IEMAI®

3D printing solutions for high performance materials

TPU Technical Data Sheet (TDS)

Thermoplastic polyurethane (TPU) is a soft material which contain both feature of rubber and plastic. It is a semi-flexible and chemical resistance filament with strong interlayer bonding. It also has good corrosion resistance to industrials oils and chemicals.

IEMAI 3D high performance TPU filament is based on FFF/FDM technology, with a commonly used diameter of 1.75 mm, 235 °C printing temperature, 50 °C bed temperature, having excellent interlayer adhesion which greatly improve the strength and shock resistance of the prototype.

It is commonly applied in field such as functional prototypes, guides, sleeves, and protective cases.

PHYSICAL PROPERTIES		
Property	Testing Method	Typical Value
Density	ISO1183, GB/T1033	1.20-1.24 g/.cm3 at 21 °C
Melt Index	210 °C, 1.2Kg	3-6g/ 10 min
Light Transmission	N/A	N/A
Flame Retardancy	UL94	V2

CHEMICAL RESISTANT DATA	
Property	Testing Method
Effect of weak acids	Not Resistant
Effect of strong acids	Not Resistant
Effect of weak alkalis	Not Resistant
Effect of strong alkalis	Not Resistant
Effect of organic solvent	No data available
Effect of oils and grease	No data available
Effect of Sunlight	No data available

THERMAL PROPERTIES		
Property	Testing Method	Typical Value
Melting temperature	DSC, 10° C/min	168 °C
Crystallization temperature	DSC, 10° C/min	94 °C

MECHANICAL PROPERTIES		
Property	Testing Method	Typical Value
100% modulus (X-Y)	ISO 527, GB/T 1040	9.4 ± 0.3 MPa

Young's modulus (X-Y)	ISO 527, GB/T 1040	29 ± 2.8 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	330.1 ± 14%
Shore hardness	ISO 7619, GB/T 31	95A

Print Recommendation	
Nozzle Temperature	220 -240 ºC
Bed Temperature	30 -500 ºC
Print Speed	20-50 mm/s
Chamber Temperature	0-50 °C
Cooling Fan	0-100%