

# Technical Data Sheet

# Ultrafuse HiPS

Date / Revised: 13.11.2019

Version No.: 2.2

## General information

### Components

High impact Polystyrene based filament for Fused Filament Fabrication.

### Product Description

Ultrafuse HiPS is a high-quality engineering thermoplastic, which is well known in the 3D-printing industry as a support material for ABS. But this material has additional properties to offer like good impact resistance, good dimensional stability, and easy post-processing. HiPS is a great material to use as a support for ABS because there is a good compatibility between the two materials, and HiPS is an easy breakaway support. Now you have the opportunity to create ABS models with complex geometry. Our HiPS is easy to post process with glue or with sanding paper.

### Delivery form and warehousing

Ultrafuse HiPS 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	Spray
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	1023 kg/m <sup>3</sup> / 63.9 lb/ft <sup>3</sup>	ISO 1183-1
----------------------	--	------------

### Thermal Properties

Standard

HDT at 1.8 MPa	86 °C / 187 °F	ISO 75-2
HDT at 0.45 MPa	91 °C / 196 °F	ISO 75-2
Glass Transition Temperature	99 °C / 210 °F	ISO 11357-2
Melt Volume Rate	29.3 cm <sup>3</sup> /10 min / 62.4 in <sup>3</sup> /10 min (260 °C, 2.16 kg)	ISO 1133

## Mechanical Properties



Print direction	Standard	XY	XZ	ZX
		Flat	On its edge	Upright
Tensile strength	ISO 527	18.4 MPa / 2.6 ksi	-	13.7 MPa / 2.0 ksi
Elongation at Break	ISO 527	1.4 %	-	1.3 %
Young's Modulus	ISO 527	1588 MPa / 230 ksi	-	1603 MPa / 232 ksi
Flexural Strength	ISO 178	31.8 MPa / 4.6 ksi	32.2 MPa / 4.7 ksi	26.8 MPa / 3.9 ksi
Flexural Modulus	ISO 178	1635 MPa / 237 ksi	1526 MPa / 221 ksi	1227 MPa / 178 ksi
Flexural Strain at Break	ISO 178	5.4 %	5.2 %	4.6 %
Impact Strength Charpy (notched)	ISO 179-2	6.5 kJ/m <sup>2</sup>	6.6 kJ/m <sup>2</sup>	4.1 kJ/m <sup>2</sup>
Impact Strength Charpy (unnotched)	ISO 179-2	36.0 kJ/m <sup>2</sup>	57.6 kJ/m <sup>2</sup>	8.6 kJ/m <sup>2</sup>
Impact Strength Izod (notched)	ISO 180	6.9 kJ/m <sup>2</sup>	7.1 kJ/m <sup>2</sup>	4.8 kJ/m <sup>2</sup>
Impact Strength Izod (unnotched)	ISO 180	35.0 kJ/m <sup>2</sup>	57.1 kJ/m <sup>2</sup>	9.1 kJ/m <sup>2</sup>