

Material Datasheet — PVDF (Polyvinylidene Fluoride)

Overview

PVDF is a highly non-reactive fluoropolymer with excellent chemical resistance, good mechanical strength, and high purity. It is widely used in chemical processing, semiconductor, and lithium battery applications. PVDF offers better mechanical strength than PTFE while retaining strong corrosion resistance.

Key Features

- Excellent resistance to acids, halogens and strong solvents
- Higher mechanical strength and rigidity than PTFE
- High purity grades for semiconductor and pharmaceutical use
- Good weatherability and UV resistance
- Excellent piezoelectric properties (special grades)
- Can be welded and thermoformed

Technical Properties

Property	Value	Unit	Test Standard
Density	1.75 - 1.78	g/cm³	ASTM D792
Tensile Strength	35 - 55	MPa	ASTM D638
Elongation at Break	20 - 300	%	ASTM D638
Flexural Modulus	1400 - 1800	MPa	ASTM D790
Hardness (Shore D)	75 - 80	Shore D	ASTM D2240
HDT (1.8MPa)	90 - 110	°C	ASTM D648
Melting Point	170 - 180	°C	—
Continuous Use Temp	120 - 150	°C	—
Water Absorption (24h)	0.03 - 0.05	%	ASTM D570
Dielectric Strength	20 - 28	kV/mm	ASTM D149
Dielectric Constant (1MHz)	6.0 - 8.0	—	ASTM D150
Chemical Resistance	Excellent	—	—

Typical Applications

- Chemical processing: pipes, valves, pump components, linings
- Semiconductor: high-purity fluid handling systems
- Lithium battery: binder materials, separator coatings
- Electrical: high-voltage insulation, wire and cable
- Filtration: membranes and filter housings
- Architectural: exterior coatings and films

Available Forms

- Sheets (extruded / molded): thickness 0.5mm - 200mm
- Rods: diameter 3mm - 300mm
- Tubes / hollow bars
- Custom CNC machined parts per CAD drawings