TECASINT 5051 grey-green - Stock Shapes (rods, plates, tubes)

Chemical Designation
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Colour
dark brown

Density
1.56 g/cm^3

Fillers
glass fibres

Main features
- high thermal and mechanical capacity
- very good electrical insulation
- good wear properties
- low thermal expansion
- resistance against high energy radiation
- high creep resistance
- good chemical resistance
- sensitive to hydrolysis in higher thermal range

Target Industries
- semiconductor technology
- electronics
- mechanical engineering
- cryogenic engineering

Mechanical properties	*condition*	*value*	*unit*	*test method*		*comment*
Tensile strength	50 mm/min	110	MPa	DIN EN ISO 527-1		(1) eU
Modulus of elasticity (tensile test)	1 mm/min	6500	MPa	DIN EN ISO 527-1		
Elongation at break (tensile test)	50 mm/min	2.2	%	DIN EN ISO 527-1		
Flexural strength	10 mm/min	162	MPa	DIN EN ISO 178		
Modulus of elasticity (flexural test)	2 mm/min	6600	MPa	DIN EN ISO 178		
Elongation at break (flexural test)	10 mm/min	2.6	%	DIN EN ISO 178		
Compression strength	10 mm/min	260	MPa	EN ISO 604		
Compressive strain at break	10 mm/min	20	%	EN ISO 604		
Compression modulus	1 mm/min	3000	MPa	EN ISO 604		
Impact strength (Charpy)	max 7.5 J	20	kJ/m^2	DIN EN ISO 179-1	1)	
Shore hardness	Shore D	92		DIN EN ISO 868		

Thermal properties	*condition*	*value*	*unit*	*test method*		*comment*
Glass transition temperature		330	°C	-	1)	(1) DMA, maximum loss factor tan d (2) Thermal expansion XY/Z axis (3) Thermal expansion XY/Z axis (4) Thermal expansion XY/Z axis
Heat distortion temperature	1,8 MPa	344	°C	DIN 53 461		
Thermal expansion (CLTE)	23-100°C	2.8 / -	10^{-5} K^{-1}	DIN EN ISO 11359-1;2	2)	
Thermal expansion (CLTE)	100-150°C	2.8 / -	10^{-5} K^{-1}	DIN EN ISO 11359-1;2	3)	
Thermal expansion (CLTE)	50-200°C	2.8 / -	10^{-5} K^{-1}	DIN EN ISO 11359-1;2	4)	
Specific heat		1.04	J/(g*K)	DIN EN 821		
Thermal conductivity	40°C	0.3	W/(K*m)	DIN EN 821		

Electrical properties	*condition*	*value*	*unit*	*test method*		*comment*
surface resistivity	23°C	> 10^{14}	Ω	DIN EN 61340-2-3		
volume resistivity	23°C	> 10^{14}	Ω*cm	DIN EN 61340-2-3		
Electric strength DC		24	kV*mm^{-1}	ISO 60243-1		
Dielectric loss factor	50 Hz	3.2*10^{-2}		DIN 53483-1		
Dielectric loss factor	1 kHz	2.2*10^{-3}		DIN 53483-1		
Dielectric loss factor	1 MHz	1.1*10^{-2}		DIN 53483-1		
Dielectric constant	50 Hz	3.0		DIN 53483-1		
Dielectric constant	1 kHz	2.9		DIN 53483-1		
Dielectric constant	1 MHz	2.9		DIN 53483-1		

Other properties	*condition*	*value*	*unit*	*test method*		*comment*
Water absorption	24 h in water, 23°C	0.48	%	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.
Flammability (UL94)	corresponding to	V0		DIN IEC 60695-11-10;	1)	

- TECASINT 5000 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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