

Technical Data Sheet

Ultrafuse® TPU 95A

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Version No.: 2.0

General information

Components

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

Product Description

Ultrafuse® TPU 95A comes with a well-balanced profile of flexibility and durability. On top of that, it allows for easier and faster printing than softer TPU grades. Parts printed with Ultrafuse® TPU 95A show a high elongation, good impact resistance, excellent layer adhesion and a good resistance to oils and common industrially used chemicals.

Due to its good printing behavior, Ultrafuse® TPU 95A is a good choice for starting printing flexible materials on both direct drive and bowden style printers.

Delivery form and warehousing

Ultrafuse® TPU 95A 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.

Values in this document are average values, measured and calculated according to the instructions in the listed standards. The used specimens are produced with the Fused Filament Fabrication method.

Measured values can vary depending on used print orientation and print parameters.

Please contact us for further product information, like for example REACH, RoHS, FCS.

Filament Properties		
Filament Diameter	1.75 mm	2.85 mm
Diameter Tolerance	±0.050 mm	±0.1 mm
Roundness	±0.050 mm	±0.05 mm
Available Spool size	750 g; 2.5 kg	750 g; 2.5 kg
Available colors	white and black	

Spool Properties		
Available Spool size	750 g	2.5 kg
Outer diameter	200 mm	300 mm
Inner diameter	50.5 mm	51.5 mm
width	55 mm	103 mm

Recommended 3D-Print processing parameters	Used for test specimens	
Printer	FFF printer	Prusa i3 MK3
Nozzle Temperature	210 – 230 °C / 410 – 446 °F	220 °C / 428 °F
Build Chamber Temperature	-	-
Bed Temperature	40 °C / 104 °F	40 °C / 104 °F
Bed Material	Glass	PEI coated spring sheet
Nozzle Diameter	≥ 0.4 mm	0.4 mm
Print Speed	15 – 40 mm/s	25 mm/s

Please check your print profile availability for an easy start at www.forward-am.com.

Further Recommendations	
Drying recommendations to ensure printability and best mechanical properties	70 °C in a hot air dryer or vacuum oven for at least 5 hours Please note: To ensure constant material properties the material should always be kept dry.
Support material compatibility	Ultrafuse® BVOH

General Properties		Standard
Filament Density*	1149 kg/m ³ / 72 lb/ft ³	ISO 1183-1

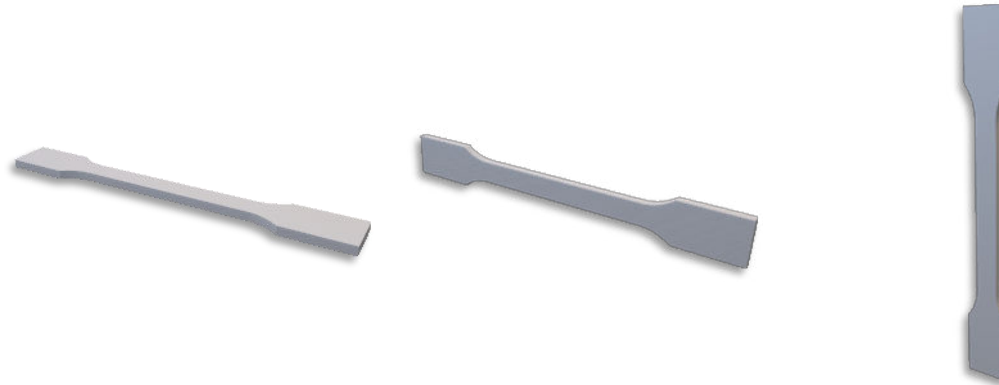
*measured on filament

Classification and Certification		Standard
Biocompatibility		
Cytotoxicity XTT neutral red	Passed	ISO 10993-5
Skin irritation	Passed	ISO10993-10
Skin sensitization LLNA KretinoSens	Passed	ISO10993-10

Thermal Properties		Standard
Vicat softening point @ 50 N	<27 °C / <81 °F	ISO 306
Vicat softening point @ 10 N	75 °C / 167 °F	ISO 306
Glass Transition Temperature	-25 °C / -13 °F	ISO 11357-2
Melting Temperature	144 °C / 291 °F	ISO 11357-3
Melt Volume Rate	30.7 cm ³ /10 min / 1.87 in ³ /10 min (210 °C, 5 kg)	ISO 1133

General Mechanical Properties		Standard
Compression Set at 23°C, 72 h	38 %	ISO 815
Compression Set at 70°C, 24 h	90 %	ISO 815
Abrasion Resistance	64 mm ³ / 0.004 in ³	ISO 4649
Shore A Hardness (3 s)	92	ISO 7619-1
Shore D Hardness (15 s)	45	ISO 7619-1

Mechanical Properties¹



Print direction	Standard	XY Flat	XZ On its edge	ZX Upright
Stress at 50 % Elongation ²	ISO 527	8.3 MPa / 1.20 ksi	-	7.9 MPa / 1.15 ksi
Stress at 100% Elongation ²	ISO 527	10.5 Mpa / 1.52 ksi	-	9.9 Mpa / 1.44 ksi
Stress at 300% Elongation ²	ISO 527	20.3 Mpa / 2.94 ksi	-	-
Stress at Break, TPE ²	ISO 527	44.2 MPa / 6.41 ksi	-	12.2 MPa / 1.77 ksi
Elongation at Break, TPE ²	ISO 527	661 %	-	192 %
Young's Modulus ³	ISO 527	48.4 MPa / 7.0 ksi	-	46.7 MPa / 6.8 ksi
Impact Strength Charpy (notched)	ISO 179-2	No break	No break	16.8 kJ/m ²
Impact Strength Charpy (notched) @ -30°C	ISO 179-2	128 kJ/m ²	120 kJ/m ²	14.9 kJ/m ²
Impact Strength Izod (notched)	ISO 180	No break	No break	No break
Tensile Notched Impact Strength	ISO 8256/1	No break	No Break	No break
Tear Strength	ISO 34-1,A	90 kN/m	8 kN/m	14 kN/m

¹Conditioning of the specimens: Tempering (100°C, 20h) Standard climate (23°C, 50% RH, 72h)

²testing speed: 200 mm/min

³testing speed: 1 mm/min