Xometry

Datasheet

HP TPU-MJF

Description

HP TPU is a versatile material developed by chemical giant BASF for HP, specifically designed for the Multi Jet Fusion (MJF) process. Parts produced with this material exhibit excellent balance, combining good flexibility and shock absorption with the ability to print highly intricate structures featuring exceptional details and high UV and hydrolysis resistance.

Features

Color: White powder, with printed samples appearing gray-black.

Features: Good flexibility, shock absorption, and high details

Typical applications: Sports and leisure, footwear, transportation industry, jigs and fixtures.

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Parameters

General Properties	Test Method	Typical Value
Bulk density / kg/m³	DIN EN ISO 60	0.5
Printed part density / g/cm³	DIN EN ISO 1183-1	1.1
Average particle size d50/µm	ISO 13320	70-90
Melting temperature / °C	ISO 11357 (20 K/min)	120-150
Glass transition temperature / °C	ISO 11357 (20 K/min)	-48
Melting temperature / °C	ISO 11357 (20 K/min)	120-150

Thermal Properties	Test Method	Typical Value, X	Typical Value, Z
UL Flammability	UL 94	HB (1.6-4.2 mm)	HB (1.6-4.2 mm)
Vicat Softening point 10N	DIN EN ISO 306	97	98

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Mechanical Properties	Test Method	Typical Value, X	Typical Value, Z
88-90	88-90	88-90	88-90
Tensile Strength / MPa	DIN53504, S2	9	7
Elongation at Break / %	DIN 53504, S2	280	150
Tensile Modulus / MPa	ISO527-2,1A	85	85
Flexural Modulus / MPa	DIN ENISO 178	75	75
Tear Strength (propagation, Trouser) / kN/m	DINISO34-1, A	21	18
Tear Strength (initiation, Graves) / kN/m	DINISO34-1, B	38	32
Compression Resistance (23°C, 72h)/%	DIN ISO 815-1	23	24
Resilience / %	DIN 53512	63	63
Abrasion Resistance/ mm^3 (Method A)	DINISO4649	96	100
Charpy Impact Strength (Notched, 23°C) / kJ/m^2	DIN EN ISO 179-1	No break	No break
Charpy Impact Strength (Notched, -10°C) / kJ/m^2	DIN EN ISO 179-1	46	44
Fatigue Performance (Rossflex, 100k cycles, 23°C)	ASTM D1052 (Method A)	No notch growth	
Fatigue Performance (Rossflex, 100k cycles, -10°C)	ASTM D1052 (Method A)	No notch growth	