



Material data sheet

PA 6 black

Chemical Designation: Polyamide 6
DIN-abbreviation: PA 6
Colour / Fillers: black opaque / molybdenum disulfide
Density: 1,14 g/cm³

Data generated directly after machining
(standard climate Germany).

Main features

- high toughness
- good wear properties
- high strength
- improved surface hardness
- resistant to many oils, greases and fuels
- good slide and wear properties

Target Industries

- mechanical engineering
- automotive industry

Characteristics

mechanical properties	parameter	value	unit	norm	comment
Modulus of elasticity (tensile test)	1 mm / min	3300	MPa	DIN EN ISO 527-2 1)	1) For tensile test: specimen type 1b 2) For flexural test: span 64 mm, norm specimen. 3) Specimen 10 x 10 x 10 mm 4) Specimen 10 x 10 x 50 mm, modulus range between 0,5 and 1% compression. 5) For Charpy test: support span 64 mm, norm specimen. n. b. = not broken 6) Specimen in 4 mm thickness
Tensile strength	50 mm / min	84	MPa	DIN EN ISO 527-2	
Tensile strength at yield	50 mm / min	82	MPa	DIN EN ISO 527-2	
Elongation at yield	50 mm / min	5	%	DIN EN ISO 527-2	
Elongation at break	50 mm / min	37	%	DIN EN ISO 527-2	
Flexural strength	2 mm / min, 10 N	110	MPa	DIN EN ISO 178 2)	
Modulus of elasticity (flexural test)	2 mm / min, 10 N	3100	MPa	DIN EN ISO 178	
Compression strength	1% / 2% / 5% 5 mm / min, 10 N	17/32/79	MPa	EN ISO 604 3)	
Compression modulus	5 mm / min, 10 N	2900	MPa	EN ISO 604 4)	
Impact strength (Charpy)	max. 7,5 J	n. b.	kJ/m ²	DIN EN ISO 179-1eU 5)	
Notched impact strength (Charpy)	max. 7,5 J	5	kJ/m ²	DIN EN ISO 179-1eA	
Ball indentation hardness		160	MPa	ISO 2039-1 6)	





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thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		51	°C	DIN EN ISO 11357 1)	1) Found in public sources. 2) Found in public sources. Individual testing regarding application conditions is mandatory.
Melting temperature		220	°C	DIN EN ISO 11357	
Service temperature	short term	160	°C		
Service temperature	long term	100	°C		
Thermal expansion (CLTE)	23-60 °C, long	8	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1;2	
Thermal expansion (CLTE)	23-100 °C, long	8	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	DIN IEC 60093 1)	1) Specimen in 20 mm thickness 2) Due to the black colourant and moisture uptake of the material the electrical insulation properties cannot be 100% guaranteed, despite single measurements suggesting otherwise 3) Specimen in 1 mm thickness
volume resistivity	Silver electrode, 23 °C, 12% r.h.	10 ¹⁴	Ω*cm	DIN IEC 60093 2)	
Dielectric strength	23 °C, 50% r.h.	30	kV/mm	ISO 60243-1 3)	
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	24 h / 96 h (23 °C)	0.3 / 0.6	%	DIN EN ISO 62 1)	1) Ø ca. 50 mm, h = 13 mm 2) (+) limited resistance 3) 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.
Resistance to hot water/bases		(+)		- 2)	
Resistance to weathering		(+)			
Flammability (UL94)	corresponding to	HB		DIN IEC 60695-11-10 3)	

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Wilhelm Herm. Müller GmbH & Co. KG

Heinrich-Nordhoff-Ring 14 · 30826 Garbsen · Postfach 141230 · 30812 Garbsen

Tel. +49 5131 4522-0 · Fax: +49 5131 4522-110 · E-Mail: info@whm.net