

# TECATRON GF40 black - Stock Shapes

## Chemical Designation

PPS (Polyphenylensulfide)

## Colour

black opaque

## Density

1.63 g/cm<sup>3</sup>

## 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
Modulus of elasticity (tensile test)	1mm/min	6500	MPa	DIN EN ISO 527-2	1) (1) For tensile test: specimen type 1b
Tensile strength	50mm/min	83	MPa	DIN EN ISO 527-2	(2) For flexural test: support span 64mm, norm specimen.
Tensile strength at yield	50mm/min	83	MPa	DIN EN ISO 527-2	(3) Specimen 10x10x10mm
Elongation at yield	50mm/min	2	%	DIN EN ISO 527-2	(4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression.
Elongation at break	50mm/min	2	%	DIN EN ISO 527-2	(5) For Charpy test: support span 64mm, norm specimen.
Flexural strength	2mm/min, 10 N	145	MPa	DIN EN ISO 178	(2) (6) Specimen in 4mm thickness
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 <sup>2</sup>	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.
Melting temperature		280	°C	DIN EN ISO 11357	(2) Found in public sources.
Service temperature	short term	260	°C		2) Individual testing regarding application conditions is mandatory.
Service temperature	long term	230	°C		
Thermal expansion (CLTE)	23-60°C, long.	4	10 <sup>-5</sup> K <sup>-1</sup>	DIN EN ISO 11359-1;2	
Thermal expansion (CLTE)	23-100°C, long.	5	10 <sup>-5</sup> K <sup>-1</sup>	DIN EN ISO 11359-1;2	
Thermal expansion (CLTE)	100-150°C, long.	10	10 <sup>-5</sup> K <sup>-1</sup>	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
Specific surface resistance	Silver electrode, 23°C, 12% r.h.	10 <sup>14</sup>	Ω	DIN IEC 60093	1) (1) Specimen in 20mm thickness
Specific volume resistance	Silver electrode, 23°C, 12% r.h.	10 <sup>14</sup>	Ω*cm	DIN IEC 60093	2) (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.
Dielectric strength	23°C, 50% r.h.	32	kV/mm	ISO 60243-1	3) (3) Specimen in 1mm thickness
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
Resistance to hot water/ bases		+	-		2) (2) + good resistance
Resistance to weathering		(+)	-		3) (3) (+) limited resistance
Flammability (UL94)	corresponding to	V0		DIN IEC 60695-11-10;	4) (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.

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