

TECASINT 2021 - Stock Shapes

Chemical Designation

PI (Polyimide)

Colour

black

Density

1.45 g/cm³

Fillers

15% graphite

Main features

- very good slide and wear properties
- very good thermal stability
- high thermal and mechanical capacity
- good wear resistance
- resistance against high energy radiation
- high creep resistance
- good chemical resistance
- sensitive to hydrolysis in higher thermal range

Target Industries

- automotive industry
- aircraft and aerospace technology
- cryogenic engineering
- conveyor technology
- hot glass technology
- mechanical engineering
- precision engineering

Mechanical properties	parameter	value	unit	norm	comment	
Modulus of elasticity (tensile test)	1 mm/min, 23°C	4400	MPa	DIN EN ISO 527-1		
Tensile strength	50 mm/min, 23°C	101	MPa	DIN EN ISO 527-1		
Elongation at break	50 mm/min, 23°C	3.7	%	DIN EN ISO 527-1		
Elongation at break	10 mm/min, 23°C	4.6	%	DIN EN ISO 178		
Flexural strength	10 mm/min, 23°C	145	MPa	DIN EN ISO 178		
Modulus of elasticity (flexural test)	2 mm/min, 23°C	4300	MPa	DIN EN ISO 178		
Compression strength	10 mm/min, 23°C	300	MPa	EN ISO 604		
Compression strength	10mm/min, 10% strain, 23°C	160	MPa	EN ISO 604		
Compression modulus	1 mm/min, 23°C	1900	MPa	EN ISO 604		
Compressive strain at break	10 mm/min, 23°C	43	%	EN ISO 604		
Impact strength (Charpy)	max 7.5 J, 23°C	36.7	kJ/m ²	DIN EN ISO 179-1eU		
Notched impact strength (Charpy)	max 7.5 J, 23°C	2.9	kJ/m ²	DIN EN ISO 179-1eA		
Shore hardness	Shore D, 23°C	87	D	DIN 53505		
Thermal properties	parameter	value	unit	norm	comment	
Glass transition temperature		370	°C	-	1)	(1) DMA, maximum loss factor tan d
Heat distortion temperature	1.8 MPa	335	°C	DIN 53 461	2)	(2) Found in public sources. Individual testing regarding application conditions is mandatory.
Service temperature	long-term	-	°C	-	2)	(2) Found in public sources. Individual testing regarding application conditions is mandatory.
Thermal expansion (CLTE)	50-200°C	3.8 / 4.5	10 ⁻⁵ K ⁻¹	DIN 53 752	3)	(3) Thermal expansion XY/Z axis
Thermal expansion (CLTE)	200-300°C	4.6 / 5.4	10 ⁻⁵ K ⁻¹	DIN 53 752	4)	(4) Thermal expansion XY/Z axis
Other properties	parameter	value	unit	norm	comment	
Water absorption	24 h in water, 23°C	0.44	%	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	1.55	%	DIN EN ISO 62		
Flammability (UL94)	corresponding to	V0		DIN IEC 60695-11-10;	1)	

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