

Technical Data Sheet

Ultrafuse® rPET

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General information

Components

Recycled Polyethylene terephthalate based filament for Fused Filament Fabrication.

Product Description

PET is mainly known by the well-known PET bottle material. This recycled has a natural transparent blueish look. It has excellent 3D printing properties and good mechanical characteristics

Delivery form and warehousing

Ultrafuse® rPET 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

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

For your information

Please note that a slight shift in appearance can occur for this recycled PET (Ultrafuse® rPET) with a natural blue color. As this product is manufactured out of 100% recycled materials, based on our efforts to produce a low product carbon footprint, no substances are added to stabilize the color resulting in the possibility that a shade shift can occur.

Disclaimer

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	±0.075 mm
Roundness	±0.050 mm	±0.075 mm
Available Spool size	750 g	750 g
Available colors	Light blue	

Spool Properties	
Available Spool size	750 g
Outer diameter	200 mm
Inner diameter	50.5 mm
width	55 mm

Recommended 3D-Print processing parameters	Used for test specimens
Printer	FFF printer
Nozzle Temperature	225 – 245 °C / 437 – 473 °F
Build Chamber Temperature	-
Bed Temperature	65 – 85 °C / 149 – 185 °F
Bed Material	Glass + adhesive spray
Nozzle Diameter	≥ 0.4 mm
Print Speed	30 - 60 mm/s

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

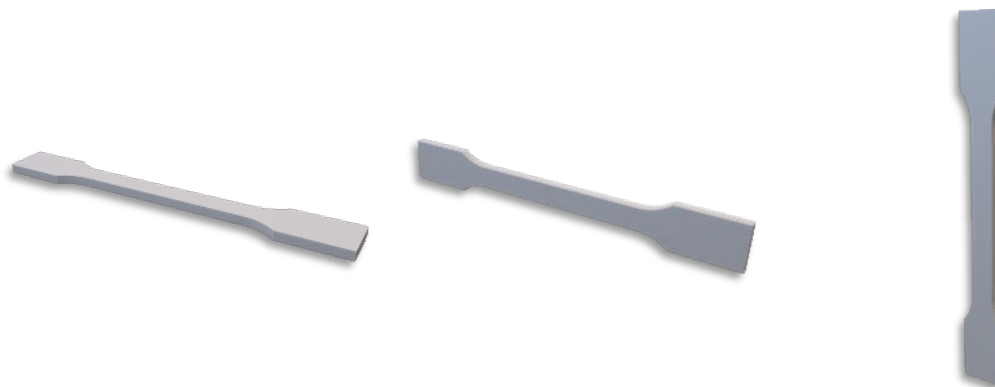
Further Recommendations	
Drying recommendations to ensure printability and best mechanical properties	60 °C in a hot air dryer or vacuum oven for at least 8 to 10 hours. Please note: To ensure constant material properties the material should always be kept dry.
Support material compatibility	Single material breakaway, Ultrafuse® BVOH, Ultrafuse® HIPS

General Properties		Standard
Filament Density*	1287 kg/m ³ / 80.4 lb/ft ³	ISO 1183-1
Shore Hardness D, 15s	69	ISO 7619-1

*measured on filament

Thermal Properties		Standard
HDT at 1.8 MPa	69 °C / 156.2 °F	ISO 75-2
HDT at 0.45 MPa	73 °C / 163.4 °F	ISO 75-2
Vicat softening point @ 50 N	75 °C / 167 °F	ISO 306
Vicat softening point @ 10 N	80 °C / 176 °F	ISO 306
Glass Transition Temperature	83 °C / 181.4 °F	ISO 11357-2
Melt Volume Rate	15.1 cm ³ /10 min / 0.9 in ³ /10 min (220 °C, 5 kg)	ISO 1133

Mechanical Properties¹



Print direction	Standard	XY Flat	XZ On its edge	ZX Upright
Tensile strength ²	ISO 527	38.6 MPa / 2.4 ksi	-	14.7 MPa / 0.9 ksi
Elongation at Break ²	ISO 527	4.3 %	-	1.2 %
Young's Modulus ³	ISO 527	1640 MPa / 100 ksi	-	1334 MPa / 81.4 ksi
Flexural Strength ⁴	ISO 178	66.9 MPa / 4.1 ksi	65.4 MPa / 4.0 ksi	30.2 MPa / 1.8 ksi
Flexural Modulus ⁴	ISO 178	1662 MPa / 101 ksi	1551 MPa / 97.6 ksi	829 MPa / 50.6 ksi
Flexural Elongation at Break ⁴	ISO 178	5.5 %	4.8 %	3.0 %
Impact Strength Charpy (notched)	ISO 179-2	4.0 kJ/m ²	2.0 kJ/m ²	1.0 kJ/m ²
Impact Strength Charpy (unnotched)	ISO 179-2	55.5 kJ/m ²	33.7 kJ/m ²	3.3 kJ/m ²
Impact Strength Izod (notched)	ISO 180	4.4 kJ/m ²	3.3 kJ/m ²	1.5 kJ/m ²
Impact Strength Izod (unnotched)	ISO 180	48.2 kJ/m ²	21.9 kJ/m ²	4.4 kJ/m ²

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

²testing speed: 5 mm/min

³testing speed: 1 mm/min

⁴testing speed: 2 mm/min