

## TECAMID 12 natural - Stock Shapes (rods, plates, tubes)

### Chemical Designation

PA 12 (Polyamide 12)

### Colour

ivory opaque

### Density

1.02 g/cm<sup>3</sup>

Data generated directly after machining (standard climate Germany).

### Main features

- high toughness
- resistant to many oils, greases and fuels
- good wear properties
- high dimensional stability
- good slide and wear properties
- low density
- low moisture absorption
- good weldable and bondable

### Target Industries

- aircraft and aerospace technology
- electronics
- food technology
- mechanical engineering
- automotive industry

Mechanical properties	parameter	value	unit	norm	comment
Tensile strength	50mm/min	53	MPa	DIN EN ISO 527-2	(1) For tensile test: specimen type 1b
Modulus of elasticity (tensile test)	1mm/min	1800	MPa	DIN EN ISO 527-2	(2) For flexural test: support span 64mm, norm specimen.
Tensile strength at yield	50mm/min	53	MPa	DIN EN ISO 527-2	(3) Specimen 10x10x10mm
Elongation at yield (tensile test)	50mm/min	9	%	DIN EN ISO 527-2	(4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression.
Elongation at break (tensile test)	50mm/min	200	%	DIN EN ISO 527-2	(5) For Charpy test: support span 64mm, norm specimen.
Flexural strength	2mm/min, 10 N	68	MPa	DIN EN ISO 178	n.b. = not broken
Modulus of elasticity (flexural test)	2mm/min, 10 N	1700	MPa	DIN EN ISO 178	
Compression strength	1% / 2% / 5% 5mm/min, 10 N	13/24/55	MPa	EN ISO 604	3)
Compression modulus	5mm/min, 10 N	1600	MPa	EN ISO 604	4)
Impact strength (Charpy)	max. 7.5J	n.b.	kJ/m <sup>2</sup>	DIN EN ISO 179-1eU	5)
Notched impact strength (Charpy)	max. 7.5J	7	kJ/m <sup>2</sup>	DIN EN ISO 179-1eA	
Shore hardness	D	76		DIN EN ISO 868	
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		37	°C	DIN EN ISO 11357	(1) Found in public sources.
Melting temperature		180	°C	DIN EN ISO 11357	(2) Found in public sources.
Service temperature	short term	150	°C	-	Individual testing regarding application conditions is mandatory.
Service temperature	long term	110	°C	-	2)
Thermal expansion (CLTE)	23-60°C, long.	15	10 <sup>-5</sup> K <sup>-1</sup>	DIN EN ISO 11359-1;2	
Thermal expansion (CLTE)	23-100°C, long.	16	10 <sup>-5</sup> K <sup>-1</sup>	DIN EN ISO 11359-1;2	
Specific heat		1.8	J/(g*K)	ISO 22007-4:2008	
Thermal conductivity		0.30	W/(K*m)	ISO 22007-4:2008	
Electrical properties	parameter	value	unit	norm	comment
surface resistivity		10 <sup>14</sup>	Ω	-	
volume resistivity		10 <sup>14</sup>	Ω*cm	-	
Other properties	parameter	value	unit	norm	comment
Water absorption	24h / 96h (23°C)	0.04 / 0.07	%	DIN EN ISO 62	(1) (1) Ø ca. 50mm, h=13mm
Resistance to hot water/ bases		+	-	-	(2) + good resistance
Resistance to weathering		-	-	-	(3) - poor resistance
Flammability (UL94)	corresponding to	HB		DIN IEC 60695-11-10;	(4) Corresponding means no listing at UL (yellow card). The information might be taken from resin, stock shape or estimation. Individual testing regarding application conditions is mandatory.

Our information and statements reflect the current state of our knowledge and shall inform about our 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 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. Unless otherwise noted, these values were determined by tests at reference dimensions (typically rods with diameter 40-60 mm according to DIN EN 15860) on extruded and machined specimen. As the properties depend on the dimensions of the semi-finished products and the orientation in the component (esp. in reinforced grades), the material may not be used without a separate testing under individual circumstances. 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 [www.ensingerplastics.com](http://www.ensingerplastics.com). Technical changes reserved.