

TECANAT® GF20 natural - Stock Shapes (rods, plates, tubes)

Chemical Designation

PC (Polycarbonate)

Colour

blue grey opaque

Density

1.33 g/cm³

Fillers

glass fibres

Main features

- high toughness
- good thermal stability
- very high stiffness
- good tensile strength

Target Industries

- aircraft and aerospace technology
- automotive industry
- fixture construction
- electrical engineering
- mechanical engineering

Mechanical properties	condition	value	unit	test method	comment
Modulus of elasticity (tensile test)	@ 73 °F	700,000	psi	ASTM D 638	(1) Data obtained from public source
Tensile strength at yield	@ 73 °F	11,000	psi	ASTM D 638	(2) Injection molded data
Elongation at break (tensile test)	@ 73 °F	3	%	ASTM D 638	(3) Injection molded data
Flexural strength	@ 73 °F	16,700	psi	ASTM D 790	(4) Injection molded data
Modulus of elasticity (flexural test)	@ 73 °F	600,000	psi	ASTM D 790	
Compression strength	@ 73 °F, 1% strain	2,000	psi	ASTM D 695	
Compression strength	@ 73 °F, 10% strain	15,000	psi	ASTM D 695	
Compression modulus	@ 73 °F	319,000	psi	ASTM D 695	
Impact strength (Izod)	@ 73 °F	2.06	ft-lbs/in	-	1)
Rockwell hardness	@ 73 °F M Scale	87		ASTM D 785	2)
Coefficient of friction	Dynamic, 40 psi, 50 fpm	0.22		ASTM D 3702	3)
Wear (K) factor	Against Steel, 40 psi, 50 fpm	120*10 ⁻¹⁰	in ³ -min/ft-lbs-hr	ASTM D 3702	4)
Thermal properties	condition	value	unit	test method	comment
Vicat softening point		329	°F	ASTM D 1525	1)
Deflection temperature	@264 psi	295	°F	ASTM D 648	(1) Injection molded data
Deflection temperature	@ 66 psi	298	°F	ASTM D 648	(2) Injection molded data
Service temperature	Intermittent	275	°F	-	(3) Injection molded data
Service temperature	Long Term	266	°F	-	(4) per UL746B
Thermal expansion (CLTE)	-40 F to 203 F	1.5	*10 ⁻⁵ in/in/°F	ASTM E 831	(5) Injection molded data
Electrical properties	condition	value	unit	test method	comment
volume resistance		1.0*10 ¹⁷	Ω*cm	ASTM D 257	1)
Dielectric strength		490	V/mil	ASTM D 149	(1) Injection molded data
Dissipation factor	@ 60 Hz, 73 °F	0.0009		ASTM D 150	(2) Injection molded data
Dielectric constant	@ 60 Hz, 73 °F, 50% RH	3.17	%	ASTM D 150	(3) Injection molded data
Dielectric constant	1 MHz	3.13	%	ASTM D 150	(4) Injection molded data
					(5) Injection molded data
Other properties	condition	value	unit	test method	comment
Moisture absorption	@ saturation, 73 °F	0.29	%	ASTM D 570	1)
Moisture absorption	@ 24 hrs, 73 °F	0.07	%	ASTM D 570	(1) Injection molded data
Flammability (UL94)		V0		-	(2) Injection molded data
					(3) @ 3.0mm thickness
					Injection molded data

→ Resin specification:
ASTM D 3935-09 PC0120G20A33230
Shapes specification:
ASTM D6098-10 S-PC0100G2010000000

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