Technical Data Sheet

Ultrafuse PC/ABS FR Black

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General information

Components

Polycarbonate and Acrylonitrile Butadiene Styrene (PC/ABS) blend based filament for Fused Filament Fabrication.

Product Description

Ultrafuse® PC/ABS FR Black is a V-0 flame retardant blend of Polycarbonate and ABS – two of the most used thermoplastics for engineering & electrical applications. The combination of these two materials results in a premium material with a mix of the excellent mechanical properties of PC and the comparably low printing temperature of ABS. Combined with a halogen free flame retardant, parts printed with Ultrafuse® PC/ABS FR Black feature great tensile and impact strength, higher thermal resistance than ABS and can fulfill the requirements of the UL94 V-0 standard.

Delivery form and warehousing

Ultrafuse® PC/ABS FR Black 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	260 – 280 °C / 500 – 536 °F
Build Chamber Temperature	Closed chamber, passively heated
Bed Temperature	90 – 110 °C / 194 – 230 °F
Bed Material	Glass
Nozzle Diameter	≥ 0.4 mm
Print Speed	30 – 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

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

General Properties		Standard
Printed Part Density	1167 kg/m^3 / 72.8 lb/ft^3	ISO 1183-1

Thermal Properties		Standard
HDT at 1.8 MPa	79 °C / 174.2 °F	ISO 75-2
HDT at 0.45 MPa	86 °C / 186.8 °F	ISO 75-2
Glass Transition Temperature	94 °C / 201.2 °F	ISO 11357-2
Melting Temperature	227 °C / 440.6 °F	ISO 11357-3
Melt Volume Rate	46.6 cm^3/10 min / 2.84 in^3/10 min (260 °C, 5 kg)	ISO 1133
Flame class rating	V0 @ 1.5 mm and 3.0 mm thickness	UL 94
Glow wire test (GWEPT)	725 °C @ 1.5 mm thickness 960 °C @ 3.0 mm thickness	IEC 60695-2-11

Mechanical Properties

Print direction	Standard	XY	XZ	ZX
		Flat	On its edge	Upright
Tensile strength	ISO 527	50.1 MPa / 7.2 ksi	-	17.3 MPa / 2.5 ksi
Elongation at Break	ISO 527	10.7 %	-	0.8 %
Young's Modulus	ISO 527	2545 MPa / 369.1 ksi	-	2188 MPa / 317.3 ksi
Flexural Strength	ISO 178	88.1 MPa / 12.8 ksi	90.6 MPa / 13.1 ksi	24.7 MPa / 3.6 ksi
Flexural Modulus	ISO 178	2550 MPa / 369.8 ksi	2200 MPa / 319.1 ksi	1810 MPa / 262.5 ksi
Flexural Strain at Break	ISO 178	5.6 %	6.1 %	1.3 %
Impact Strength Charpy (notched)	ISO 179-2	13.3 kJ/m^2	31.2 kJ/m^2	0.9 kJ/m^2
Impact Strength Charpy (unnotched)	ISO 179-2	49.8 kJ/m^2	65.4 kJ/m^2	2.9 kJ/m^2
Impact Strength Izod (notched)	ISO 180	16.8 kJ/m^2	30.3 kJ/m^2	1.8 kJ/m^2
Impact Strength Izod (unnotched)	ISO 180	57.0 kJ/m^2	87.9 kJ/m^2	3.0 kJ/m^2