

TECAFIL PC FR natural - 2.85 mm - Filament

Chemical Designation

PC (Polycarbonate)

Colour

natural transparent

Density

1.23 g/cm³ (*2)

Fillers

flame retardant (halogen free)

Main features

- electrically insulating
- good weldable and bondable
- tested according to EN 45545
- flame retardant as per FAR 25.853
- flame retardant according to UL94 V-0

Target Industries

- electronics
- Railway Interiors
- automotive industry
- mechanical engineering
- aircraft and aerospace interiors
- aircraft and aerospace technology

General material information	parameter	value	unit	norm	comment
Diameter		2.85 +/- 0.05	mm	-	(1) standard spool body (2) Ø 2.85mm
Spool measurements	outer diameter	Ø 200	mm	-	1)
Spool measurements	width	55	mm	-	
Spool measurements		Ø 52	mm	-	
Spool Material		Polycarbonate	-	-	
Filament Load per Spool		750	g	-	
Filament Length per Spool		92	m	-	2)

Mechanical properties	parameter	value	unit	norm	comment
Tensile strength	5mm/min, Orientation XY	69	MPa	DIN EN ISO 527-2	1) (1) (*5), (*6) (2) (*5), (*6) (3) (*5), (*6)
Tensile strength	5mm/min, Orientation ZX	34	MPa	DIN EN ISO 527-2	2) (4) (*5), (*6) (5) (*5), (*6) (6) (*5), (*6)
Modulus of elasticity (tensile test)	5mm/min, Orientation XY	2750	MPa	DIN EN ISO 527-2	3) (7) (*5), (*6) (8) (*5), (*6) (9) (*5), (*6)
Modulus of elasticity (tensile test)	5mm/min, Orientation ZX	2800	MPa	DIN EN ISO 527-2	4) (10) (*5), (*6) (11) (*5), (*6) (12) (*5), (*6)
Elongation at break (tensile test)	5mm/min, Orientation XY	3,8	%	DIN EN ISO 527-2	5)
Elongation at break (tensile test)	5mm/min, Orientation ZX	1,4	%	DIN EN ISO 527-2	6)
Flexural strength	5mm/min, Orientation XY	105	MPa	DIN EN ISO 178	7)
Flexural strength	5mm/min, Orientation ZX	67	MPa	DIN EN ISO 178	8)
Modulus of elasticity (flexural test)	5mm/min, Orientation XY	2750	MPa	DIN EN ISO 178	9)
Modulus of elasticity (flexural test)	5mm/min, Orientation ZX	3300	MPa	DIN EN ISO 178	10)
Elongation at break (flexural test)	5mm/min, Orientation XY	3,9	%	DIN EN ISO 178	11)
Elongation at break (flexural test)	5mm/min, Orientation ZX	1,8	%	DIN EN ISO 178	12)

Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		80	°C	ASTM D 3418	1) (1) (*2) (2) (*2)
Melting temperature		-		DIN EN ISO 11357	2) (3) (*5), (*6) (4) (*2)
Deflection temperature	HDT-A	69	°C	ISO-R 75 Method A	3) (5) (*2) (6) (*2)
Service temperature	short term	70	°C	-	4)
Service temperature	long term	60	°C	-	5)
Thermal expansion (CLTE)		-	10 ⁻³ K ⁻¹	DIN EN ISO 11359-1:2	6)

Other properties	parameter	value	unit	norm	comment
Moisture absorption		0,14	%	DIN EN ISO 62	(1) (*5), (*6) (2) (*5), (*6)
Flammability (UL94)	125x13x1,5mm; Orientation XY	V0		DIN IEC 60695-11-10;	1) (3) (*5), (*6) (4) (*5), (*6) (5) (*5), (*6) (6) (*5), (*6)
Flammability (UL94)	125x13x5,0mm; Orientation XY	V0		DIN IEC 60695-11-10;	2) (7) (*5), (*6)
Flammability	s=1,5mm & s=10mm	R22 HL3, R23 HL3		EN 45545-2:2016	3)
Flammability	60 sec. Vertical Bunsen Burner test, FAR \$25.853 (a) and Appendix F, Part I, para. (a)(1)(i)	1,5	mm	FAR 25.853	4)
Flammability	12 sec. Vertical Bunsen Burner test, FAR \$25.853 (a) and Appendix F, Part I, para. (a)(1)(ii)	1,5	mm	FAR 25.853	5)
Flammability	15 sec. Horizontal Bunsen Burner test, FAR \$25.853 (a) and Appendix F, Part I, para. (a)(1)(iv)&(v)	1,5	mm	FAR 25.853	6)
Flammability	Gas Toxicity, as per Boeing BSS 7239	1,5	mm	-	7)
Melt flow index (MFI)	300°C / 1,2kg	35,3	g/10 min	DIN EN ISO 1133	

Processing parameter	parameter	value	unit	norm	comment
Nozzle temperature		240 - 280	°C	-	(1) not required
Max. melt temperature		300	°C	-	
Print bed temperature		70 - 90	°C	-	
Build chamber temperature		-	-	-	1)
Nozzle diameter		0,4	mm	-	
Print speed		30 - 50	mm/s	-	
Fan speed		40	%	-	

Predrying	parameter	value	unit	norm	comment
Drying temperature		60	°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 Ultimaker S5

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

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