

TECASINT 1011 natural - Stock Shapes

Chemical Designation

PI (Polyimide)

Colour

black

Density

1.34 g/cm³

Main features

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

Target Industries

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

Mechanical properties	parameter	value	unit	norm	comment
Modulus of elasticity (tensile test)	1 mm/min, 23°C	3600	MPa	DIN EN ISO 527-1	
Tensile strength	50 mm/min, 23°C	116	MPa	DIN EN ISO 527-1	
Elongation at break	50 mm/min, 23°C	3,8	%	DIN EN ISO 527-1	
Elongation at break	10 mm/min, 23°C	6	%	DIN EN ISO 178	
Flexural strength	10 mm/min, 23°C	170	MPa	DIN EN ISO 178	
Modulus of elasticity (flexural test)	2 mm/min, 23°C	3700	MPa	DIN EN ISO 178	
Compression strength	10 mm/min, 23°C	500	MPa	EN ISO 604	
Compression strength	10mm/min, 10% strain, 23°C	190	MPa	EN ISO 604	
Compressive strain at break	10 mm/min, 23°C	45	%	EN ISO 604	
Compression modulus	1 mm/min, 23°C	2000	MPa	EN ISO 604	
Impact strength (Charpy)	max 7.5 J, 23°C	75.8	kJ/m ²	DIN EN ISO 179-1eU	
Notched impact strength (Charpy)	max 7.5 J, 23°C	5	kJ/m ²	DIN EN ISO 179-1eA	
Shore hardness	Shore D, 23°C	90	D	DIN 53505	
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		368	°C	-	1) (1) DMA, maximum loss factor tan δ
Heat distortion temperature	1.85 MPa	368	°C	DIN 53 461	(2) Found in public sources. Individual testing regarding application conditions is mandatory.
Service temperature	long-term	-	°C	-	2)
Thermal expansion (CLTE)	50-200°C	4.3 / 4.3	10 ⁻⁵ K ⁻¹	DIN 53 752	3) Thermal expansion XY/Z axis
Thermal expansion (CLTE)	200-300°C	5.3 / 5.3	10 ⁻⁵ K ⁻¹	DIN 53 752	4) Thermal expansion XY/Z axis
Specific heat		1.04	J/(g*K)	-	
Thermal conductivity	40°C	0.22	W/(K*m)	ISO 8302	
Electrical properties	parameter	value	unit	norm	comment
Specific surface resistance	23°C	10 ¹⁶	Ω	DIN IEC 60093	
Specific volume resistance	23°C	10 ¹⁷	Ω*cm	DIN IEC 60093	
Electric strength DC	23°C	20	kV*mm ⁻¹	ISO 60243-1	
Dielectric loss factor	50 Hz, 23°C	1*10 ⁻³		DIN 53483-1	
Dielectric loss factor	27 MHz, 23°C	3*10 ⁻³		DIN 53483-1	
Dielectric constant	50 Hz, 23°C	3.5		DIN IEC 60250	
Dielectric constant	27 MHz, 23°C	3.1		DIN IEC 60250	
Other properties	parameter	value	unit	norm	comment
Water absorption	24 h in water, 23°C	1.08	%	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.
Water absorption	24 h in water, 80°C	3.29	%	DIN EN ISO 62	
Flammability (UL94)	corresponding to	V0		DIN IEC 60695-11-10;	1)

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