TECASINT 4121 black - Stock Shapes (rods, plates, tubes)

Chemical Designation
PI (Polyimide)

Colour
anthracite

Density
1.53 g/cm^3

Fillers
15% graphite

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

Target Industries
- automotive industry
- conveyor technology
- hot glass technology
- mechanical engineering
- precision engineering

Mechanical properties	condition	value	unit	test method		comment
Tensile strength	50 mm/min	93	MPa	DIN EN ISO 527-1		(1) eU (2) eA
Modulus of elasticity (tensile test)	1 mm/min	6600	MPa	DIN EN ISO 527-1		
Elongation at break (tensile test)	50 mm/min	1,6	%	DIN EN ISO 527-1		
Flexural strength	10 mm/min	113	MPa	DIN EN ISO 178		
Modulus of elasticity (flexural test)	2 mm/min	6100	MPa	DIN EN ISO 178		
Elongation at break (flexural test)	10 mm/min	1.8	%	DIN EN ISO 178		
Compression strength	10 mm/min	200	MPa	EN ISO 604		
Compression strength	10mm/min, 10% strain	183	MPa	EN ISO 604		
Compressive strain at break	10 mm/min	15	%	EN ISO 604		
Compression modulus	1 mm/min	2200	MPa	EN ISO 604		
Impact strength (Charpy)	max 7.5 J	11	kJ/m^2	DIN EN ISO 179-1	1)	
Notched impact strength (Charpy)	max 7.5 J	1.4	kJ/m^2	DIN EN ISO 179-1	2)	
Shore hardness	Shore D	87		DIN EN ISO 868		

Thermal properties	condition	value	unit	test method		comment
Glass transition temperature		n.a.	°C	DIN EN ISO 11357		(1) Thermal expansion XY/Z axis (2) Thermal expansion XY/Z axis (3) Thermal expansion XY/Z axis
Thermal expansion (CLTE)	50-200°C	3.3 / 5.0	10^{-5} K^{-1}	DIN 53 752	1)	
Thermal expansion (CLTE)	200-300°C	4.2 / 6.6	10^{-5} K^{-1}	DIN 53 752	2)	
Thermal expansion (CLTE)	300-400°C	6.0 / 9.7	10^{-5} K^{-1}	DIN 53 752	3)	

Other properties	condition	value	unit	test method		comment
Water absorption	24 h in water, 23°C	0.08	%	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	0.38	%	DIN EN ISO 62		
Flammability (UL94)	corresponding to	V0		DIN IEC 60695-11-10;	1)	

Our information and statements reflect the current state of our knowledge and shall inform about our products and their applications. They do not assure or guarantee chemical resistance, quality of products and their merchantability in a legally binding way. Our products are not defined for use in medical or dental implants. Existing commercial patents have to be observed. The corresponding values and information are no minimum or maximum values, but guideline values that can be used primarily for comparison purposes for material selection. These values are within the normal tolerance range of product properties and do not represent guaranteed property values. Therefore they shall not be used for specification purposes. Unless otherwise noted, these values were determined by tests at reference dimensions and machined specimen. As the properties depend on the dimensions of the semi-finished products and the orientation in the component (esp. in reinforced grades), the material may not be used without a separate testing under individual circumstances. The customer is solely responsible for the quality and suitability of products for the application and has to test usage and processing prior to use. Data sheet values are subject to periodic review, the most recent update can be found at www.ensingerplastics.com. Technical changes reserved.

Ensinger Inc. Headquarters 365 Meadowlands Boulevard Washington, PA 15301, USA

Phone 800-243-3221 Sales Phone 800-869-4029
Technical Fax 724-746-9209
sales@ensingerusa.com

Date: 2023/04/21

Version: AD