

PSU (POLYSULPHONE) MATERIAL DATA SHEET

- High maximum allowable service temperature in air (150°C continuously)
- Good hydrolysis resistance (suitable for repeated steam sterilization)
- High strength and stiffness over a wide temperature range
- Good dimensional stability
- Physiologically inert (suitable for food contact)
- Very good resistance against high energy radiation (gamma- and X-rays)
- Good electrical insulating and dielectric properties

PSU is a translucent (non-optical quality) amorphous thermoplastic material, offering a combination of excellent mechanical, thermal and electrical properties. It often replaces polycarbonate whenever higher temperature resistance, improved chemical resistance or auto cleavability is required.

PROPERTIES	Test methods	Units	VALUES
Colour	-	-	Natural (yellow, translucent)
Density	ISO 1183-1	g/cm ³	1.24
Water absorption:			
- after 24/96 h immersion in water of 23°C	ISO 62	mg	23 / 44
	ISO 62	%	0.32 / 0.61
- at saturation in air of 23°C / 50% RH	-	%	0.40
- at saturation in water of 23°C	-	%	0.85
Thermal Properties			
Melting temperature (DSC, 10°C/min)	-	°C	NA
Glass transition temperature	-	°C	190
Thermal conductivity at 23°C	-	W/(K.m)	0.26
Coefficient of linear thermal expansion:			
- average value between 23 and 100°C	-	m/(m.K)	60 x 10 ⁻⁶
- average value between 23 and 150°C	-	m/(m.K)	60 x 10 ⁻⁶
Temperature of deflection under load:			
- method A: 1.8 MPa	ISO 75	°C	170
Max. allowable service temperature in air:			
- for short periods	-	°C	180
- continuously : for min. 20,000 h	-	°C	150
Flammability:			
- "Oxygen Index"	ISO 4589	%	30
- according to UL 94 (1.5 / 3 mm thickness)	-	-	HB / HB
Mechanical Properties at 23°C			
Tension test:			
- tensile stress at yield	ISO 527	MPa	80
- tensile strain at break	ISO 527	%	10
- tensile modulus of elasticity	ISO 527	MPa	2,700
Compression test:			
- compressive stress at 1% nominal strain	ISO 604	MPa	20
- compressive stress at 2% nominal strain	ISO 604	MPa	39
Charpy impact strength - unnotched	ISO 179/1eU	kJ/m ²	No break
Charpy impact strength - notched	ISO 179/1eA	kJ/m ²	4
Ball indentation hardness	ISO 2039-1	N/mm ²	155
Rockwell hardness	ISO 2039-2	-	M 91
Electrical Properties at 23 °C			
Electric strength	IEC 60243	kV/mm	30
Volume resistivity	IEC 60093	Ohm.cm	> 10 ¹⁴
Surface resistivity	IEC 60093	Ohm	> 10 ¹³
Relative permittivity ε _r : - at 100 Hz	IEC 60250	-	3.0
- at 1 MHz	IEC 60250	-	3.0
Dielectric dissipation factor tan δ: - at 100 Hz	IEC 60250	-	0.001
- at 1 MHz	IEC 60250	-	0.003
Comparative tracking index (CTI)	IEC 60112	-	0

Note: 1 g/cm³ = 1,000 kg/m³ ; 1 MPa = 1 N/mm² ; 1 kV/mm = 1 MV/m.

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