

# 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.

### 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	225 – 245 °C / 437 – 473 °F
Build Chamber Temperature	-
Bed Temperature	65 – 85 °C / 149 – 185 °F
Bed Material	Adhesive spray or glue
Nozzle Diameter	≥ 0.4 mm
Print Speed	30 - 60 mm/s

### Drying Recommendations

Drying recommendations to ensure printability	60 °C in a hot air dryer or vacuum oven for 4 to 16 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	1273 kg/m <sup>3</sup> / 79.5 lb/ft <sup>3</sup>	ISO 1183-1

### Thermal Properties

		Standard
HDT at 1.8 MPa	65 °C / 149 °F	ISO 75-2
HDT at 0.45 MPa	71 °C / 159 °F	ISO 75-2
Glass Transition Temperature	83 °C / 181 °F	ISO 11357-2
Melt Volume Rate	15.1 cm <sup>3</sup> /10 min / 0.9 in <sup>3</sup> /10 min (220 °C, 5 kg)	ISO 1133

## Mechanical Properties



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