

Technical Data Sheet

Ultrafuse PP

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Version No.: 4.0

General information

Components

Polypropylene based filament for Fused Filament Fabrication.

Product Description

Ultrafuse PP is high-performance thermoplastic with low density, high elasticity and high resistance to fatigue. The mechanical properties make it an ideal material for 3D-printing applications which have to endure high stress or strain. The filament has high chemical resistance and a high isolation value. PP is one of the most used materials in the world, due to its versatility and ability to engineer lightweight tough parts.

Delivery form and warehousing

Ultrafuse PP 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	220 – 240 °C / 428 – 464 °F
Build Chamber Temperature	-
Bed Temperature	60 – 80 °C / 140 – 176 °F
Bed Material	PP tape or PP adhesive
Nozzle Diameter	≥ 0.4 mm
Print Speed	20 – 50 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	911 kg/m ³ / 56.9 lb/ft ³	ISO 1183-1
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Thermal Properties

Standard

HDT at 1.8 MPa	41 °C / 106 °F	ISO 75-2
HDT at 0.45 MPa	54 °C / 129 °F	ISO 75-2
Crystallization Temperature	83 °C / 181 °F	ISO 11357-3
Melting Temperature	131 °C / 268 °F	ISO 11357-3
Melt Volume Rate	6.7 cm ³ /10 min / 0.4 in ³ /10 min (230 °C, 2.16 kg)	ISO 1133

Mechanical Properties



Print direction	Standard	XY	XZ	ZX
		Flat	On its edge	Upright
Tensile strength	ISO 527	15.5 MPa / 2.2 ksi	-	9.0 MPa / 1.3 ksi
Elongation at Break	ISO 527	118.6 %	-	5.4 %
Young's Modulus	ISO 527	541 MPa / 78.5 ksi	-	435 MPa / 63.1 ksi
Flexural Strength	ISO 178	22.9 MPa / 3.3 ksi	21.4 MPa / 3.1 ksi	15.6 MPa / 2.3 ksi
Flexural Modulus	ISO 178	575 MPa / 83.4 ksi	494 MPa / 71.6 ksi	380 MPa / 55.1 ksi
Flexural Strain at Break	ISO 178	9.4 %	8.8 %	7.9 %
Impact Strength Charpy (notched)	ISO 179-2	5.3 kJ/m ²	8.3 kJ/m ²	2.5 kJ/m ²
Impact Strength Charpy (unnotched)	ISO 179-2	41.8 kJ/m ²	62.3 kJ/m ²	13.6 kJ/m ²
Impact Strength Izod (notched)	ISO 180	5.3 kJ/m ²	10.6 kJ/m ²	2.3 kJ/m ²
Impact Strength Izod (unnotched)	ISO 180	37.7 kJ/m ²	37.6 kJ/m ²	11.6 kJ/m ²