TECASINT 2021 black - Stock Shapes (rods, plates, tubes)

Chemical Designation
PI (Polyimide)

Colour
black

Density
1.45 g/cm^3

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
Tensile strength	50 mm/min, 23°C	101	MPa	DIN EN ISO 527-1		(1) eU (2) eA (3) Ensinger Standard
Modulus of elasticity (tensile test)	1 mm/min, 23°C	4400	MPa	DIN EN ISO 527-1		
Elongation at break (tensile test)	50 mm/min, 23°C	4.5	%	DIN EN ISO 527-1		
Elongation at break (tensile test)	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	4000	MPa	DIN EN ISO 178		
Compression strength	10 mm/min, 23°C	280	MPa	EN ISO 604		
Compression strength	10mm/min, 10% strain, 23°C	160	MPa	EN ISO 604		
Compressive strain at break	10 mm/min, 23°C	43	%	EN ISO 604		
Compression modulus	1 mm/min, 23°C	1900	MPa	EN ISO 604		
Impact strength (Charpy)	max 7.5 J, 23°C	36.7	kJ/m^2	DIN EN ISO 179-1	1)	
Notched impact strength (Charpy)	max 7.5 J, 23°C	2.9	kJ/m^2	DIN EN ISO 179-1	2)	
Shore hardness	Shore D, 23°C	87		-	3)	

Thermal properties	parameter	value	unit	norm		comment
Glass transition temperature		357	°C	-	1)	(1) DMA, maximum loss factor tan d (2) Thermal expansion XY/Z axis (3) Thermal expansion XY/Z axis
Heat distortion temperature	1.8 MPa	335	°C	DIN 53 461		
Thermal expansion (CLTE)	50-200°C	3.8 / 4.5	10^{-5} K^{-1}	DIN 53 752	2)	
Thermal expansion (CLTE)	200-300°C	4.6 / 5.4	10^{-5} K^{-1}	DIN 53 752	3)	

Other properties	parameter	value	unit	norm		comment
Water absorption	24 h in water, 23°C	0.61	%	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	1.69	%	DIN EN ISO 62		
Flammability (UL94)	corresponding to	V0		DIN IEC 60695-11-10;	1)	

- TECASINT 2000 series shows 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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