

Chemical Designation

PPSU (Polyphenylsulfone)

Colour

black opaque

Density

1.31 g/cm³

Main features

- high thermal and mechanical capacity
- good heat deflection temperature
- hydrolysis and superheated steam resistant
- good impact strength
- high stiffness
- high strength
- good chemical resistance
- high gamma radiation resistance

Target Industries

- medical technology
- mechanical engineering
- vacuum technology
- automotive industry

Mechanical properties	parameter	value	unit	norm	comment
Tensile strength	50mm/min	81	MPa	DIN EN ISO 527-2	(1) For tensile test: specimen type 1b
Modulus of elasticity (tensile test)	1mm/min	2300	MPa	DIN EN ISO 527-2	1) (2) For flexural test: support span 64mm, norm specimen.
Tensile strength at yield	50mm/min	81	MPa	DIN EN ISO 527-2	(3) Specimen 10x10x10mm
Elongation at yield (tensile test)	50mm/min	7	%	DIN EN ISO 527-2	(4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression.
Elongation at break (tensile test)	50mm/min	> 50	%	DIN EN ISO 527-2	(5) For Charpy test: support span 64mm, norm specimen. n.b. = not broken
Flexural strength	2mm/min, 10 N	107	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	18/30/66	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	13	kJ/m ²	DIN EN ISO 179-1eA	
Shore hardness	D	84		DIN EN ISO 868	
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		218	°C	DIN EN ISO 11357	1) (1) Found in public sources.
Melting temperature		n.a.	°C	DIN EN ISO 11357	2) (2) n.a. = not applicable
Service temperature	short term	190	°C		3) (3) Found in public sources.
Service temperature	long term	170	°C		Individual testing regarding application conditions is mandatory.
Thermal expansion (CLTE)	23-60°C, long.	6	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	
Specific heat		1.1	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	Silver electrode, 23°C, 12% r.h.	10 ¹⁴	Ω	-	1) (1) Specimen in 20mm thickness
volume resistivity	Silver electrode, 23°C, 12% r.h.	10 ¹⁴	Ω*cm	-	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.	76	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)	0.1 / 0.2	%	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)	listed (value at 0.79mm)	V0		DIN IEC 60695-11-10;	

