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TPU

TYPE:
Polyether Thermoplastic Polyurethane (TPU)

USES:
HP Multi-Jet Fusion (MJF) 5200 3D Printer

MULTI-JET FUSION PRINTED PART INFORMATION:

- TPU parts passed skin sensitization (ISO 10993-10) and cytotoxicity (ISO 10993-5) testing.
- Parts for table below were printed with balanced print mode in full print bed height (380 mm).





PROPERTIES	MEASURED VALUES 100% Fresh Powder (80/20 Stabilized)	UNIT	TEST METHOD
Printing Process Properties			
Print Mode	1-pass		
Layer Thickness	100	µm	
Printing Layer Time	9.5	sec	
Full-Bed Printing Time	10.5	hours	
Mechanical Properties in X			
Hardness (5 sec)	88 ± 3	Shore A	ASTM D-2240
Abrasion Volume Loss	120 (120)	mm^3	DIN-53516 / ISO-4649
Tensile Strength	15 (10.5)	MPa	DIN-53504 / ISO-37
Elongation at Break	440 (185)	%	DIN-53504 / ISO-37
Compression Set	27 (31)	%	
Mechanical Properties in Z			
Hardness (5 sec)	88 ± 3	Shore A	ASTM D-2240
Abrasion Volume Loss	110 (110)	mm^3	DIN-53516 / ISO-4649
Tensile Strength	8 (6.5)	MPa	DIN-53504 / ISO-37
Elongation at Break	125 (55)	%	DIN-53504 / ISO-37
Electrical Properties			
Surface Resistance	1.8×10^{11}	Ω	ANSI/ESD STM 11.11
Volume Resistance	8.9×10^{10}	Ω	ANSI/ESD STM 11.12
Dimensional Tolerances			
Nominal < 80 mm in X/Y	< ± 0.6	mm	
Nominal < 80 mm in Z	< ± 1.8	mm	
Nominal > 80 mm in X/Y	< ± 1.0	%	
Nominal > 80 mm in Z	< ± 2.0	%	

*Listed values are "typical (average) values" and should not/cannot be applied for specification purposes and do not constitute any agreed contractual specification/quality of TPU.
*Listed values were printed with using HP 5200 Multi-Jet Fusion printer and print bed density was approximately 7 %.
*Tensile specimens were printed in Type 2 per ISO-37 or S2 per DIN-53504.

RECLAIMED POWDER INFORMATION:

- Standard refresh rate of TPU is 80% reclaimed and 20% fresh powder.
- As the powder blend is reclaimed for more printing cycles, the yellowness of the powder blend increases.