

TECAFIL PES natural - Filament

Chemical Designation
PES (Polyethersulfone)

Colour
amber transparent

Density
1.37 g/cm³ (*2)

Target Industries
→ electronics
→ 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	-	(1)
Spool Material		Polycarbonate	-	-	(2)
Filament Load per Spool		500	g	-	
Filament Length per Spool		143	m	-	(3)
Mechanical properties	parameter	value	unit	norm	comment
Tensile strength	50 mm/min	85	MPa	DIN EN ISO 527-1	(1) (*1) (2) (*1)
Modulus of elasticity (tensile test)	50 mm/min	2650	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) (7) (*1)
Flexural strength	2 mm/min, 10 N	-	MPa	DIN EN ISO 178	(4) (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 ²	DIN EN ISO 179-1eJ	(7)
Notched impact strength (Charpy)	max 7,5J - 23°C	8	kJ/m ²	DIN EN ISO 179-1eA	(8)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		228	°C	ASTM D 3418	(1) (*2)
Melting temperature		-	°C	DIN EN ISO 11357	(2) (*2) (3) (*2) (4) (*2)
Deflection temperature	HDT-A	207	°C	ISO-R 75 Method A	(3) (5) (*2) (6) (*2)
Service temperature	long term	180	°C	-	(4)
Service temperature	short term	220	°C	-	(5)
Thermal expansion (CLTE)		5,2	10 ⁻³ K ⁻¹	DIN EN ISO 11359-1:2	(6)
Other properties	parameter	value	unit	norm	comment
Moisture absorption		0,02	%	DIN EN ISO 62	(1) (*2)
MVR	360°C / 10kg	35	cm ³ /10 min	DIN EN ISO 1133	(2) (*2)
Processing parameter	parameter	value	unit	norm	comment
Nozzle temperature		340 - 390	°C	-	(1) required
Max. melt temperature		400	°C	-	
Print bed temperature		140 - 160	°C	-	
Build chamber temperature		220 - 240	°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		8	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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