Material Information

TPU Gray

Introduction
TPU Gray is compatible with 3DSPRO's MJF 3D printing. MJF 3D printing of TPU involves layering TPU powder and using fusing and detailing agents to create flexible, durable parts with high precision and smooth surface finish.

Advantages
MJF 3D printed TPU gray parts have excellent flexibility, high impact resistance and good elongation properties, making them ideal for applications requiring durable and resilient components.

Disadvantages
Grainy surface, may require additional dyeing processes to achieve desired colors.

Tolerance
±300μm or 0.3%

Recommendation
Ideal for producing soft grip systems, flexible tubing, protective gear, and non-marring tooling.

Material Specifications		
Density	DIN EN ISO 1183-1	1.1 g/cm³
Glass Transition Temperature	ISO 11357 (20 K/min)	-48℃
Melting Point	ISO 11357 (20 K/min)	135℃
Vicat Softening Temperature (load 10N)	DIN EN ISO 306	97.5℃
Flammability	UL94	HB 2.9 mm/min
Shore Hardness	DIN ISO 7619-1	88-90
Elongation at Break	DIN 53504, S2	> 215%
Tensile Strength	DIN 53504, S2	8MPa
Tensile Modulus	ISO 527-2, 1A	85MPa
Flexural Modulus	DIN EN ISO 178	75MPa
Tear Strength (Propagation, Trouser)	DIN ISO 34-1, A	20 kN/m

Tear Strength (Initiation, Graves)	DIN ISO 34-1, B	35 kN/m
Compression Set (23℃, 72h)	DIN ISO 815-1	23%
Rebound Resilience	DIN 53512	63%
Abrasion Resistance (Method A)	DIN ISO 4649	98 mm^3
Notched Impact Strength	DIN EN ISO 179-1	no break
Unnotched Impact Strength	DIN EN ISO 179-1	45 kJ/m^2
Rubber Deterioration (Ross Flex, 100k Cycles, 23℃)	ASTM D1052 (Method A)	no cut growth
Rubber Deterioration (Ross Flex, 100k Cycles, -10℃)	ASTM D1052 (Method A)	no cut growth

Attention

Products printed with powdered material come with grainy surfaces. If you have a specific requirement for surface finishing, we offer 3D Plus™ service, which includes a variety of post-processing services, including vibratory smoothing and vapor smoothing, to achieve a smooth surface finish.

Applications

3DSPRO finds people using MJF TPU gray to make functional parts and prototypes in the following industries and applications.

Sport and Leisure:
Custom shoe soles, hoses, and orthopedic models that require flexibility and durability.

Vibration Damping:
Brackets and mounts in machinery that need to absorb kinetic energy and reduce vibrations.

Protective Casings:
Tough outer covers for electronic devices, such as phone cases, need to withstand impacts.

Comfort Applications:
Ergonomic products like bike seats and custom-fit wearables that distribute pressure evenly.

Strain Reliefs and Cable Sleeves:
Custom-designed components to protect cables and connectors from stress and damage.

Flexible Pipes:
Prototypes or final parts for pipes that need to maintain flexibility and avoid twisting or squashing.

Hinged Parts:
Living hinge designs for durable and flexible hinges in various products.

Gaskets:
Custom gaskets that require precise fit and flexibility.