

SUPPLY SERVICES

performance engineering products

Ensinger 

TECASON P MT black - Stock Shapes

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
Modulus of elasticity (tensile test)	1mm/min	2300	MPa	DIN EN ISO 527-2	1)
Tensile strength	50mm/min	81	MPa	DIN EN ISO 527-2	
Tensile strength at yield	50mm/min	81	MPa	DIN EN ISO 527-2	
Elongation at yield	50mm/min	7	%	DIN EN ISO 527-2	
Elongation at break	50mm/min	> 50	%	DIN EN ISO 527-2	
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	
Ball indentation hardness		143	MPa	ISO 2039-1	6)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		218	°C	DIN EN ISO 11357	1)
Melting temperature		n.a.	°C	DIN EN ISO 11357	2)
Service temperature	short term	190	°C		3)
Service temperature	long term	170	°C		
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
Specific surface resistance	Silver electrode, 23°C, 12% r.h.	10 ¹⁴	Ω	DIN IEC 60093	1)
Specific volume resistance	Silver electrode, 23°C, 12% r.h.	10 ¹⁴	Ω*cm	DIN IEC 60093	2)
Dielectric strength	23°C, 50% r.h.	76	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)	0.1 / 0.2	%	DIN EN ISO 62	1)
Resistance to hot water/ bases		+		-	2)
Resistance to weathering		(+)		-	3)
Flammability (UL94)	listed (value at 0.79mm)	V0		DIN IEC 60695-11-10;	

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TECASON P MT blue - Stock Shapes

Chemical Designation

PPSU (Polyphenylsulfone)

Colour

blue 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
- chemical technology
- electronics
- food technology
- mechanical engineering
- automotive industry

Mechanical properties	parameter	value	unit	norm	comment
Modulus of elasticity (tensile test)	1mm/min	2300	MPa	DIN EN ISO 527-2	1)
Tensile strength	50mm/min	81	MPa	DIN EN ISO 527-2	
Tensile strength at yield	50mm/min	81	MPa	DIN EN ISO 527-2	
Elongation at yield	50mm/min	7	%	DIN EN ISO 527-2	
Elongation at break	50mm/min	> 50	%	DIN EN ISO 527-2	
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	
Ball indentation hardness		143	MPa	ISO 2039-1	6)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		218	°C	DIN EN ISO 11357	1)
Melting temperature		n.a.	°C	DIN EN ISO 11357	2)
Service temperature	short term	190	°C		3)
Service temperature	long term	170	°C		
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
Specific surface resistance		10 ¹⁴	Ω	DIN IEC 60093	
Specific volume resistance		10 ¹⁴	Ω*cm	DIN IEC 60093	
Other properties	parameter	value	unit	norm	comment
Water absorption	24h / 96h (23°C)	0.1 / 0.2	%	DIN EN ISO 62	1)
Resistance to hot water/ bases		+	-	-	2)
Resistance to weathering		-	-	-	3)
Flammability (UL94)	listed (value at 0.79mm)	V0		DIN IEC 60695-11-10;	

TECASON P MT red - Stock Shapes

Chemical Designation
PPSU (Polyphenylsulfone)

Colour
red opaque

Density
1.31 g/cm³

Main features

- biocompatible
- good heat deflection temperature
- high strength
- high stiffness
- resistance against high energy radiation
- good chemical resistance
- good weldable and bondable
- hydrolysis and superheated steam resistant

Target Industries

- medical technology
- chemical technology
- electronics
- food technology
- mechanical engineering
- automotive industry

Mechanical properties	parameter	value	unit	norm	comment
Modulus of elasticity (tensile test)	1mm/min	2300	MPa	DIN EN ISO 527-2	1)
Tensile strength	50mm/min	81	MPa	DIN EN ISO 527-2	
Tensile strength at yield	50mm/min	81	MPa	DIN EN ISO 527-2	
Elongation at yield	50mm/min	7	%	DIN EN ISO 527-2	
Elongation at break	50mm/min	> 50	%	DIN EN ISO 527-2	
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	
Ball indentation hardness		143	MPa	ISO 2039-1	6)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		218	°C	DIN EN ISO 11357	1)
Melting temperature		n.a.	°C	DIN EN ISO 11357	2)
Service temperature	short term	190	°C		3)
Service temperature	long term	170	°C		
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
Specific surface resistance		10 ¹⁴	Ω	DIN IEC 60093	
Specific volume resistance		10 ¹⁴	Ω*cm	DIN IEC 60093	
Other properties	parameter	value	unit	norm	comment
Water absorption	24h / 96h (23°C)	0.1 / 0.2	%	DIN EN ISO 62	1)
Resistance to hot water/ bases		+	-	-	2)
Resistance to weathering		-	-	-	3)
Flammability (UL94)	listed (value at 0.79mm)	V0		DIN IEC 60695-11-10;	

TECASON P MT XRO black - Stock Shapes

Chemical Designation
PPSU (Polyphenylsulfone)

Colour
black opaque

Density
1.34 g/cm³

Fillers
barium sulfate

Main features
→ x-ray opaque
→ high thermal and mechanical capacity
→ hydrolysis and superheated steam resistant
→ good impact strength
→ high stiffness
→ high strength
→ good chemical resistance
→ high gamma radiation resistance

Target Industries
→ medical technology

Mechanical properties	parameter	value	unit	norm	comment
Modulus of elasticity (tensile test)	1mm/min	2600	MPa	DIN EN ISO 527-2	1)
Tensile strength	50mm/min	77	MPa	DIN EN ISO 527-2	
Tensile strength at yield	50mm/min	77	MPa	DIN EN ISO 527-2	
Elongation at yield	50mm/min	6	%	DIN EN ISO 527-2	
Elongation at break	50mm/min	> 50	%	DIN EN ISO 527-2	
Flexural strength	2mm/min, 10 N	107	MPa	DIN EN ISO 178	2)
Modulus of elasticity (flexural test)	2mm/min, 10 N	2400	MPa	DIN EN ISO 178	
Impact strength (Charpy)	max. 7.5J	n.b.	kJ/m ²	DIN EN ISO 179-1eU	3)
Notched impact strength (Charpy)	max. 7.5J	7	kJ/m ²	DIN EN ISO 179-1eA	
Ball indentation hardness		139	MPa	ISO 2039-1	4)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		218	°C	DIN EN ISO 11357	1)
Service temperature	short term	190	°C		2)
Service temperature	long term	170	°C		
Other properties	parameter	value	unit	norm	comment
Water absorption	24h / 96h (23°C)	0.1 / 0.2	%	DIN EN ISO 62	1)
Resistance to hot water/ bases		+	-		2)
Resistance to weathering		-	-		3)
Flammability (UL94)	corresponding to	V0		DIN IEC 60695-11-10;	4)

TECASON P MT XRO blue - Stock Shapes

Chemical Designation
PPSU (Polyphenylsulfone)

Colour
blue opaque

Density
1.35 g/cm³

Fillers
barium sulfate

Main features
→ x-ray opaque
→ high thermal and mechanical capacity
→ hydrolysis and superheated steam resistant
→ good impact strength
→ high stiffness
→ high strength
→ good chemical resistance
→ high gamma radiation resistance

Target Industries
→ medical technology

Mechanical properties	parameter	value	unit	norm	comment
Modulus of elasticity (tensile test)	1mm/min	2400	MPa	DIN EN ISO 527-2	1) (1) For tensile test: specimen type 1b
Tensile strength	50mm/min	79	MPa	DIN EN ISO 527-2	(2) For flexural test: support span 64mm, norm specimen.
Tensile strength at yield	50mm/min	79	MPa	DIN EN ISO 527-2	(3) For Charpy test: support span 64mm, norm specimen.
Elongation at yield	50mm/min	7	%	DIN EN ISO 527-2	n.b. = not broken
Elongation at break	50mm/min	> 50	%	DIN EN ISO 527-2	(4) Specimen in 4mm thickness
Flexural strength	2mm/min, 10 N	104	MPa	DIN EN ISO 178	2)
Modulus of elasticity (flexural test)	2mm/min, 10 N	2400	MPa	DIN EN ISO 178	
Impact strength (Charpy)	max. 7,5J	n.b.	kJ/m ²	DIN EN ISO 179-1eU	3)
Notched impact strength (Charpy)	max. 7,5J	12	kJ/m ²	DIN EN ISO 179-1eA	
Ball indentation hardness		129	MPa	ISO 2039-1	4)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		218	°C	DIN EN ISO 11357	1) (1) Found in public sources.
Service temperature	short term	190	°C		2) (2) Found in public sources.
Service temperature	long term	170	°C		Individual testing regarding application conditions is mandatory.
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) - poor 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.