TECAFIL PEEK VX MT CF30 black - 1.75 mm - Filament

Chemical Designation
PEEK (Polyetheretherketone)

Colour
black opaque

Density
1.38 g/cm^3 (*2)

Fillers
carbon fibres, 30% carbon fibres

Main features
- autoclavable
- very high stiffness
- very good sterilisable
- good chemical resistance
- high gamma radiation resistance
- hydrolysis and superheated steam resistant

Target Industries
- medical 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		141	m	-	3)	

Mechanical properties	condition	value	unit	test method		comment
Tensile strength	5mm/min, Orientation XY	123	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)
Tensile strength	5mm/min, Orientation ZX	62	MPa	DIN EN ISO 527-2	2)	
Modulus of elasticity (tensile test)	5mm/min, Orientation XY	12850	MPa	DIN EN ISO 527-2	3)	
Modulus of elasticity (tensile test)	5mm/min, Orientation ZX	3880	MPa	DIN EN ISO 527-2	4)	
Elongation at break (tensile test)	5mm/min, Orientation XY	2,3	%	DIN EN ISO 527-2	5)	
Elongation at break (tensile test)	5mm/min, Orientation ZX	2,5	%	DIN EN ISO 527-2	6)	
Flexural strength	2mm/min, Orientation XY	178	MPa	DIN EN ISO 178	7)	
Flexural strength	2mm/min, Orientation ZX	121	MPa	DIN EN ISO 178	8)	
Modulus of elasticity (flexural test)	2mm/min, Orientation XY	7790	MPa	DIN EN ISO 178	9)	
Modulus of elasticity (flexural test)	2mm/min, Orientation ZX	4050	MPa	DIN EN ISO 178	10)	
Elongation at break (flexural test)	2mm/min, Orientation XY	3,3	%	DIN EN ISO 178	11)	
Elongation at break (flexural test)	2mm/min, Orientation ZX	3,4	%	DIN EN ISO 178	12)	

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)		4	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)
Melt flow index (MFI)		-	g/10 min	DIN EN ISO 1133	2)	

Processing parameter	condition	value	unit	test method		comment
Nozzle temperature		420 - 460	°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 - 0,6	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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