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

Chemical Designation
PPS (Polyphenylensulfide)

Colour
beige opaque

Density
1.36 g/cm^3

Main features
- good heat deflection temperature
- good chemical resistance
- resistance against high energy radiation
- high strength
- high dimensional stability
- high stiffness
- high creep resistance

Target Industries
- aircraft and aerospace technology
- electronics
- mechanical engineering
- oil and gas industry
- semiconductor technology
- vacuum technology
- chemical technology

Mechanical properties	*parameter*	*value*	*unit*	*norm*		*comment*
Tensile strength	50mm/min	103	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.
Modulus of elasticity (tensile test)	1mm/min	4100	MPa	DIN EN ISO 527-2	1)	
Tensile strength at yield	50mm/min	103	MPa	DIN EN ISO 527-2		
Elongation at yield (tensile test)	50mm/min	6,5	%	DIN EN ISO 527-2		
Elongation at break (tensile test)	50mm/min	6,5	%	DIN EN ISO 527-2		
Flexural strength	2mm/min, 10 N	166	MPa	DIN EN ISO 178	2)	
Modulus of elasticity (flexural test)	2mm/min, 10 N	3800	MPa	DIN EN ISO 178		
Compression strength	1% / 2% / 5% 5mm/min, 10 N	27/56/134	MPa	EN ISO 604	3)	
Compression modulus	5mm/min, 10 N	2860	MPa	EN ISO 604	4)	
Impact strength (Charpy)	max. 7,5J	80	kJ/m^2	DIN EN ISO 179-1eU	5)	
Notched impact strength (Charpy)	max. 7,5J	2,6	kJ/m^2	DIN EN ISO 179-1eA		
Shore hardness	D	87		DIN EN ISO 868		

Thermal properties	*parameter*	*value*	*unit*	*norm*		*comment*
Glass transition temperature		97	°C	DIN EN ISO 11357	1)	(1) Found in public sources. (2) Found in public sources. Individual testing regarding application conditions is mandatory.
Melting temperature		281	°C	DIN EN ISO 11357		
Service temperature	short term	260	°C		2)	
Service temperature	long term	230	°C			
Thermal expansion (CLTE)	23-60°C, long.	5	10^{-5} K^{-1}	DIN EN ISO 11359-1;2		
Thermal expansion (CLTE)	23-100°C, long.	6	10^{-5} K^{-1}	DIN EN ISO 11359-1;2		
Thermal expansion (CLTE)	100-150°C, long.	11	10^{-5} K^{-1}	DIN EN ISO 11359-1;2		
Specific heat		1.0	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	DIN IEC 60093		(1) Specimen in 1.6mm thickness based on raw material data (2) based on raw material data
volume resistivity		10^{14}	Ω*cm	DIN IEC 60093		
Dielectric strength		24	kV/mm	ASTM D 149	1)	
Resistance to tracking (CTI)		150		IEC 60112	2)	

Other properties	*parameter*	*value*	*unit*	*norm*		*comment*
Water absorption	24h / 96h (23°C)	<0.01 / 0.01	%	DIN EN ISO 62	1)	(1) Ø ca. 50mm, h=13mm (2) + good resistance (3) - poor resistance (4) 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.
Resistance to hot water/ bases		+		-	2)	
Resistance to weathering		-		-	3)	
Flammability (UL94)	corresponding to	V0		DIN IEC 60695-11-10;	4)	

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