

# 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	1) (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	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	2) n.b. = not broken
Modulus of elasticity (flexural test)	2mm/min, 10 N	1700	MPa	DIN EN ISO 178	(6) Specimen in 4mm thickness
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	
Ball indentation hardness		105	MPa	ISO 2039-1	6)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		37	°C	DIN EN ISO 11357	1) (1) Found in public sources.
Melting temperature		180	°C	DIN EN ISO 11357	(2) Found in public sources.
Service temperature	short term	150	°C	-	2) Individual testing regarding application conditions is mandatory.
Service temperature	long term	110	°C		
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	DIN IEC 60093	
volume resistivity		10 <sup>14</sup>	Ω*cm	DIN IEC 60093	
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) (2) + good resistance
Resistance to weathering		-	-	-	3) (3) - poor resistance
Flammability (UL94)	corresponding to	HB		DIN IEC 60695-11-10;	4) (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.

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