

## TECAFIL PSU natural - Filament

### Chemical Designation

PSU (Poly sulfone)

### Colour

amber transparent

### Density

1.23 g/cm<sup>3</sup> (\*2)

### Target Industries

- electronics
- food technology
- automotive industry
- chemical technology
- mechanical engineering

General material information	parameter	value	unit	norm	comment
Diameter		1,75 +/- 0,05	mm	-	(1) standard spool body
Spool Measurements	holder	Ø 52	mm	-	(2) do not dry spool >120°C
Spool Measurements	outer diameter	Ø 200	mm	-	(3) Ø 1,75mm
Spool Measurements	width	55	mm	-	
Spool Material		Polycarbonate	-	-	(2)
Filament Load per Spool		500	g	-	
Filament Length per Spool		158	m	-	(3)
Mechanical properties	parameter	value	unit	norm	comment
Tensile strength	50 mm/min	75	MPa	DIN EN ISO 527-1	(1) (*1) (2) (*1)
Modulus of elasticity (tensile test)	50 mm/min	2550	MPa	DIN EN ISO 527-1	(3) (*1) (4) (*1) (5) (*1)
Elongation at break (tensile test)	50 mm/min	-	%	DIN EN ISO 527-1	(6) (*1)
Flexural strength	2 mm/min, 10 N	-	MPa	DIN EN ISO 178	(7) (*1) (8) (*1)
Modulus of elasticity (flexural test)	2 mm/min, 10 N	-	MPa	DIN EN ISO 178	(5)
Elongation at break (flexural test)	2 mm/min, 10 N	-	%	DIN EN ISO 178	(6)
Impact strength (Charpy)	max 7,5J - 23°C	-	kJ/m <sup>2</sup>	DIN EN ISO 179-1eJ	(7)
Notched impact strength (Charpy)	max 7,5J - 23°C	5,5	kJ/m <sup>2</sup>	DIN EN ISO 179-1eA	(8)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		187	°C	ASTM D 3418	(1) (*2)
Melting temperature		-	°C	DIN EN ISO 11357	(2) (*2) (3) (*2) (4) (*2)
Deflection temperature	HDT-A	177	°C	ISO-R 75 Method A	(5) (*2) (6) (*2)
Service temperature	short term	180	°C	-	(4)
Service temperature	long term	160	°C	-	(5)
Thermal expansion (CLTE)		5,3	10 <sup>-3</sup> K <sup>-1</sup>	DIN EN ISO 11359-1:2	(6)
Other properties	parameter	value	unit	norm	comment
Moisture absorption		0,8	%	DIN EN ISO 62	(1) (*2)
MVR	360°C / 10kg	40	cm <sup>3</sup> /10 min	DIN EN ISO 1133	(2) (*2)
Processing parameter	parameter	value	unit	norm	comment
Nozzle temperature		350 - 380	°C	-	(1) required
Max. melt temperature		400	°C	-	
Print bed temperature		140 - 160	°C	-	
Build chamber temperature		190 - 210	°C	-	(1)
Nozzle diameter		0,4	mm	-	
Print speed		30 - 40	mm/s	-	
Fan speed		0	%	-	
Predrying	parameter	value	unit	norm	comment
Drying temperature		120	°C	-	(1) (*4)
Drying time		6	h	-	

→ To achieve optimum mechanical properties, it is recommended to pre-dry the material with the above mentioned parameters.

- (\*1) Values measured on injection moulded test specimens
- (\*2) Values measured on the raw material
- (\*3) The exact parameters depend on the printer used.
- (\*4) Do not exceed maximum drying temperature of 120°C
- (\*5) Properties tested on printed specimens
- (\*6) Specimens printed on Minifactory Ultra

→ The filament should preferably be stored in dry, normal temperature rooms and protected from direct sunlight.

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