

Chemical Designation

PI (Polyimide)

Colour

black

Density

1.33 g/cm³

Main features

- very good electrical insulation
- high thermal and mechanical capacity
- good wear resistance
- high creep resistance
- resistance against high energy radiation
- sensitive to hydrolysis in higher thermal range

Target Industries

- semiconductor technology
- electrical engineering
- aircraft and aerospace technology
- cryogenic engineering
- mechanical engineering
- nuclear and vacuum technology

Mechanical properties

parameter	value	unit	norm	comment
Tensile strength	50 mm/min	140	MPa	DIN EN ISO 527-1 (1) eU
Modulus of elasticity (tensile test)	1 mm/min	3800	MPa	DIN EN ISO 527-1
Elongation at break (tensile test)	50 mm/min	5.3	%	DIN EN ISO 527-1
Flexural strength	10 mm/min	205	MPa	DIN EN ISO 178
Modulus of elasticity (flexural test)	2 mm/min	3600	MPa	DIN EN ISO 178
Compression strength	10 mm/min	440	MPa	EN ISO 604
Compressive strain at break	10 mm/min	48	%	EN ISO 604
Impact strength (Charpy)	max 7.5 J	70	kJ/m ²	DIN EN ISO 179-1 (1)
Shore hardness	Shore D	91		DIN EN ISO 868

Thermal properties

parameter	value	unit	norm	comment
Glass transition temperature		330	°C	- (1)
Heat distortion temperature	1,8 MPa	335	°C	DIN 53 461
Thermal expansion (CLTE)	50-200 °C	4.6 / -	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1;2 (2)
Thermal expansion (CLTE)	100-150 °C	4.5 / -	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1;2 (3)
Thermal expansion (CLTE)	23-100°C	4.1 / -	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1;2 (4)
Specific heat		1.116	J/(g*K)	DIN EN 821
Thermal conductivity		0.215	W/(K*m)	DIN EN 821

Electrical properties

parameter	value	unit	norm	comment
surface resistivity	23°C	> 10 ¹⁵	Ω	DIN IEC 60093
volume resistivity	23°C	> 10 ¹⁴	Ω*cm	DIN IEC 60093

Other properties

parameter	value	unit	norm	comment
Water absorption	24 h in water, 23°C	0.82	%	DIN EN ISO 62
Flammability (UL94)	corresponding to	V0		DIN IEC 60695-11-10; (1)

(1) 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.

