TECAFIL PEEK EV CF30 black - 1.75 mm - Filament

Chemical Designation
PEEK (Polyetheretherketone)

Colour
black opaque

Density
1.41 g/cm^3 (*2)

Fillers
carbon fibres, 30% carbon fibres

Main features
- very high stiffness
- inherent flame retardant
- good chemical resistance
- high dimensional stability
- hydrolysis and superheated steam resistant

Target Industries
- oil and gas industry
- 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	outer diameter	Ø 200	mm	-	1)	
Spool measurements	width	55	mm	-		
Spool measurements	holder	Ø 52	mm	-		
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	169,0	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	196,5	MPa	DIN EN ISO 527-2	2)	
Tensile strength	5mm/min, Orientation ZX	71,0	MPa	DIN EN ISO 527-2	3)	
Modulus of elasticity (tensile test)	5mm/min, Orientation XY	17310,0	MPa	DIN EN ISO 527-2	4)	
Modulus of elasticity (tensile test)	5mm/min, Orientation XZ	19963,0	MPa	DIN EN ISO 527-2	5)	
Modulus of elasticity (tensile test)	5mm/min, Orientation ZX	4164,8	MPa	DIN EN ISO 527-2	6)	
Elongation at yield (tensile test)	5mm/min, Orientation XY	2,6	%	DIN EN ISO 527-2	7)	
Elongation at yield (tensile test)	5mm/min, Orientation XZ	2,6	%	DIN EN ISO 527-2	8)	
Elongation at yield (tensile test)	5mm/min, Orientation ZX	3,7	%	DIN EN ISO 527-2	9)	
Elongation at break (tensile test)	5mm/min, Orientation XY	2,7	%	DIN EN ISO 527-2	10)	
Elongation at break (tensile test)	5mm/min, Orientation XZ	2,7	%	DIN EN ISO 527-2	11)	
Elongation at break (tensile test)	5mm/min, Orientation ZX	3,8	%	DIN EN ISO 527-2	12)	
Impact strength (Charpy)	max. 7,5J - 23°C	55,0	kJ/m^2	DIN EN ISO 179-1eU	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	10^{-5} K^{-1}	DIN EN ISO 11359-1;2	6)	

Other properties	condition	value	unit	test method		comment
Moisture absorption		0,5	%	DIN EN ISO 62	1)	(1) (*2) (2) (*2) (3) (*2)
Flammability (UL94)	125x13x1,5mm	V0		DIN IEC 60695-11-10;	2)	
Melt flow index (MFI)	380°C / 5kg	2,9	g/10 min	DIN EN ISO 1133	3)	

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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