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

Mechanical properties	*condition*	*value*	*unit*	*test method*		*comment*
Tensile strength	0.40 inch/min	99	MPa	ASTM D 638		(1) eU (2) eA
Modulus of elasticity (tensile test)	0.04 inch/min	4392	MPa	ASTM D 638		
Elongation at break (tensile test)	0.40 inch/min	5.0	%	ASTM D 638		
Flexural strength	0.05 inch/min	150	MPa	ASTM D 790		
Modulus of elasticity (flexural test)	0.05 inch/min	4249	MPa	ASTM D 790		
Elongation at break (flexural test)	0.05 inch/min	4.9	%	ASTM D 790		
Compression strength	0.05 inch/min, 10% strain	165	MPa	ASTM D 695		
Compression modulus	0.05 inch/min	4239	MPa	ASTM D 695		
Impact strength (Charpy)	max 7.5 J	36.7	kJ/m^2	DIN EN ISO 179-1	1)	
Notched impact strength (Charpy)	max 7.5 J	2.9	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		675	°F	-	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	635	°F	DIN 53 461		
Thermal expansion (CLTE)	122-392°F	38 / 45	10^{-6} K^{-1}	DIN 53 752	2)	
Thermal expansion (CLTE)	392-572°F	46 / 54	10^{-6} K^{-1}	DIN 53 752	3)	

Other properties	*condition*	*value*	*unit*	*test method*		*comment*
Water absorption	24 h in water, 73°F	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, 176°F	1.69	%	DIN EN ISO 62		
Flammability (UL94)	corresponding to	V0		DIN IEC 60695-11-10;	1)	

- TECASINT 2000 series show 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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