

Physical properties PPSU LSG

Properties	Test methods	Units	Values
Colour	-	-	nature (ivory) black, blue, green, yellow, gray, brown, red, stainless
Density	ISO 1183-1	g/cm ³	1.29
Water absorption:			
- after 24/96 h immersion in water of 23°C	ISO 62	mg	25 / 54
	ISO 62	%	0.30 / 0.65
- at saturation in air of 23°C / 50% RH	-	%	0.5
- at saturation in water of 23°C	-	%	1.10
Thermal Properties			
Glass transition temperature (DSC, 20°C/min.)	ISO 11357-1/-2	°C	220
Thermal conductivity at 23°C	-	W/(K.m)	0.30
Coefficient of linear thermal expansion:			
- average value between 23 and 100°C	-	m/(m.K)	55 x 10 ⁻⁶
- average value between 23 and 150°C	-	m/(m.K)	55 x 10 ⁻⁶
- average value above 150°C	-	m/(m.K)	65 x 10 ⁻⁶
Temperature of deflection under load:			
- method A: 1.8 MPa	ISO 75-1/-2	°C	205
Max. allowable service temperature in air:			
- for short periods	-	°C	210
- continuously: for. min. 20'000 h	-	°C	180
Min. service temperature	-	°C	-50
Flammability:			
- „Oxygen Index“	ISO 4589-1/-2	%	38
- according to UL 94 (1.5 / 3 mm thickness)	-	-	V-0 / V-0
Mechanical Properties at 23°C			
Tension test:			
- tensile stress at yield	ISO 527-1/-2	MPa	80
- tensile strength	ISO 527-1/-2	MPa	80
- tensile strain at yield	ISO 527-1/-2	%	7.5
- tensile strain at break	ISO 527-1/-2	%	>50
- tensile modulus of elasticity	ISO 527-1/-2	MPa	2400
Compression test:			
- compressive stress at 1 / 2 / 5% nominal strain	ISO 604	MPa	20 / 39 / 80
Charpy impact strength - unnotched	ISO 179-1/1eU	kJ/m ²	no break
Charpy impact strength - notched	ISO 179-1/1eA	kJ/m ²	11
Ball indentation hardness	ISO 2039-1	N/mm ²	95
Rockwell hardness	ISO 2039-2	-	M 90
Electrical Properties at 23°C			
Electrical strength	IEC 60243-1	kV/mm	26
Volume resistivity	IEC 60093	Ohm.cm	>10 ¹⁴
Surface resistivity	ANSI/ESD STM 11.11	Ohm/sq.	> 10 ¹³
Relative permittivity ε _r :			
- bei 100 Hz	IEC 60250	-	3.4
- bei 1 MHz	IEC 60250	-	3.5
Dielectric dissipation factor δ tan:			
- bei 100 Hz	IEC 60250	-	0.001
- bei 1 MHz	IEC 60250	-	0.005
Comparative tracking index (CTI)	IEC 60112	--	<100

This table is a valuable help in the choice of a material. The data listed here fall within the normal range of products properties, but they should not be used to establish material specification limits nor used alone as the basis of design.

Note: 1 g/cm³ = 1000 kg/m³; 1 Mpa = 1 N/mm²; 1 kV/mm = 1 MV/m.

NYP: there is no yield point

Certifications on biocompatibility type testing
1. all PPSU LSG types: ISO 10993-5 (cytotoxicity); USP physicochemical tests for plastics
2. PPSU LSG nature: pursuant A - ISO 10993-10 (intracutaneous reactivity & sensitization); ISO 10993-11 (acute systemic toxicity)
3. PPSU LSG black: pursuant A - USP Class VI; ISO 10993-4 (hemocompatibility, ISO 10993-10 (intracutaneous reactivity & sensitization); ISO 10993-11 (acute systemic toxicity)
(A) according to method 1 of ISO 62 and done on discs 50 x 3 mm