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

Chemical Designation
PC (Polycarbonate)

Colour
transparent

Density
1.19 g/cm^3

Main features
- high toughness
- electrically insulating
- good machinability
- easy to polish
- good heat deflection temperature
- sensitive to stress cracking
- good weldable and bondable

Target Industries
- mechanical engineering
- electronics
- food technology
- automotive industry

Mechanical properties	parameter	value	unit	norm		comment
Tensile strength	50mm/min	69	MPa	DIN EN ISO 527-2		(1) For tensile test: specimen type 1b (2) For flexural test: support span 64mm, norm specimen. (3) Specimen 10x10x10mm (4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression. (5) For Charpy test: support span 64mm, norm specimen. n.b. = not broken
Modulus of elasticity (tensile test)	1mm/min	2200	MPa	DIN EN ISO 527-2	1)	
Tensile strength at yield	50mm/min	69	MPa	DIN EN ISO 527-2		
Elongation at yield (tensile test)	50mm/min	6	%	DIN EN ISO 527-2		
Elongation at break (tensile test)	50mm/min	90	%	DIN EN ISO 527-2		
Flexural strength	2mm/min, 10 N	97	MPa	DIN EN ISO 178	2)	
Modulus of elasticity (flexural test)	2mm/min, 10 N	2300	MPa	DIN EN ISO 178		
Compression strength	1% / 2% / 5% 5mm/min, 10 N	16/29/64	MPa	EN ISO 604	3)	
Compression modulus	5mm/min, 10 N	2000	MPa	EN ISO 604	4)	
Impact strength (Charpy)	max. 7,5J	n.b.	kJ/m^2	DIN EN ISO 179-1eU	5)	
Notched impact strength (Charpy)	max. 7,5J	14	kJ/m^2	DIN EN ISO 179-1eA		
Shore hardness	D	82		DIN EN ISO 868		

Thermal properties	parameter	value	unit	norm		comment
Glass transition temperature		149	°C	DIN EN ISO 11357	1)	(1) Found in public sources. (2) n.a. = not applicable (3) Found in public sources. Individual testing regarding application conditions is mandatory.
Melting temperature		n.a.	°C	DIN EN ISO 11357	2)	
Service temperature	short term	140	°C		3)	
Service temperature	long term	120	°C			
Thermal expansion (CLTE)	23-60°C, long.	8	10^{-5} K^{-1}	DIN EN ISO 11359-1;2		
Thermal expansion (CLTE)	23-100°C, long.	8	10^{-5} K^{-1}	DIN EN ISO 11359-1;2		
Specific heat		1.3	J/(g*K)	ISO 22007-4:2008		
Thermal conductivity		0.25	W/(K*m)	ISO 22007-4:2008		

Electrical properties	parameter	value	unit	norm		comment
surface resistivity		10^{14}	Ω	-		
volume resistivity		10^{14}	Ω*cm	-		

Other properties	parameter	value	unit	norm		comment
Water absorption	24h / 96h (23°C)	0.03 / 0.06	%	DIN EN ISO 62	1)	(1) Ø ca. 50mm, h=13mm (2) - poor resistance (3) (+) limited resistance
Resistance to hot water/ bases		-		-	2)	
Resistance to weathering		(+)		-	3)	
Flammability (UL94)	listed (value at 0.4 and 1.5 mm)	HB		DIN IEC 60695-11-10;		

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