

PVDF - Stock Shapes (rods, plates, tubes)

POLYVINYLIDENE FLUORIDE engineering plastic extruded stock shapes available in **PVDF** is part of high-performance engineering plastic products offered under trade name **POLYMAT** for machining into industrial components. These products are made using the best raw material in modern production facility under strict quality confirming to international standards.

It is crystalline fluorinated thermoplastic with high purity which exhibits excellent chemical resistance to mineral and organic acids, hydrocarbons and solvents. Its mechanical toughness, very low moisture absorption, wide range of service temperature from -40°C to 150°C, good wear resistance, low coefficient of friction, resistance to UV, self-extinguishing nature and transparency to radiation renders it useful in host of applications in chemical processing, food, pharmaceutical and paper manufacturing.

PEEK is amenable to standard metal working machine tools and can be fabricated with ease to yield smooth surface finish and close tolerances. Information on technical properties for designers is provided below. More specific data and engineering assistance is available upon request.

Chemical Designation PVDF (Polyvinylidene fluoride) Color White

Main features

- Excellent Chemical Resistance
- Good machinability
- High mechanical strength and stability
- Resistance against UV radiation
- Wide range of service temperature
- Food contact applications
- Good dimensional stability
- Noncontaminating

Target Industries

- Chemical Industry
- Mechanical engineering
- Food Industry
- Electronics
- Energy industry
- Oil and gas industry
- Offshore
- Automotive industry
- → Semiconductor technology

• Mechanical properties	Parameter	Value	Unit	Norm
Tensile modulus		2000	MPa	ISO 527-1/-2
Yield Stress		50	MPa	ISO 527-1/-2
Yield Strain		9	%	ISO 527-1/-2
Nominal Strain at Break		>50	%	ISO 527-1/-2
Charpy Impact Strength	23°C	No Break	kJ/m ²	ISO 179/1eU
Charpy Impact Strength	-30°C	No Break	kJ/m ²	ISO 179/1eU
Charpy Notched Impact Strength	23°C	22	kJ/m ²	ISO 179/1eU
Charpy Notched Impact Strength	-30°C	5	kJ/m ²	ISO 179/1eU
• Thermal properties	Parameter	Value	Unit	Norm
Melting Temperature	10°C/min	169	°C	ISO 11357-1/-3
Glass Transition Temperature	10°C/min	-40	°C	ISO 11357-1/-2
Temp.of Deflection Under Load	1.08 MPa	104	°C	ISO 75-1/-2
Vicat Softening Temperature	50°C/h 50 N	138	°C	ISO 306
Coeff. Of Linear Thermal Expansion	parallel	150	E-6K	ISO 11359-1/-2
Burning Behaviour	at 1.5mm Nominal Thickness	V-0	Class	IEC 60695-11-10
Thickness tested	1.5	1.6	mm	IEC 60695-11-10
Burning behaviour at thickness	h	V-0	class	IEC 60695-11-10
Thickness tested	h	0.80	mm	IEC 60695-11-10
Oxygen index		83	%	ISO 4589-1/-2
• Electrical properties	Parameter	Value	Unit	Norm
Relative permittivity	100 Hz	10.5	-	IEC 62631-2-1
Relative permittivity	1 MHz	7	-	IEC 62631-2-1
Dissipation factor	100 Hz	270	E-4	IEC 62631-2-1
Dissipation factor	1 MHz	2400	E-4	IEC 62631-2-1
Volume resistivity		2.30E+10	Ohm*m	IEC 62631-3-1
Surface resistivity		4.00E+13	Ohm	IEC 62631-3-2
Electric strength		27	kV/mm	IEC 60243-1
Comparative tracking index		600	-	IEC 60112
• Other properties	Parameter	Value	Unit	Norm
Water absorption		0.03	%	Sim. to ISO 62
Humidity absorption		0.015	%	Sim. to ISO 62
Density		1770	kg/m ³	ISO 1183

• Mechanical properties	Parameter	Value	Unit	Norm
Tensile Strength	At Yield,73°F	44.8-55.2	MPa	ASTM D638
Tensile Strength	At Break,73°F	34.5-55.2	MPa	ASTM D639
Tensile Elongation	At Break,73°F	20-100	%	ASTM D640
Hardness	Shore D,73°F	76-80	%	ASTM D2240
Flexural Modulus	73°F	1450-2310	MPa	ASTM D790
Compressive Strength	73°F	68.9-103	MPa	ASTM D695
• Thermal properties	Parameter	Value	Unit	Norm
Melting Point	73°F	172		ASTM D3418
Glass Transition Temperature		-40		ASTM D7028
Temperature Rating		150		UL RTI
Heat Deflection Temperature,	264 Psi,248 °F/hr	105-115		ASTM D648
Heat Deflection Temperature	66 Psi,248 °F/hr	125-140		ASTM D649
Coeff. Of Thermal Expansion	73°F	11.9-14.4		ASTM D696
Limiting Oxygen Index	73°F	60.0		ASTM D696
Thermal Conductivity		0.170.19		ASTM D433
Specific Heat		745-958		DSC
Thermal Decomposition TGA	in air	375		1% wt. Loss
Thermal Decomposition TGA	in nitrogen	410		1% wt. Loss
Relative Thermal Index	Mechanical	150		UL 746B
Relative Thermal Index	Electrical	150		UL 746B
• Electrical properties	Parameter	Value	Unit	Norm
Volume resistivity	DC 68°F,65% R.H.	2.00E+14		ASTM D257
• Other properties	Parameter	Value	Unit	Norm
Water absorption		0.01-0.03	%	ASTM D570
Specific Gravity	73°F	1.77-1.79	kg/m ³	ASTM D792
Refractive Index @ sodium D Line		1.42		ASTM D542

➤ PVDF products may be based on KYNAR