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BEDROCK 3D PPSU

Heat-Resistant. Flame-Retardant. Industrial-Grade. Reliable.

Technical Documentation Sheet

version 1.0

Technical Data Sheet

PPSU

Heat-Resistant. Flame-Retardant. Industrial-Grade. Reliable.

BEDROCK 3D PPSU is built for projects where the best is needed. Designed from BASF's advanced Ultrason® materials, this filament delivers exceptional stability under extreme heat, outstanding strength, and inherent flame-retardant performance. Perfect for industries where safety, durability, and reliability aren't optional.

Filament Properties	
Filament Diameter	1.75 mm
Average diameter Tolerance	±0.050 mm
Average ovality	<0.050 mm
Available Spool size	750 g, 2.5 kg
Available colors	Natural yellow/brown

Spool Properties				
Spool size	750 g	2.0 kg	4.0 kg	8.0 kg
Outer diameter	200 mm	300 mm	350 mm	355 mm
Inner diameter	50.5 mm	51.5 mm	51.7 mm	36 mm
Width	55 mm	103 mm	103 mm	167 mm

Recommended 3D-Print processing parameters		Used for test specimens
Printer	FFF printer	GEWO HTP 260
Nozzle Temperature[1)]	390 – 410 °C	410 °C
Build Chamber Temperature	170 – 210 °C	190 °C
Bed Temperature	200 – 220 °C	220 °C
Bed Material	Glass (Vision Miner Nano Polymer Adhesive can increase bed adhesion)	Glass

[1] Fast printing might require an additional increase of the nozzle temperature; the stated printing speed is based on current validations. As equipment and technology continues to evolve, it is possible that even higher printing speeds may be attainable in the future.

Nozzle Diameter	≥ 0.4 mm	0.4 mm
Print Speed	25 – 100 mm/s	25 mm/s

Please check your standard and/or high speed print profile availability for an easy start at www.bedrock3d.com.

Further Recommendations	
Drying recommendations to ensure printability and best mechanical properties[2)]	BEDROCK 3D PPSU can be dried in a vacuum dryer at 125 °C / 257 °F for 8 hours and should be stored in a closed box, filled with desiccant bags, during printing. High moisture content is visible by bubbles in the material after the melting process.
Support material compatibility	Single material breakaway Intamsys SP5080 breakaway
Warehousing	BEDROCK 3D PPSU 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.

General Properties	Standard	Average Values
Filament Density[3)]	ISO 1183-1	1194 kg/m³

Tensile Properties[4)]	Standard	Average Values		
		XY-Direction	XZ-Direction	ZX-Direction
Tensile strength[5)]	ISO 527	74.5 MPa	-	49.0 MPa
Elongation at Break[5)]	ISO 527	7.3%	-	2.9%
Young's Modulus[6)]	ISO 527	2221 MPa	-	2150 MPa

Flexural Properties[6) 7)]	Standard	Average Values

[2] Please note: To ensure constant material properties the material should always be kept dry.
[3] measured on filament

[4] Samples were conditioned in standard climate (23°C, 50% RH 72h)
[5] Testing speed: 5 mm/min
[6] Testing speed: 1 mm/min
[7] Testing speed: 2 mm/min
Measured on milled specimens

		XY-Direction	XZ-Direction	ZX-Direction
Flexural Strength	ISO 178	105 MPa	114 MPa	88.9 MPa
Flexural Modulus	ISO 178	1940 MPa	1910 MPa	1700 MPa
Flexural Elongation at Break	ISO 178	No break	No break	6.8%

Impact Properties[6)]	Standard	Average Values		
		XY-Direction	XZ-Direction	ZX-Direction
Impact Strength Charpy (notched)	ISO 179-2	21.8 kJ/m^2	15.0 kJ/m^2	5.7 kJ/m^2
Impact Strength Charpy (unnotched)	ISO 179-2	224.8 kJ/m^2	270.5 kJ/m^2	16.3 kJ/m^2
Impact Strength Izod (notched)	ISO 180	13.7 kJ/m^2	15.8 kJ/m^2	5.3 kJ/m^2
Impact Strength Izod (unnotched)	ISO 180	No break	No break	21.0 kJ/m^2

Thermal Properties[6)]	Standard	Average Values
HDT A at 1.8 MPa	ISO 75-2	211 °C
HDT B at 0.45 MPa	ISO 75-2	215 °C
Vicat softening point at 50 N	ISO 306	217 °C
Vicat softening point at 10 N	ISO 306	220 °C
Glass Transition Temperature	ISO 11357-2	222 °C
Melt Volume-Flow Rate (MVR)	ISO 1133	15.35 cm^3/10 min (360 °C, 5 kg)
Melt Mass-Flow Rate (MFR)	ISO 1133	13.2 g/10 min (360 °C, 5 kg)
Coefficient of Thermal Expansion	ISO 11359-2	55 E-6/K

Fire, Smoke, Toxicity (FST) properties[6)]	Standard	Average Values
Flammability F1 60 sec. vertical	FAR 25.853 (a)	PASS (1.60 mm) PASS (6.35 mm)
Flammability F2 12 sec. vertical	FAR 25.853 (a)	PASS (1.60 mm) PASS (6.35 mm)
Fire protection on railway vehicles	EN45545-2-2016	R7 HL1-2 (1.5 mm) R7 HL1-2 (3.0 mm) R23 HL1-3 (1.5 mm) R23 HL1-3 (3.0 mm) R24 HL1-3 R26 HL1-3 (1.5 mm) R26 HL1-3 (3.0 mm)
Optical Smoke Density	FAR 25.853 (d)	PASS (1.0 mm) PASS (4.5 mm)
Smoke Toxicity	AITM 3.0005	PASS (1.0 mm) PASS (4.5 mm)
Flame class rating	UL 94	V-0 (1.5 mm) V-0 (3.0 mm)
Glow wire test (GWEPT)	IEC 60695-2-11	960 °C (1.5 mm) 960 °C (3.0 mm)
HR Total Heat Release [KW*min/m2]	FAR 25.853 (d)	PASS (1.0 mm) PASS (4.5 mm)
HRRmax Maximum Heat Release Rate [KW/m^2]	FAR 25.853 (d)	PASS (1.0 mm)

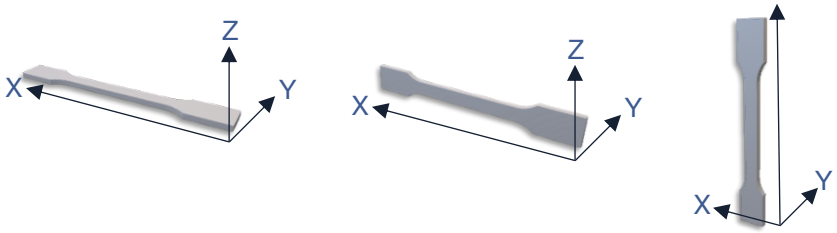
Electrical Properties[6)]	Standard	Average Values		
		X-Direction	Z-Direction	Y-Direction
Dielectric Strength (orthogonal)	IEC 60243-1	18.5 kV/mm	-	-
Volume Resistivity	IEC 62631-3-1	2.6E+15 Ω cm	-	-
Specific Surface resistivity	IEC 62631-3-2	4.1E+15 Ω	-	-

Hardness and Abrasion	Standard	Typical Values
Shore Hardness D (15s)	DIN ISO 7619-1	77

Biocompatibility	Standard	Typical Values
Food Contact Certification (FCC)	The used raw materials comply with food contact regulations of the European Parliament and the Food and Drug Administration	EC 1935/2004 EU 2023/1442 FDA 21 CFR

Print direction explanation

The orientation of the 3D printed part in the printer is always aligned with the longest axis first. The print direction is consistently along the Z-axis.



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Please contact us for further product information, like for example REACH, RoHS, FCS.

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Process materials in a well-ventilated room,or use professional extraction systems.