

## TECAFIL PA12 natural - Filament

### Chemical Designation

PA 12 (Polyamide 12)

### Colour

white opaque

### Density

1.01 g/cm<sup>3</sup> (\*2)

### Main features

- low density
- good wear properties
- low moisture absorption
- good slide and wear properties
- resistant to many oils, greases and fuels

### Target Industries

- electronics
- food technology
- automotive industry
- mechanical engineering

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	outer diameter	Ø 200	mm	-	(3) Ø 1,75mm
Spool Measurements	width	55	mm	-	
Spool Material		Polycarbonate		-	(2)
Filament Load per Spool		500	g	-	
Filament Length per Spool		193	m	-	(3)
Mechanical properties	parameter	value	unit	norm	comment
Tensile strength	50 mm/min	35	MPa	DIN EN ISO 527-1	(1) (*1) (2) (*1)
Modulus of elasticity (tensile test)	50 mm/min	1100	MPa	DIN EN ISO 527-1	(3) (*1) (4) (*1) (5) (*1)
Elongation at break (tensile test)	50 mm/min	-	%	DIN EN ISO 527-1	(6) (*1) (7) (*1)
Flexural strength	2 mm/min, 10 N	-	MPa	DIN EN ISO 178	(4) (8) (*1)
Modulus of elasticity (flexural test)	2 mm/min, 10 N	-	MPa	DIN EN ISO 178	(5)
Elongation at break (flexural test)	2 mm/min, 10 N	-	%	DIN EN ISO 178	(6)
Impact strength (Charpy)	max 7,5J - 23°C	-	kJ/m <sup>2</sup>	DIN EN ISO 179-1eJ	(7)
Notched impact strength (Charpy)	max 7,5J - 23°C	10	kJ/m <sup>2</sup>	DIN EN ISO 179-1eA	(8)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		37	°C	ASTM D 3418	(1) (*2)
Melting temperature		180	°C	DIN EN ISO 11357	(2) (*2) (3) (*2)
Deflection temperature	HDT-A	-	°C	ISO-R 75 Method A	(4) (*2) (5) (*2) (6) (*2)
Service temperature	long term	110	°C	-	(4)
Service temperature	short term	150	°C	-	(5)
Thermal expansion (CLTE)		15	10 <sup>-3</sup> K <sup>-1</sup>	DIN EN ISO 11359-1:2	(6)
Other properties	parameter	value	unit	norm	comment
Moisture absorption		1,5	%	DIN EN ISO 62	(1) (*2) (2) (*2)
MVR	275°C / 5kg	20	cm <sup>3</sup> /10 min	DIN EN ISO 1133	(2)
Processing parameter	parameter	value	unit	norm	comment
Nozzle temperature		240 - 270	°C	-	
Max. melt temperature		300	°C	-	
Print bed temperature		90 - 110	°C	-	
Build chamber temperature		80 - 120	°C	-	
Nozzle diameter		0,4	mm	-	
Print speed		30 - 50	mm/s	-	
Fan speed		0 - 20	%	-	
Predrying	parameter	value	unit	norm	comment
Drying temperature		80	°C	-	(1) (*4)
Drying time		12	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 Minifactory Ultra

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

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