HP Multi Jet Fusion

Thermoplastic Polyurethane (TPU)

Description

Thermoplastic Polyurethane (TPU) is a flexible elastomeric polymer with high abrasion resistance, elongation, and durability. Due to its elasticity, TPU is ideal for applications like helmets, orthotic and prosthetic devices, and gaskets. Its excellent abrasion and oil resistance also make it suitable for automotive electrical components and chemical applications. The design freedom of TPU lattices and infill densities enables advanced customization to balance strength, flexibility, and breathability.

Benefits

- Excellent shock absorption
- High elasticity and rebound resilience
- Great fatigue resistance
- Unparalleled design freedom
- Biocompatible and skin-contact compatible
- 80% recycling rate

Credit: AM Forward

Thermal Properties

	Norm	XY Direction	Z Direction
Flammability	UL 94 (1.6 - 4.2mm)	HB	HB
Vicat/A (10 N) (°F)	DIN EN ISO 306	206.6	208.4

Material Properties

	TPU	Testing Method
Description	ULTRASINT TPU01	
Tensile Strength (MPa)	Average XY (9) Average Z (7)	DIN 53504, S2, 200mm/min
Tensile Modulus (MPa)	Average XY (85) Average Z (85)	ISO 527-2, 1A, 1mm/min
Elongation at Break (%)	Average XY (280) Average Z (150)	DIN 53504, S2, 200mm/min
Flexural Modulus (MPa)	Average XY (75) Average Z (74)	DIN EN ISO 178
Rebound Resilience (%)	Average XY (63) Average Z (63)	DIN 53512
Abrasion Resistance (mm^3)	Average XY (86) Average Z (95)	DIN ISO 4649
Dielectric Strength (kV/mm)	Average XY (4.38) Average Z (5.81)	ASTM D149
Melting Temperature (°F)	Average XY (248) Average Z (302)	ISO 11357 (20 K/min)
Shore Hardness A	88-90	DIN ISO 7619-1
Mean Particle Size d50 (µm)	ISO 13320	70-90