PVDF - Polyvinylidenefluoride

Properties

Background

- PVDF was designed primarily for application requiring excellent chemical resistance, high levels of purity and superior mechamical properties. PVDF is often used as a lining or protective barrier in chemical applications.

Key Properties

- Good coefficient of friction
- Chemical resistance (all common solvents, acids and bases) and inertness
- Gamma, ETO, e-beam and autoclave sterilizability
- Maximum service temperature 130° C
- Excellent resistance to creep and fatigue
- Superior tensile properties and impact strengths
- Excellent mechanical properties over a broad temperature range
- Excellent resistance to cut-through

Additional Properties

- Radiation Resistance
- High dielectric strength over a wide temperature range
- Melt weldability and thermoformability
- Biocompatability - Certified USP Class VI
- Environmental stability
- Flame rating- UL 94VO
- Limiting oxygen index- greater than 95

YOZONE Capabilities

- Etching capability for bonding
- Fillers available for material modification
  - Radio opaque
  - Carbon
  - Pigments
- Tight tolerance extrusions
- Extruded forms
  - Tubing
  - Lay-flat tubing
  - Monofilament
  - Multi-lumen

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General properties PVDF

	Property	Specification	Unit	Value
General	Continuous working temp.	Maximum	°C	150
	Chemical resistance		-	Good
	Specific gravity	D 792	g/cm³	1.78
Electrical	Dielectric constant	D 150 at 10^3 Hz	-	7.2
		D 150 at 10^6 Hz	-	8.5
	Dielectric dissipation factor	D 150 at 10^3 Hz	-	0.030
		D 150 at 10^6 Hz	-	9 x 10-2
	Dielectric strength	D 149	kV/mm	50
	Volume resistivity	D 257	Ohm·cm	$>10^{14}$
Mechanical	Tensile strength	D 1708, D 638	Mpa	50
	Elongation	D 1708, D 638	%	>30
	Compressive strength	D 695	Mpa	80
	Impact strength	D 256 bij +23°C	J/m	No break
	Flexural Modulus	D 790 bij +23°C	Mpa	1660
	Tensile Modulus	D 638	Mpa	1380
	Hardness	D 2240	-	73-85
Thermal	Melting (gel)point		°C	160
	Thermal conductivity	+23°C	W/Kg.m	0.11
	HDT	DIN 75	°C	
	method A			140
	method B			95

Actual properties may change due to processing method, compound type, extruded dimensions and other variables. It is the user's responsibility to evaluate and fully test the suitability of the product for their specific application

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Bending radius for PVDF, at 25°C

Material properties of PVDF

- Excellent resistance to creep and fatigue
- Excellent thermal stability
- Excellent resistance to radiation
- Often used as insulation and protection cover in chemical applications
- UV resistant (does not age)
- High dielectric constant
- Working temperature from -20°C to +130°C