version 1.0
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Technical Data Sheet (TDS)

TPU 85A

ERYONE TPU 85A is a filament designed for 3D printing needs that demand ultimate flexibility and durability. Its core highlight in the ERYONE TPU85A product line is its excellent shock absorption and cushioning capabilities. It offers a softer feel than higher-hardness models in the same series, while also possessing superior abrasion resistance and bending fatigue resistance. Even after repeated compression and high-frequency bending, it maintains its elasticity and structural integrity, without easily cracking or performance degradation. It can be used in applications such as shock-absorbing electronic device protective cases, ergonomic medical support brackets, printing pads, soft toys, and protective accessories, precisely adapting to various needs thanks to its excellent flexibility and support. Furthermore, it is compatible with mainstream FDM 3D printers, ensuring a smooth printing process without clogging.

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

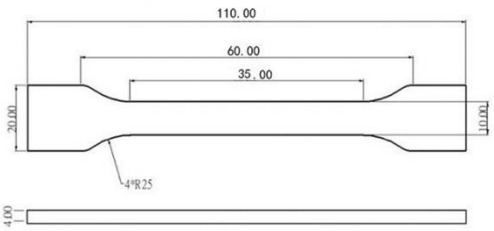
Part III: Mechanical Properties of Printed Samples

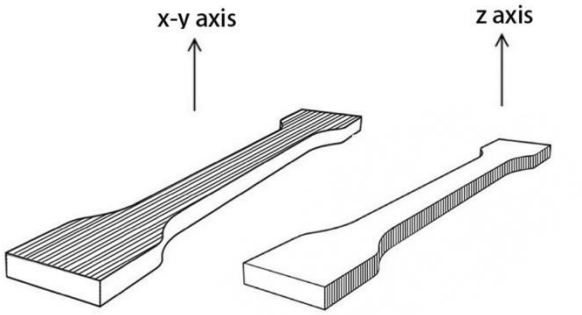
Property	Test conditions	Test standards	unit	Typical Value
Tensile strength X-Y	50mm/min	GB/T 1040.4	MPa	35
Elastic modulus X-Y	50mm/min	GB/T 1040.1-2006	MPa	27
Elongation at break X-Y	50mm/min	GB/T 1040.4	%	589
100% Modulus	50mm/min	ASTM D412	MPa	6
300% Modulus	/	ASTM D412	MPa	10
Tear Strength	/	ASTM D624	N/mm	96

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

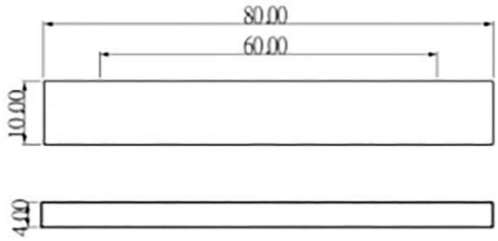
ISO 527,GB/T 1040

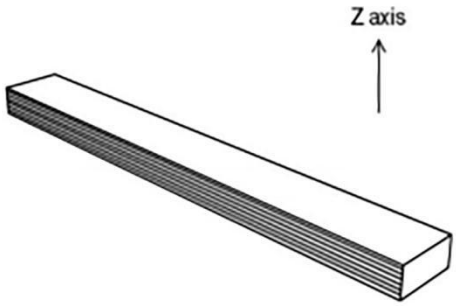




FLEXURAL TESTING SPECIMEN

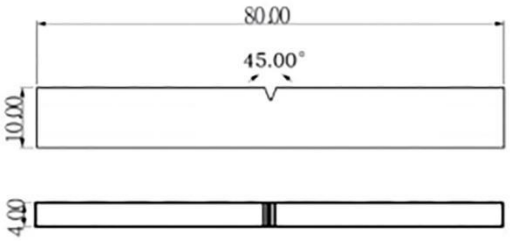
ISO 178,GB/T 9341

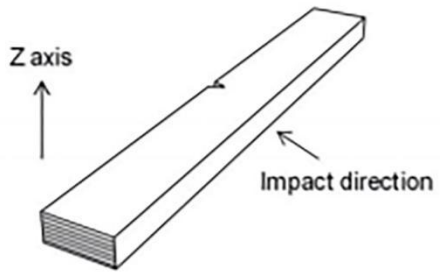




IMPACT TESTING SPECIMEN

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.