

PVDF 1000 (POLYVINYLIDENE FLUORIDE) MATERIAL DATA SHEET

- High maximum allowable service temperature in air (150°C continuously)
- Excellent chemical and hydrolysis resistance
- Outstanding UV- and weather resistance
- Physiologically inert (suitable for food contact)
- Inherent low flammability
- Good electrical insulating properties

PVDF 1000 is a highly crystalline unreinforced fluoropolymer combining good mechanical, thermal and electrical properties with excellent chemical resistance. It also shows good resistance to high-energy radiation (considerably better than other fluoropolymers). In addition, the composition of the raw material used for the production of PVDF 1000 stock shapes complies with the regulations of the European Union (Directive 2002/72/EC, as amended) and the United States of America (FDA) for plastic materials and articles intended to come into contact with foodstuffs.

PROPERTIES	Test methods	Units	VALUES
Color	-	-	Natural (white)
Density	ASTM D 792	g/cm ³	1.78
Water absorption after 24 h immersion in water of 23°C	ASTM D 570	%	< 0.04
Thermal Properties			
Melting temperature (DSC, 10°C/min)	ISO 11357-1/-3	°C	175
Glass transition temperature	DMTS	°C	-30 - -40
Thermal conductivity at 23°C	-	W/(K.m)	0.19
Coefficient of linear thermal expansion (average value between 23 and 100°C)	ASTM D 696	m/(m.K)	125 - 145x 10 ⁻⁶
Specific Heat Capacity	DSC	kJ/(kg.K)	1.0-1.6
Vicat point B	DIN 53460/B	°C	142-148
Temperature of deflection under load:			
- method A: 1.82 MPa	ASTM D 648	°C	105-115
Max. allowable service temperature in air:			
- continuously for 20000 h	-	°C	150
Min. service temperature	-	°C	-40
Flammability:			
- "Oxygen Index"	ASTM D 2863	%	44
- according to UL 94	-	-	V-0
Mechanical Properties at 23°C			
Tension test:			
- tensile stress at yield	ISO 527-1/-2	MPa	45-57
- tensile strength	ISO 527-1/-2	MPa	35-55
- tensile strain at break	ISO 527-1/-2	%	20-200
- tensile modulus of elasticity	ISO 527-1/-2	MPa	1400-2500
Flexural Modulus	ISO 178	MPa	1600
Compressive stress	ASTM D 695	MPa	69-103
Friction coefficient static	ASTM D 1894	-	0.2-0.4
Friction coefficient dynamic	ASTM D 1894	-	0.15-0.3
Izod impact strength – Notched	ASTM D 256	J/m	110
Abrasion Resistance Taber	Taber CS 17/1 kg	Mg/1000 rev.	5-10
Hardness Shore D	ASTM D 2240	-	76-80
Electrical Properties at 23 °C			
Dielectric strength	ASTM D 149	kV/mm	20-30
Volume resistivity	ASTM D 257	Ohm.cm	>10 ¹⁴
Surface resistivity	ASTM D 257	Ohm	>10 ¹³
Relative permittivity ε _r : - at 100 Hz	IEC 60250	-	7.4
- at 1 MHz	IEC 60250	-	6.0
Dielectric constant at 1MHz	ASTM D 150	-	7.5
Dielectric dissipation factor tan δ at 1 MHz	ASTM D 150	-	0.15
Comparative tracking index	IEC 60112	-	600

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

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