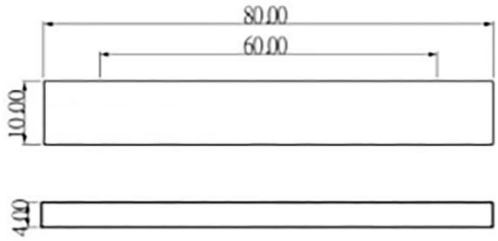
ISO 527,GB/T 1040

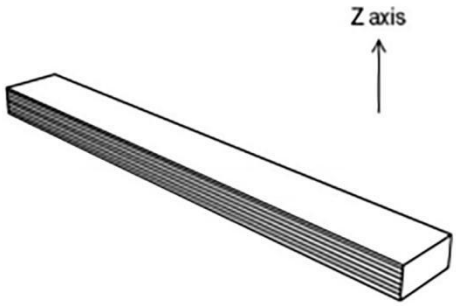




FLEXURAL TESTING SPECIMEN

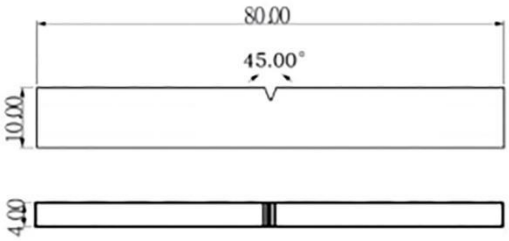
ISO 178,GB/T 9341

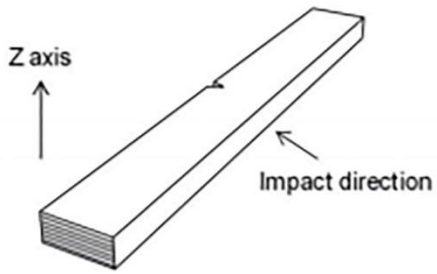




IMPACT TESTING SPECIMEN

ISO 179,GB/T 1043





Disclaimers

The values given in this data table are for reference and comparison only. They should not be used for design specifications or quality control. The actual value may vary depending on the printing conditions. The final performance of printed components depends not only on the material, but also on the component design, environmental conditions, printing conditions, and so on. Product specifications are subject to change without prior notice.