Technical Data Sheet

Ultrafuse ABS Fusion+

Date / Revised: 13.11.2019

Version No.: 2.3

General information

Components

Acetonitrile Butadiene Styrene based filament for Fused Filament Fabrication.

Product Description

ABS Fusion+ made with Polyscope XILOY™ 3D is an engineering filament which has been optimized for 3D-printing. This special grade has been developed in collaboration with Polyscope Polymers - renowned for its material solutions in the automotive industry. ABS is a thermoplastic which is used in many applications. Although ABS has been classified as a standard material in 3D-printing it is known to be quite challenging to process. ABS Fusion+ combines the properties of ABS with an improved processability. The filament is based on an ABS grade which can be directly printed on glass without any adhesives or tape and has a higher success rate of prints due to extreme low warping.

Delivery form and warehousing

Ultrafuse ABS Fusion+ 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	240 – 260 °C / 464 – 500 °F
Build Chamber Temperature	-
Bed Temperature	100 – 120 °C / 212 – 248 °F
Bed Material	Glass*
Nozzle Diameter	≥ 0.4 mm
Print Speed	40 - 80 mm/s

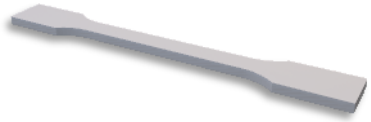
Drying Recommendations	
Drying recommendations to ensure printability	60 °C in a hot air dryer or vacuum oven for 4 to 16 hours

Please note: To ensure constant material properties the material should always be kept dry.

General Properties		Standard
Printed Part Density	1075 kg/m^3 / 67.1 lb/ft^3	ISO 1183-1

Thermal Properties		Standard
HDT at 1.8 MPa	71 °C / 160 °F	ISO 75-2
HDT at 0.45 MPa	91 °C / 196 °F	ISO 75-2
Glass Transition Temperature	114 °C / 237 °F	ISO 11357-2
Melt Volume Rate	10.0 cm^3/10 min / 0.61 in^3/10 min (250 °C, 5 kg)	ISO 1133

Mechanical Properties



Print direction	Standard	XY	XZ	ZX
		Flat	On its edge	Upright
Tensile strength	ISO 527	29.5 MPa / 4.3 ksi	-	17.9 MPa / 2.6 ksi
Elongation at Break	ISO 527	10.9 %	-	2.1 %
Young's Modulus	ISO 527	1379 MPa / 200 ksi	-	1106 MPa / 160 ksi
Flexural Strength	ISO 178	48.3 MPa / 7.0 ksi	48.7 MPa / 7.1 ksi	23.1 MPa / 3.4 ksi
Flexural Modulus	ISO 178	1406 MPa / 204 ksi	1133 MPa / 164 ksi	878 MPa / 127 ksi
Flexural Strain at Break	ISO 178	5.6 %	5.9 %	2.7 %
Impact Strength Charpy (notched)	ISO 179-2	32.0 kJ/m²	41.9 kJ/m²	2.5 kJ/m²
Impact Strength Charpy (unnotched)	ISO 179-2	71.9 kJ/m²	118.7 kJ/m²	6.9 kJ/m²
Impact Strength Izod (notched)	ISO 180	26.4 kJ/m²	38.4 kJ/m²	2.2 kJ/m²
Impact Strength Izod (unnotched)	ISO 180	73.1 kJ/m²	131.1 kJ/m²	6.6 kJ/m²