

Technical Data Sheet

Polyvinylidene Fluoride (PVDF)

Chemical Name(s): Polyvinylidene Fluoride
Common Abbreviation(s): PVDF
Available Profiles: Sheet, Rod, Tube, Pipe

PVDF is a highly durable, semi-crystalline thermoplastic known for its excellent chemical resistance, high mechanical strength, and resistance to UV and radiation. It is widely used in industries such as chemical processing, semiconductor, and water treatment, particularly in applications requiring superior chemical resistance and mechanical stability.

Benefits:

- Exceptional chemical resistance
- High mechanical strength and rigidity
- Good resistance to UV, radiation, and weathering
- Low permeability to gases and liquids
- High purity, suitable for pharmaceutical and semiconductor industries
- Excellent flame resistance (self-extinguishing)

Common Applications:

- Chemical processing tanks and piping systems
- Fluid handling systems in semiconductor manufacturing
- Lining for tanks, vessels, and pipes
- Water treatment systems
- Electrical and electronic components
- Protective linings and membranes

TYPICAL PROPERTIES of POLYVINYLIDENE FLUORIDE

	Property	Test Method	Value
Physical Properties	Density (g/cm ³)	ATSM D792	1.78
	Water Absorption (%)	ASTM D570	<0.04
Mechanical Properties	Tensile Strength at 23°C (MPa)	ASTM D638	50
	Tensile Modulus (MPa)	ASTM D638	2000
	Tensile Elongation at Break (%)	ASTM D638	20-50
	Flexural Strength (MPa)	ASTM D790	75
	Flexural Modulus (MPa)	ASTM D790	2200
	Compressive Strength (MPa)	ASTM D695	65
	Hardness (Shore D)	ASTM D785	D80
Thermal Properties	Impact Strength (kJ/m ²)	ASTM D256	6
	Coefficient of Linear Thermal Expansion (mm/mm/°C)	ASTM D696	1.2 x 10 ⁻⁴
	Heat Deflection Temperature at 0.45 MPa (°C)	ASTM D648	110
	Approx. Melting Temperature (°C)	ASTM D3418	170
Electrical Properties	Max Operating Temperature (°C)	-	150
	Dielectric Strength (kV/mm)	ASTM D149	22
	Dielectric Constant at 1 MHz	ASTM D150	8.4
	Dissipation Factor at 1 kHz	ASTM D150	0.002
	Surface Resistivity (ohm/sq)	ASTM D257	>10 ¹³
Flammability	Arc Resistance (sec)	ASTM D495	140-180
Standards Compliance	Flammability Rating	UL94	V-0
Environmental Considerations	FFDA compliant for food contact ASTM D638, D790, D695, D257 compliant ISO 10993 compliant for biocompatibility		
	Recyclability: PMMA is recyclable and can be reused in various applications. Environmental Impact: PMMA is considered environmentally safe and inert under normal usage. It resists UV degradation and is often used in long-life applications.		

