TECAFIL PEEK EV natural - 1.75 mm - Filament

Chemical Designation
PEEK (Polyetheretherketone)

Colour
beige opaque

Density
1.3 g/cm^3 (*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	condition	value	unit	test method		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	condition	value	unit	test method		comment
Tensile strength	5mm/min, Orientation XY	89,3	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) (7) (*5) , (*6) (8) (*5) , (*6) (9) (*5) , (*6) (10) (*5) , (*6) (11) (*5) , (*6) (12) (*5) , (*6) (13) (*1)
Tensile strength	5mm/min, Orientation XZ	94,0	MPa	DIN EN ISO 527-2	2)	
Tensile strength	5mm/min, Orientation ZX	92,3	MPa	DIN EN ISO 527-2	3)	
Modulus of elasticity (tensile test)	5mm/min, Orientation XY	3543,0	MPa	DIN EN ISO 527-2	4)	
Modulus of elasticity (tensile test)	5mm/min, Orientation XZ	3777,0	MPa	DIN EN ISO 527-2	5)	
Modulus of elasticity (tensile test)	5mm/min, Orientation ZX	3668,3	MPa	DIN EN ISO 527-2	6)	
Elongation at yield (tensile test)	5mm/min, Orientation XY	22,3	%	DIN EN ISO 527-2	7)	
Elongation at yield (tensile test)	5mm/min, Orientation XZ	5,9	%	DIN EN ISO 527-2	8)	
Elongation at yield (tensile test)	5mm/min, Orientation ZX	5,5	%	DIN EN ISO 527-2	9)	
Elongation at break (tensile test)	5mm/min, Orientation XY	119,5	%	DIN EN ISO 527-2	10)	
Elongation at break (tensile test)	5mm/min, Orientation XZ	30,7	%	DIN EN ISO 527-2	11)	
Elongation at break (tensile test)	5mm/min, Orientation ZX	8,1	%	DIN EN ISO 527-2	12)	
Notched impact strength (Charpy)	max. 7,5J - 23°C	7,0	kJ/m^2	DIN EN ISO 179-1eA	13)	

Thermal properties	condition	value	unit	test method		comment
Glass transition temperature		143	°C	ASTM D 3418	1)	(1) (*2) (2) (*2) (3) (*2) (4) (*2) (5) (*2) (6) (*2)
Melting temperature		343	°C	DIN EN ISO 11357	2)	
Deflection temperature	HDT-A	162	°C	ISO-R 75 Method A	3)	
Service temperature	short term	300	°C	-	4)	
Service temperature	long term	260	°C	-	5)	
Thermal expansion (CLTE)		6,0	10^{-5} K^{-1}	DIN EN ISO 11359-1;2	6)	

Other properties	condition	value	unit	test method		comment
Moisture absorption		0,03	%	DIN EN ISO 62	1)	(1) (*2) (2) (*2) (3) (*2)
Flammability (UL94)	125x13x1,5mm	V0		DIN IEC 60695-11-10;	2)	
MVR	380°C / 5kg	12	cm³/10 min	DIN EN ISO 1133	3)	

Processing parameter	condition	value	unit	test method		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	condition	value	unit	test method		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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Regulation 1907/2006 / EC as amended Unless otherwise noted, these values were determined by tests on injection moulded samples, dry as moulded. The corresponding values and information are no minimum or maximum values, but guideline values that can be used primarily for comparison purposes for material selection. These values are within the normal tolerance range of product properties and do not represent guaranteed property values. Therefore they shall not be used for specification purposes. In order to achieve optimum mechanical properties, pre-drying of the material is recommended with the parameters mentioned above Filaments should preferably be stored in dry rooms at normal temperatures and be protected from direct sunlight.

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