

## TECAFIL PEI natural - Filament

### Chemical Designation

PEI (Polyetherimide)

### Colour

beige opaque

### Density

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

### Main features

- inherent flame retardant
- high dimensional stability
- high thermal and mechanical capacity
- resistance against high energy radiation

### Target Industries

- electronics
- automotive industry
- mechanical engineering
- aircraft and aerospace interiors
- aircraft and aerospace technology

General material information	parameter	value	unit	norm	comment
Diameter		1,75 +/- 0,05	mm	-	(1) standard spool body (2) do not dry spool >120°C (3) Ø 1,75mm
Spool Measurements	holder	Ø 52	mm	-	
Spool Measurements	width	55	mm	-	
Spool Measurements	outer diameter	Ø 200	mm	-	1)
Spool Material		Polycarbonate	-	-	2)
Filament Load per Spool		500	g	-	
Filament Length per Spool		147	m	-	3)
Mechanical properties	parameter	value	unit	norm	comment
Tensile strength	5mm/min, Orientation ZX	49	MPa	DIN EN ISO 527-2	1) (1) (*5), (*6) (2) (*5), (*6) (3) (*5), (*6) (4) (*5), (*6) (5) (*5), (*6) (6) (*5), (*6)
Tensile strength	5mm/min, Orientation XY	80	MPa	DIN EN ISO 527-2	2) (7) (*5), (*6) (8) (*5), (*6) (9) (*5), (*6) (10) (*5), (*6) (11) (*5), (*6) (12) (*5), (*6)
Modulus of elasticity (tensile test)	5mm/min, Orientation ZX	2450	MPa	DIN EN ISO 527-2	3)
Modulus of elasticity (tensile test)	5mm/min, Orientation XY	2600	MPa	DIN EN ISO 527-2	4)
Elongation at break (tensile test)	5mm/min, Orientation XY	9,3	%	DIN EN ISO 527-2	5)
Elongation at break (tensile test)	5mm/min, Orientation ZX	2,6	%	DIN EN ISO 527-2	6)
Flexural strength	2mm/min, Orientation XY	91	MPa	DIN EN ISO 178	7)
Flexural strength	2mm/min, Orientation ZX	93	MPa	DIN EN ISO 178	8)
Modulus of elasticity (flexural test)	2mm/min, Orientation XY	2120	MPa	DIN EN ISO 178	9)
Modulus of elasticity (flexural test)	2mm/min, Orientation ZX	2500	MPa	DIN EN ISO 178	10)
Elongation at break (flexural test)	2mm/min, Orientation XY	no break	%	DIN EN ISO 178	11)
Elongation at break (flexural test)	2mm/min, Orientation ZX	4,1	%	DIN EN ISO 178	12)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		180	°C	ASTM D 3418	1) (1) (*2) (2) (*2)
Melting temperature		-	°C	DIN EN ISO 11357	2) (3) (*2) (4) (*2)
Deflection temperature	HDT-A	153	°C	ISO-R 75 Method A	3) (5) (*2) (6) (*2)
Service temperature	long term	150	°C	-	4)
Service temperature	short term	170	°C	-	5)
Thermal expansion (CLTE)		-	10 <sup>-3</sup> K <sup>-1</sup>	DIN EN ISO 11359-1,2	6)
Other properties	parameter	value	unit	norm	comment
Moisture absorption		0,39	%	DIN EN ISO 62	1) (1) (*2) (2) (*2)
Melt flow index (MFI)	295°C / 6,6kg	8,9	g/10 min	DIN EN ISO 1133	2)
Processing parameter	parameter	value	unit	norm	comment
Nozzle temperature		360 - 390	°C	-	(1) required
Max. melt temperature		410	°C	-	
Print bed temperature		160 - 180	°C	-	
Build chamber temperature		150 - 170	°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) (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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