

PVDF

PVDF (polyvinylidene fluoride)

Polyvinylidene fluoride, or PVDF, is a fluorinated thermoplastic resin which has outstanding resistance to most mineral and organic

acids, aliphatic and aromatic hydrocarbons, alcohols, halogenated solvents, and oxidizing environments. It also has outstanding aging

resistance, with its properties remaining constant after many years of continuous use.

- **Superior chemical resistance**
PVDF has a high chemical resistance to strong acids, aliphatics, and aromatics, and to numerous mineral organic compounds.
- **Remarkable fire resistant properties**
In the Underwriters' test, PVDF was given the highest classification (V-O), indicating that it was non-flammable and self-extinguishing.
- **UV and gamma radiation stability**
- **Very high dielectric and piezoelectric constants**
- **PVDF is FDA compliant**
- **Absolutely non-toxic**
PVDF can be used in repeated contact with food products. Its surface, like glass, is unfavorable to the proliferation of microorganisms.
- **Good mechanical properties in tension as well as in deflection, torsion, and compression compared to other fluorinated polymers**
- **Does not swell or alter in a wet environment**
- **Uses standard machining and welding techniques**

PVDF's excellent chemical and physical properties and the ease with which it can be processed make it especially suitable for components in the chemical, petrochemical, hydrometallurgical, pharmaceutical, food, nuclear, and paper and pulp industries, as well as the semiconductor processing industry.

TYPICAL PROPERTY VALUES

| | PROPERTIES | ASTM Test Method | Units | PVDF |
|-------------------|--|------------------|-------------------------------|------------------------|
| PHYSICAL | Density | D792 | lbs/in ³ | 0.064 |
| | Specific Gravity | D792 | - | 1.78 |
| | Water Absorption, 24 hours, 73°F | D570 | % | .02 |
| MECHANICAL | Tensile Strength, Break, 73°F | D638 | psi | 7,800 |
| | Tensile Modulus, 73°F | D639 | psi | 350,000 |
| | Elongation, Break, 73°F | D638 | % | 35 |
| | Flexural Strength, 73°F | D790 | psi | 10,750 |
| | Flexural Modulus, 73°F | D790 | psi | 310,000 |
| | Izod Impact Strength, Notched, 73°F | D256 | ft-lbs/in | 3.0 |
| | Rockwell Hardness | D785 | "R" Scale | 100 |
| | Compressive Strength, 73°F | D695 | psi | 11,600 |
| THERMAL | Deflection Temperature @ 66 psi | D648 | °F | 300 |
| | @ 264 psi | D648 | °F | 235 |
| | Coefficient of Linear Thermal Expansion | D696 | in/in/°F | 7.1 x 10 ⁻⁵ |
| | Melting Point | D3448 | °F | 342 |
| | Thermal Conductivity | C177 | BTU-in/hr-ft ² -°F | 1.32 |
| | Flammability | UL94 | | V-O |
| ELECTRICAL | Dielectric Strength | D149 | V/mil | 280 |
| | Dielectric Constant, 60 Hz, 73°F, 50% RH | D150 | - | 9 |
| | Dissipation Factor, 60 HZ, 73°F | D150 | - | 0.06 |
| | Volume Resistivity, 73°F | D257 | ohm-cm | 5 x 10 ¹⁴ |

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MATERIAL AVAILABILITY

Rods: Diameters: 1/4" to 9" diameter

Plates: 1/4" to 4" thickness inclusive are 2' x 4'

Lengths: 3/16" to 4-3/4" diameters – 10'
5" and larger diameters – 5'

Profiles, tubes, and special sizes are custom-produced on request.



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