

TECASINT 5111 natural - Stock Shapes (rods, plates, tubes)

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

<i>Mechanical properties</i>	<i>condition</i>	<i>value</i>	<i>unit</i>	<i>test method</i>	<i>comment</i>
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	
<i>Thermal properties</i>	<i>condition</i>	<i>value</i>	<i>unit</i>	<i>test method</i>	<i>comment</i>
Glass transition temperature		330	°C	-	1)
Heat distortion temperature	1,8 MPa	335	°C	DIN 53 461	(1) DMA, maximum loss factor tan d
Thermal expansion (CLTE)	50-200 °C	4.6 / -	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1;2	2) axis
Thermal expansion (CLTE)	100-150 °C	4.5 / -	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1;2	3) axis
Thermal expansion (CLTE)	23-100 °C	4.1 / -	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1;2	4) axis
Specific heat		1.116	J/(g*K)	DIN EN 821	
Thermal conductivity		0.215	W/(K*m)	DIN EN 821	
<i>Electrical properties</i>	<i>condition</i>	<i>value</i>	<i>unit</i>	<i>test method</i>	<i>comment</i>
surface resistivity	23 °C	> 10 ¹⁵	Ω	DIN IEC 60093	
volume resistivity	23 °C	> 10 ¹⁴	Ω*cm	DIN IEC 60093	
<i>Other properties</i>	<i>condition</i>	<i>value</i>	<i>unit</i>	<i>test method</i>	<i>comment</i>
Water absorption	24 h in water, 23 °C	0.82	%	DIN EN ISO 62	(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.
Flammability (UL94)	corresponding to	V0		DIN IEC 60695-11-10;	1)

→ TECASINT 5000 series show significant water uptake. Parts have to be pre-dried before fast heating to above 200 °C (drying process: 2 h per 3 mm wall thickness at 150 °C).

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