

PAI (POLYAMIDE-IMIDE) MATERIAL DATA SHEET

- Very high maximum allowable service temperature in air (250°C continuously)
- Excellent retention of mechanical strength, stiffness and creep resistance over a wide temperature range
- Superb dimensional stability up to 250°C
- Excellent wear & frictional behavior
- Very good UV-resistance
- Exceptional resistance against high energy radiation (gamma- and X-rays)
- Inherent low flammability

PROPERTIES	Test methods	Units	VALUES
Colour	-	-	yellow-ochre
Density	ISO 1183-1	g/cm ³	1.41
Water absorption:			
- after 24/96 h immersion in water of 23°C	ISO 62	mg	29 / -
	ISO 62	%	0.35 / -
- at saturation in air of 23°C / 50% RH	-	%	2.5
- at saturation in water of 23°C	-	%	4.4
Thermal Properties			
Melting temperature (DSC, 10°C/min)	ISO 11357-1/-3	°C	NA
Glass transition temperature (DSC, 20°C/min)	ISO 11357-1/-2	°C	280
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)	30 x 10 ⁻⁶
- average value between 23 and 150°C	-	m/(m.K)	30 x 10 ⁻⁶
- average value above 150°C	-	m/(m.K)	30 x 10 ⁻⁶
Temperature of deflection under load:			
- method A: 1.8 MPa	ISO 75-1/-2	°C	280
Max. allowable service temperature in air:			
- for short periods	-	°C	270
- continuously : for min. 20,000 h	-	°C	250
Flammability			
- "Oxygen Index"	ISO 4589-1/-2	%	45
- according to UL 94 (1.5 / 3 mm thickness)	-	-	V-0 / V-0
Min. service temperature	-	°C	-50
Mechanical Properties at 23 °C			
Tension test			
- tensile stress at yield / tensile stress at break	ISO 527-1/-2	MPa	150 / -
- tensile strength	ISO 527-1/-2	MPa	150
- tensile strain at break	ISO 527-1/-2	%	20
- tensile modulus of elasticity	ISO 527-1/-2	MPa	4200
Compression test			
- compressive stress at 1 / 2 % nominal strain	ISO 604	MPa	34 / 67
Charpy impact strength - unnotched	ISO 179-1/1eU	kJ/m ²	no break
Charpy impact strength - notched	ISO 179-1/1eA	kJ/m ²	15
Ball indentation hardness	ISO 2039-1	N/mm ²	200
Rockwell hardness	ISO 2039-2	-	E 80 (M 120)
Electrical Properties at 23 °C			
Electric strength	IEC 60243-1	kV/mm	24
Volume resistivity	IEC 60093	Ohm.cm	> 10 ¹⁴
Surface resistivity	ANSI/ESD STM 11.11	Ohm/sq.	> 10 ¹³
Relative permittivity ε _r : - at 100 Hz	IEC 60250	-	4.2
- at 1 MHz	IEC 60250	-	3.9
Dielectric dissipation factor tan δ: - at 100 Hz	IEC 60250	-	0.026
- at 1 MHz	IEC 60250	-	0.031
Comparative tracking index (CTI)-	IEC 60112-	-	-

Note: 1 g/cm³ = 1,000 kg/m³; 1 MPa = 1 N/mm²; 1 kV/mm = 1 MV/m. NA: not applicable

The information contained in this technical data sheet cannot be construed as a promise or guarantee of specific properties of our products. Any determination of the suitability of a particular material and part design for any use contemplated by the user is the sole responsibility of the user. The information contained in this technical data sheet is based on present knowledge and may be subject to change without further notice.