

Technical Data Sheet

Ultrafuse TPU 64D

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General information

Components

BASF ether based thermoplastic polyurethane (TPU) based filament for Fused Filament Fabrication.

Product Description

Ultrafuse® TPU 64D is the hardest elastomer in BASF Forward AM's flexible productline. The material shows a relatively high rigidity while maintaining a certain flexibility.

This filament is the perfect match for industrial applications requiring rigid parts being resistant to impact, wear and tear. Due to its property profile, the material can be used as an alternative for parts made from ABS and rubbers.

Ultrafuse® TPU 64D is easy to print on direct drive and bowden style printers and is compatible with soluble BVOH support to realize the most complex geometries.

Delivery form and warehousing

Ultrafuse® TPU 64D filament should be stored at 15 - 25°C in its originally sealed package in a clean and dry environment. If the recommended storage conditions are observed the products will have a minimum shelf life of 12 months.

Product safety

Please process materials in a well ventilated room, or use professional air extraction systems. For further and more detailed information please consult the corresponding material safety data sheets.

Notice

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

Recommended 3D-Print processing parameters

Nozzle Temperature	230 – 255 °C / 446 – 491 °F
Build Chamber Temperature	-
Bed Temperature	40 – 60 °C / 104 – 140 °F
Bed Material	glass
Nozzle Diameter	≥ 0.4 mm
Print Speed	30 – 60 mm/s

Drying Recommendations

Drying recommendations to ensure printability	70 °C in a hot air dryer or vacuum oven for at least 5 hours
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Please note: To ensure constant material properties the material should always be kept dry.

General Properties

Standard

Printed Part Density	1157 kg/m ³ / 72.23 lb/ft ³	ISO 1183-1
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Thermal Properties

Standard

Glass Transition Temperature	-26 °C / 14.8 °F	ISO 11357-2
Melt Volume Rate	40.4 cm ³ /10 min / 2.47 in ³ /10 min (210 °C, 5 kg)	ISO 1133

General Mechanical Properties

Standard

Compression Set at 23°C, 72 h	25 %	ISO 815
Compression Set at 70°C, 24 h	55 %	ISO 815
Abrasion Resistance	43 mm ³ / 0.003 in ³	ISO 4649
Shore D Hardness (15 s)	58	ISO 7619-1

Mechanical Properties



Print direction	Standard	XY Flat	XZ On its edge	ZX Upright
Stress at 50% Strain	ISO 527	18 MPa / 2.61 ksi	-	17 MPa / 2.47 ksi
Stress at 100% Elongation	ISO 527	21 MPa / 3.05 ksi	-	19 MPa / 2.76 ksi
Stress at 300% Elongation	ISO 527	32 MPa / 4.46 ksi	-	-
Stress at Break, TPE	ISO 527	37 MPa / 5.37 ksi	-	19 MPa / 2.76 ksi
Elongation at Break, TPE	ISO 527	399 %	-	115 %
Young's Modulus	ISO 527	205 MPa / 29.73 ksi	-	168 MPa / 24.37 ksi
Impact Strength Charpy (notched)	ISO 179-2	115 kJ/m ²	103 kJ/m ²	34 kJ/m ²
Impact Strength Charpy @-30 °C (notched)	ISO 179-2	4.1 kJ/m ²	4.8 kJ/m ²	2.6 kJ/m ²
Impact Strength Charpy @-30 °C (unnotched)	ISO 179-2	No break	No break	23.2 kJ/m ²
Impact Strength Izod (notched)	ISO 180	No break	No break	43 kJ/m ²
Tensile Notched Impact Strength	ISO 8256/1	No break	No break	No break
Tear Strength	ISO 34-1, A	66 kN/m	37 kN/m	79 kN/m