TECATRON GF40 black - Stock Shapes (rods, plates, tubes)

Chemical Designation
PPS (Polyphenylensulfide)

Colour
black opaque

Density
1.63 g/cm^3

Fillers
glass fibres

Main features
- good heat deflection temperature
- high dimensional stability
- very good chemical resistance
- inherent flame retardant
- hydrolysis and superheated steam resistant
- high stiffness
- high creep resistance
- resistance against high energy radiation

Target Industries
- mechanical engineering
- aircraft and aerospace technology
- chemical technology
- energy industry
- oil and gas industry

Mechanical properties	parameter	value	unit	norm		comment
Tensile strength	50mm/min	83	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. (6) Specimen in 4mm thickness
Modulus of elasticity (tensile test)	1mm/min	6500	MPa	DIN EN ISO 527-2	1)	
Tensile strength at yield	50mm/min	83	MPa	DIN EN ISO 527-2		
Elongation at yield (tensile test)	50mm/min	2	%	DIN EN ISO 527-2		
Elongation at break (tensile test)	50mm/min	2	%	DIN EN ISO 527-2		
Flexural strength	2mm/min, 10 N	145	MPa	DIN EN ISO 178	2)	
Modulus of elasticity (flexural test)	2mm/min, 10 N	6600	MPa	DIN EN ISO 178		
Compression strength	1% / 2% / 5% 5mm/min, 10 N	21/41/105	MPa	EN ISO 604	3)	
Compression modulus	5mm/min, 10 N	4600	MPa	EN ISO 604	4)	
Impact strength (Charpy)	max. 7,5J	24	kJ/m^2	DIN EN ISO 179-1eU	5)	
Ball indentation hardness		343	MPa	ISO 2039-1	6)	

Thermal properties	parameter	value	unit	norm		comment
Glass transition temperature		93	°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		280	°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.	4	10^{-5} K^{-1}	DIN EN ISO 11359-1;2		
Thermal expansion (CLTE)	23-100°C, long.	5	10^{-5} K^{-1}	DIN EN ISO 11359-1;2		
Thermal expansion (CLTE)	100-150°C, long.	10	10^{-5} K^{-1}	DIN EN ISO 11359-1;2		
Specific heat		0.9	J/(g*K)	ISO 22007-4:2008		
Thermal conductivity		0.33	W/(K*m)	ISO 22007-4:2008		

Electrical properties	parameter	value	unit	norm		comment
surface resistivity	Silver electrode, 23°C, 12% r.h.	10^{14}	Ω	DIN IEC 60093	1)	(1) Specimen in 20mm thickness (2) Due to the black colourant and moisture uptake of the material the electrical insulation properties cannot be 100% guaranteed, despite single measurements suggesting otherwise. (3) Specimen in 1mm thickness
volume resistivity	Silver electrode, 23°C, 12% r.h.	10^{14}	Ω*cm	DIN IEC 60093	2)	
Dielectric strength	23°C, 50% r.h.	32	kV/mm	ISO 60243-1	3)	
Resistance to tracking (CTI)	Platin electrode, 23°C, 50% r.h., solvent A	125	V	DIN EN 60112		

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) (+) limited 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)	