

Chemical Designation

PA 6 (Polyamide 6)

Colour

ivory opaque

Density

1.14 g/cm³

Data generated directly after machining (standard climate Germany).

Main features

- high toughness
- resistant to many oils, greases and fuels
- electrically insulating
- good wear properties
- good weldable and bondable
- good slide and wear properties
- high strength
- good machinability

Target Industries

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

Mechanical properties	parameter	value	unit	norm	comment
Tensile strength	50mm/min	79	MPa	DIN EN ISO 527-2	(1) For tensile test: specimen type 1b
Modulus of elasticity (tensile test)	1mm/min	3300	MPa	DIN EN ISO 527-2	1) (2) For flexural test: support span 64mm, norm specimen.
Tensile strength at yield	50mm/min	78	MPa	DIN EN ISO 527-2	(3) Specimen 10x10x10mm
Elongation at yield (tensile test)	50mm/min	4	%	DIN EN ISO 527-2	(4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression.
Elongation at break (tensile test)	50mm/min	130	%	DIN EN ISO 527-2	(5) For Charpy test: support span 64mm, norm specimen.
Flexural strength	2mm/min, 10 N	100	MPa	DIN EN ISO 178	2) n.b. = not broken
Modulus of elasticity (flexural test)	2mm/min, 10 N	2900	MPa	DIN EN ISO 178	
Compression strength	1% / 2% / 5% 5mm/min, 10 N	24/41/86	MPa	EN ISO 604	3)
Compression modulus	5mm/min, 10 N	2700	MPa	EN ISO 604	4)
Impact strength (Charpy)	max. 7.5J	n.b.	kJ/m ²	DIN EN ISO 179-1eU	5)
Notched impact strength (Charpy)	max. 7.5J	7	kJ/m ²	DIN EN ISO 179-1eA	
Shore hardness	D	79		DIN EN ISO 868	
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		45	°C	DIN EN ISO 11357	1) (1) Found in public sources.
Melting temperature		221	°C	DIN EN ISO 11357	(2) Found in public sources.
Service temperature	short term	160	°C		2) Individual testing regarding application conditions is mandatory.
Service temperature	long term	100	°C		
Thermal expansion (CLTE)	23-60°C, long.	12	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1:2	
Thermal expansion (CLTE)	23-100°C, long.	13	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1:2	
Specific heat		1.6	J/(g*K)	ISO 22007-4:2008	
Thermal conductivity		0.37	W/(K*m)	ISO 22007-4:2008	
Electrical properties	parameter	value	unit	norm	comment
surface resistivity	Silver electrode, 23°C, 12% r.h.	10 ¹⁴	Ω	-	1) (1) Specimen in 20mm thickness
volume resistivity	Silver electrode, 23°C, 12% r.h.	10 ¹⁴	Ω*cm	-	2) (2) Specimen in 1mm thickness
Dielectric strength	23°C, 50% r.h.	31	kV/mm	ISO 60243-1	2)
Resistance to tracking (CTI)	Platin electrode, 23°C, 50% r.h., solvent A	600	V	DIN EN 60112	
Other properties	parameter	value	unit	norm	comment
Water absorption	24h / 96h (23°C)	0.3 / 0.6	%	DIN EN ISO 62	1) (1) Ø ca. 50mm, h=13mm
Resistance to hot water/ bases		(+)		-	2) (2) (+) limited 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.

