

TECAFIL PEEK VX CF30 black - 1.75 mm - Filament

Chemical Designation

PEEK (Polyetheretherketone)

Colour

black opaque

Density

1.38 g/cm³ (*2)

Fillers

carbon fibres, 30% carbon fibres

Main features

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

Target Industries

- oil and gas industry
- 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
Spool measurements	holder	Ø 52	mm	-	(2) do not dry spool >120°C
Spool measurements	width	55	mm	-	(3) Ø 1,75mm
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	parameter	value	unit	norm	comment
Tensile strength	5mm/min, Orientation XY	173,7	MPa	DIN EN ISO 527-2	1) (1) (*5), (*6)
Tensile strength	5mm/min, Orientation XZ	198,5	MPa	DIN EN ISO 527-2	2) (2) (*5), (*6)
Tensile strength	5mm/min, Orientation ZX	61,9	MPa	DIN EN ISO 527-2	3) (3) (*5), (*6)
Modulus of elasticity (tensile test)	5mm/min, Orientation XY	18116,0	MPa	DIN EN ISO 527-2	4) (4) (*5), (*6)
Modulus of elasticity (tensile test)	5mm/min, Orientation XZ	21392,0	MPa	DIN EN ISO 527-2	5) (5) (*5), (*6)
Modulus of elasticity (tensile test)	5mm/min, Orientation ZX	4005,5	MPa	DIN EN ISO 527-2	6) (6) (*5), (*6)
Elongation at yield (tensile test)	5mm/min, Orientation XY	2,4	%	DIN EN ISO 527-2	7) (7) (*5), (*6)
Elongation at yield (tensile test)	5mm/min, Orientation XZ	2,1	%	DIN EN ISO 527-2	8) (8) (*5), (*6)
Elongation at yield (tensile test)	5mm/min, Orientation ZX	3,3	%	DIN EN ISO 527-2	9) (9) (*5), (*6)
Elongation at break (tensile test)	5mm/min, Orientation XY	2,4	%	DIN EN ISO 527-2	10) (10) (*5), (*6)
Elongation at break (tensile test)	5mm/min, Orientation XZ	2,2	%	DIN EN ISO 527-2	11) (11) (*5), (*6)
Elongation at break (tensile test)	5mm/min, Orientation ZX	3,3	%	DIN EN ISO 527-2	12) (12) (*5), (*6)
Impact strength (Charpy)	max. 7,5J - 23°C	45,0	kJ/m ²	DIN EN ISO 179-1eU	13) (13) (*1)

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

Other properties	parameter	value	unit	norm	comment
Moisture absorption		0,03	%	DIN EN ISO 62	1) (1) (*2)
Flammability (UL94)	125x13x1,5mm	V0		DIN IEC 60695-11-10;	2) (2) (*2)
Flammability	60 sec. Vertical Bunsen Burner test, FAR §25.853 (a) and Appendix F, Part I, para. (a)(1)(i)	1,4	mm	FAR 25.853	3) (3) (*5), (*6)
Flammability	12 sec. Vertical Bunsen Burner test, FAR §25.853 (a) and Appendix F, Part I, para. (a)(1)(ii)	1,4	mm	FAR 25.853	4) (4) (*5), (*6)
Flammability	15 sec. Horizontal Bunsen Burner test, FAR §25.853 (a) and Appendix F, Part I, para. (a)(1)(iv)	1,5	mm	FAR 25.853	5) (5) (*5), (*6)
Flammability	Heat Release, as per FAR §25.853 (d) and Appendix F, Part IV	1,6	mm	FAR 25.853	6) (6) (*5), (*6)
Flammability	Smoke density, as per FAR §25.853 (d) and Appendix F, Part V	1,5	mm	FAR 25.853	7) (7) (*5), (*6)
Flammability	Gas Toxicity, as per Boeing BSS 7239	1,5	mm	-	8) (8) (*5), (*6)
Melt flow index (MFI)		-	g/10 min	DIN EN ISO 1133	9) (9) (*2)

Processing parameter	parameter	value	unit	norm	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	%	-

<i>Predrying</i>	<i>parameter</i>	<i>value</i>	<i>unit</i>	<i>norm</i>	<i>comment</i>
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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