

TPU 95A

Thermoplastic Urethane

TPU95A (thermoplastic polyurethane) is a semi-flexible, chemical resistant filament, making it the go-to-choice for a wide array of manufacturing projects that demand the qualities of both rubber and plastic. It is highly versatile for industrial applications due to its high impact strength and resistance to wear and tear. In addition, it is also easier and faster to print than other TPU filaments.

Mechanical Properties	Standard	Value	Unit
Ultimate Tensile Strength	ASTM D638	39	MPa
Tensile Modulus	ASTM D638	26	MPa
Elongation at Break	ASTM D638	580	%
Flexural Strength			MPa
Flexural Modulus			MPa
Hardness Shore	Standard	Value	Unit
Hardness	ASTM D2240	95 Shore A	

Thermal Properties	Standard	Value	Unit
HDT @ 0.45 MPa	ASTM D648	49	°C
Glass Transition Temp	DSC	-24	°C
Physical Properties	Standard	Value	Unit
Minimum Part Density	ASTM D792	1.22	g/cm ³
Certifications and Tests	Standard	Value	Unit
Flammability (UL 94)			
USP Class VI Certified			

Characteristics

- Exceptional wear, tear and heat resistance
- High impact strength
- Easy formability, elastic and flexible

Applications

- Industrial Manufacturing
- Functional Prototypes
- Aerospace, engineering, healthcare
- Seals, tubes, gaskets, grippers, end effectors
- Shoes and insoles
- Bushings, gaskets
- End-use parts
- Custom phone cases, rubber mats, and stress toys.
- Sports - applications that need strength, flexibility and plenty of impact strength.

Considerations

- One downside to TPU is the printing speeds, which are rarely higher than 30 mm/s. This is because it's difficult to push the proper amount of filament through the hot end, resulting in prints taking a lot longer to complete.
- TPU doesn't produce any notable levels of fumes while printing, but it's not considered to be food safe. And though it's a non-soluble material, it is hygroscopic, meaning that it will slowly absorb moisture from its surroundings, degrading over time.

Printing Skill & Experience:

Beginner Intermediate Advanced Expert

- When printing, TPU exhibits minimal warping and shrinkage and, like PLA, doesn't require a heated bed, although it is recommended. The ideal print temperature is between 210 and 230 °C, but this may vary from one manufacturer to another.

Printer Compatibility

<input checked="" type="checkbox"/> 3ntr A2v4	<input checked="" type="checkbox"/> 3ntr A4v4	<input type="checkbox"/> EVO-T	<input type="checkbox"/> EVO22-T
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Available colors from TRAK: Black, Red, Blue, Natural
Available colors from Plural AM: Clear, Black