

## TECAFIL PEEK VX natural - 1.75 mm - Filament

### Chemical Designation

PEEK (Polyetheretherketone)

### Colour

beige opaque

### Density

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

### Main features

- inherent flame retardant
- very good chemical resistance
- good slide and wear properties
- good heat deflection temperature
- resistance against high energy radiation
- hydrolysis and superheated steam resistant

### Target Industries

- electronics
- food technology
- automotive industry
- chemical technology
- mechanical engineering
- 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		149	m	-	3)
Mechanical properties	parameter	value	unit	norm	comment
Tensile strength	5mm/min, Orientation XY	98,3	MPa	DIN EN ISO 527-2	1) (1) (*5), (*6) (2) (*5), (*6)
Tensile strength	5mm/min, Orientation XZ	93,7	MPa	DIN EN ISO 527-2	2) (4) (*5), (*6) (5) (*5), (*6) (6) (*5), (*6)
Tensile strength	5mm/min, Orientation ZX	86,6	MPa	DIN EN ISO 527-2	3) (7) (*5), (*6) (8) (*5), (*6) (9) (*5), (*6)
Modulus of elasticity (tensile test)	5mm/min, Orientation XY	4006,7	MPa	DIN EN ISO 527-2	4) (10) (*5), (*6) (11) (*5), (*6) (12) (*5), (*6)
Modulus of elasticity (tensile test)	5mm/min, Orientation XZ	3869,7	MPa	DIN EN ISO 527-2	5) (13) (*5), (*6) (14) (*5), (*6) (15) (*5), (*6)
Modulus of elasticity (tensile test)	5mm/min, Orientation ZX	3657,2	MPa	DIN EN ISO 527-2	6) (16) (*5), (*6) (17) (*5), (*6) (18) (*5), (*6) (19) (*5), (*6) (20) (*5), (*6)
Elongation at yield (tensile test)	5mm/min, Orientation XY	5,4	%	DIN EN ISO 527-2	7)
Elongation at yield (tensile test)	5mm/min, Orientation XZ	5,5	%	DIN EN ISO 527-2	8)
Elongation at yield (tensile test)	5mm/min, Orientation ZX	4,8	%	DIN EN ISO 527-2	9)
Elongation at break (tensile test)	5mm/min, Orientation XY	19,1	%	DIN EN ISO 527-2	10)
Elongation at break (tensile test)	5mm/min, Orientation XZ	16,1	%	DIN EN ISO 527-2	11)
Elongation at break (tensile test)	5mm/min, Orientation ZX	5,6	%	DIN EN ISO 527-2	12)
Elongation at yield (flexural test)	2mm/min, Orientation XY	7,0	%	DIN EN ISO 178	13)
Elongation at yield (flexural test)	2mm/min, Orientation ZX	6,7	%	DIN EN ISO 178	14)
Flexural strength	2mm/min, Orientation XY	154,0	MPa	DIN EN ISO 178	15)
Flexural strength	2mm/min, Orientation ZX	159,0	MPa	DIN EN ISO 178	16)
Modulus of elasticity (flexural test)	2mm/min, Orientation XY	3550,0	MPa	DIN EN ISO 178	17)
Modulus of elasticity (flexural test)	2mm/min, Orientation ZX	3740,0	MPa	DIN EN ISO 178	18)
Elongation at break (flexural test)	2mm/min, Orientation XY	no break	%	DIN EN ISO 178	19)
Elongation at break (flexural test)	2mm/min, Orientation ZX	no break	%	DIN EN ISO 178	20)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		143	°C	ASTM D 3418	1) (1) (*2) (2) (*2)
Melting temperature		343	°C	DIN EN ISO 11357	2) (3) (*2) (4) (*2)
Deflection temperature	HDT-A	162	°C	ISO-R 75 Method A	3) (5) (*2) (6) (*2)
Service temperature	short term	300	°C	-	4)
Service temperature	long term	260	°C	-	5)
Thermal expansion (CLTE)		5	10 <sup>-3</sup> K <sup>-1</sup>	DIN EN ISO 11359-1:2	6)
Other properties	parameter	value	unit	norm	comment
Moisture absorption		0,03	%	DIN EN ISO 62	1) (1) (*2) (2) (*2)
Flammability (UL94)	125x13x1,5mm	V0		DIN IEC 60695-11-10;	2) (3) (*2)
Melt flow index (MFI)	380°C / 5kg	10	g/10 min	DIN EN ISO 1133	3)
Processing parameter	parameter	value	unit	norm	comment
Nozzle temperature		420 - 440	°C	-	(1) required
Max. melt temperature		470	°C	-	
Print bed temperature		160 - 250	°C	-	
Build chamber temperature		160 - 230	°C	-	1)
Nozzle diameter		0,4	mm	-	
Print speed		20 - 30	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 Kumovis R1

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

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