

TECAFIL PPSU MT XRO grey - 1.75 mm - Filament

Chemical Designation

PPSU (Polyphenylsulfone)

Colour

grey opaque

Density

1.34 g/cm³ (*2)

Fillers

barium sulfate

Main features

- x-ray opaque
- very good sterilisable
- good chemical resistance
- high gamma radiation resistance
- good heat deflection temperature
- high thermal and mechanical capacity
- hydrolysis and superheated steam resistant

Target Industries

- medical 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		146	m	-	3)
Mechanical properties	parameter	value	unit	norm	comment
Tensile strength	5mm/min, Orientation XY	67,7	MPa	DIN EN ISO 527-2	1) (1) (*5), (*6)
Tensile strength	5mm/min, Orientation ZX	70,7	MPa	DIN EN ISO 527-2	2) (2) (*5), (*6)
Modulus of elasticity (tensile test)	5mm/min, Orientation XY	2215,0	MPa	DIN EN ISO 527-2	3) (3) (*5), (*6)
Modulus of elasticity (tensile test)	5mm/min, Orientation ZX	2370,0	MPa	DIN EN ISO 527-2	4) (4) (*5), (*6)
Elongation at yield (tensile test)	5mm/min, Orientation XY	7,2	%	DIN EN ISO 527-2	5) (5) (*5), (*6)
Elongation at yield (tensile test)	5mm/min, Orientation ZX	6,9	%	DIN EN ISO 527-2	6) (6) (*5), (*6)
Elongation at yield (flexural test)	2mm/min, Orientation XY	7,3	%	DIN EN ISO 178	7) (7) (*5), (*6)
Elongation at yield (flexural test)	2mm/min, Orientation ZX	7,4	%	DIN EN ISO 178	8) (8) (*5), (*6)
Elongation at break (tensile test)	5mm/min, Orientation XY	35,1	%	DIN EN ISO 527-2	9) (9) (*5), (*6)
Elongation at break (tensile test)	5mm/min, Orientation ZX	9,7	%	DIN EN ISO 527-2	10) (10) (*5), (*6)
Flexural strength	2mm/min, Orientation XY	105,0	MPa	DIN EN ISO 178	11) (11) (*5), (*6)
Flexural strength	2mm/min, Orientation ZX	101,0	MPa	DIN EN ISO 178	12) (12) (*5), (*6)
Modulus of elasticity (flexural test)	2mm/min, Orientation XY	2300,0	MPa	DIN EN ISO 178	13) (13) (*5), (*6)
Modulus of elasticity (flexural test)	2mm/min, Orientation ZX	2130,0	MPa	DIN EN ISO 178	14) (14) (*5), (*6)
Elongation at break (flexural test)	2mm/min, Orientation XY	no break	%	DIN EN ISO 178	15) (15) (*5), (*6)
Elongation at break (flexural test)	2mm/min, Orientation ZX	no break	%	DIN EN ISO 178	16) (16) (*5), (*6)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		218	°C	ASTM D 3418	1) (1) (*2)
Melting temperature		-	°C	DIN EN ISO 11357	2) (2) (*2)
Deflection temperature	HDT-A	207	°C	ISO-R 75 Method A	3) (3) (*2)
Service temperature	short term	190	°C	-	4) (4) (*2)
Service temperature	long term	170	°C	-	5) (5) (*2)
Thermal expansion (CLTE)		5,6	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1;2	6) (6) (*2)
Other properties	parameter	value	unit	norm	comment
Moisture absorption		0,37	%	DIN EN ISO 62	1) (1) (*2)
Melt flow index (MFI)	365°C / 5kg	12 - 17	g/10 min	DIN EN ISO 1133	2) (2) (*2)
Processing parameter	parameter	value	unit	norm	comment
Nozzle temperature		380 - 420	°C	-	(1) required
Max. melt temperature		450	°C	-	
Print bed temperature		190 - 230	°C	-	
Build chamber temperature		210 - 230	°C	-	1)
Nozzle diameter		0,4	mm	-	
Print speed		30 - 40	mm/s	-	
Fan speed		0	%	-	
Predrying	parameter	value	unit	norm	comment
Drying temperature		120	°C	-	1) (1) (*4)
Drying time		6	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.

Our information and statements reflect to current state of our knowledge and shall inform about the products and their applications. They do not assure or guarantee chemical resistance, quality of products and their merchantability in a legally binding way. Our products are not defined for use in medical or dental implants. Existing commercial patents have to be observed. The customer is solely responsible for the quality and suitability of products for the application and has to test usage and processing prior to use. Data sheet values are subject to periodic review, the most recent update can be found at ensingerplastics.com. Technical changes reserved. European-made or imported varieties comply with REACH 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.

Ensinger GmbH
Rudolf-Diesel Str. 8
71154 Nufringen - Deutschland

Tel +49 7032 819 0
Fax +49 7032 819 100
ensingerplastics.com

Date: 2024/06/26

Version: AB