



PVDF (Polyvinylidene Fluoride)

PVDF (Polyvinylidene Fluoride) is a naturally white plastic that combines a number of the useful properties of PTFE with a toughness similar to Nylon.

- Exceptionally good resistance to attack by a wide range of chemicals.
- Resistance to abrasion.
- Low coefficient of friction.
- Good electrical insulating properties.
- Non-toxic at normal temperatures, approved for contact with foodstuffs, virtually odourless and tasteless.
- Resistant to U.V, Beta and Gamma radiation.
- Almost no moisture absorption.
- Classified as self extinguishing.
- Easily machined.

Chemical Resistance

PVDF has an outstanding resistance to most acids, oxidizing media, aliphatic and aromatic hydrocarbons, alcohols and halogenated solvents. It is resistance to weak bases, the halogens chlorine, iodine and particularly bromine but not to fluorine. It is degraded by oleum, some strongly basic primary amines, hot concentrated alkalis and alkali metals. It swells slightly in strongly polar solvents such as acetone and ethyl acetate and is slightly soluble in aprotic polar solvents such as dimethylformamide, dimethylsulphoxide, tetramthylurea or hexamethylphosphotriamide.

Health and Safety

At temperatures above 350°C PVDF will decompose releasing hydrofluoric acid and possibly other fluorinated compounds that are, in a confined space, hazardous to health. It is, therefore, advisable not to smoke or carry tobacco products (because of the risk of contamination) when machining PVDF, or to dispose of scrap material by burning.

AVAILABILITY - PVDF

- Rod
- Sheet
- Section
- Machined Parts

MECHANICAL PROPERTIES		Test Method	Natural	Units
Density		DIN 53479	1.78	g/cm ³
Tensile Strength at Yield		DIN 53455	51 - 57	N/mm ²
Elongation at Break		DIN 53455	12 - 100	%
Modulus of elasticity		DIN 53457	1950	N/mm ²
Ball Indentation Hardness		DIN 53456	105	N/mm ²
Rockwell Hardness		ASTM D785	R110	
Impact Strength		DIN 53453	no break	kJ/m ²
Notched Impact Strength		DIN 53453	12	kJ/m ²
Moisture Absorption 24hrs Immersion		DIN 53495	0.03	%
Coefficient of Dynamic Friction against Polished Steel			0.34	
THERMAL PROPERTIES				
Crystalline Melting Range			170 - 172	°C
Vicat softening Temperature		DIN 53460	140 - 147	°C
Coefficient of Linear Expansion		DIN 52328	13	10 ⁻⁵ °C ⁻¹
Heat Deflection Temperature	Method A	DIN 53461	80 - 92	°C
	Method B	DIN 53461	148 - 150	°C
Thermal Conductivity		DIN 52612	0.19	W/mK
Specific Heat			0.96	kJ/kgK
Maximum Service Temperature	Short Term		160	°C
	Continuous		140	°C
Minimum Service Temperature	Continuous		-40	°C
Flammability		UL94	V-0	
ELECTRICAL PROPERTIES				
Volume Resistivity		DIN 53482	>10 ¹⁵	ohm cm
Surface Resistance		DIN 53482	>10 ¹³	ohm
Dielectric Strength		DIN 53481	40	kV/mm
Dielectric Constant	1K Hz	DIN 53483	9.7	
	1M Hz	DIN 53483	7.2	
Dissipation Factor 1K Hz		DIN 53483	0.01	
	1M Hz	DIN 53483	0.18	
Tracking Resistance KC Method		DIN 53480	380	