

TECASINT 4011 natural - Stock Shapes (rods, plates, tubes)

Chemical Designation

PI (Polyimide)

Colour

yellow

Density

1.42 g/cm³

Main features

- very high thermal and oxidative resistance
- very low water absorption
- high thermal and mechanical capacity
- high creep resistance
- low outgassing
- good chemical resistance
- resistance against high energy radiation
- sensitive to hydrolysis in higher thermal range

Target Industries

- mechanical engineering
- precision engineering
- electronics
- electrical engineering
- conveyor technology
- semiconductor technology

Mechanical properties

parameter	value	unit	norm	comment
Tensile strength	50 mm/min	130	MPa	DIN EN ISO 527-1
Modulus of elasticity (tensile test)	1 mm/min	4300	MPa	DIN EN ISO 527-1
Elongation at break (tensile test)	50 mm/min	4.5	%	DIN EN ISO 527-1
Flexural strength	10 mm/min	180	MPa	DIN EN ISO 178
Modulus of elasticity (flexural test)	2 mm/min	4000	MPa	DIN EN ISO 178
Compression strength	10mm/min, 10% strain	185	MPa	EN ISO 604
Compression modulus	1 mm/min	4123	MPa	EN ISO 604
Impact strength (Charpy)	max 7.5 J	87	kJ/m ²	DIN EN ISO 179-1 1)
Notched impact strength (Charpy)	max 7.5 J	9.6	kJ/m ²	DIN EN ISO 179-1 2)
Shore hardness	Shore D	88		DIN EN ISO 868
Ball indentation hardness		265	MPa	ISO 2039-1 3)

Thermal properties

parameter	value	unit	norm	comment
Glass transition temperature	260	°C	DIN EN ISO 11357	
Heat distortion temperature	1.82 MPa	360	°C	ASTM D 648
Thermal expansion (CLTE)	50-200°C	4.6 / 5.6	10 ⁻⁵ K ⁻¹	DIN 53 752 1)
Thermal expansion (CLTE)	200-300°C	6.2 / 7.6	10 ⁻⁵ K ⁻¹	DIN 53 752 2)
Thermal expansion (CLTE)	300-350°C	8.5 / 11.2	10 ⁻⁵ K ⁻¹	DIN 53 752 3)
Specific heat	1.22	J/(g*K)	ASTM E1461	
Thermal conductivity	40°C	0.4	W/(K*m)	ASTM E1461

Electrical properties

parameter	value	unit	norm	comment
surface resistivity	23°C	10 ¹⁶	Ω	ASTM D 257
volume resistivity	23°C	10 ¹⁶	Ω*cm	ASTM D 257
Electric strength DC	23°C	18	kV*mm ⁻¹	ASTM D 149
Dielectric loss factor	1 kHz	1*10 ⁻³		ASTM D 150
Dielectric constant	1 kHz	3.59		ASTM D 150

Other properties

parameter	value	unit	norm	comment
Water absorption	24 h in water, 23°C	0.16	%	DIN EN ISO 62
Water absorption	24 h in water, 80°C	0.6	%	DIN EN ISO 62
Outgassing in high vacuum		passed		ECSS-Q-70-02
Flammability (UL94)	corresponding to	V0		DIN IEC 60695-11-10; 1)
Oxygen Index	49	%		EN ISO 4589-2

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