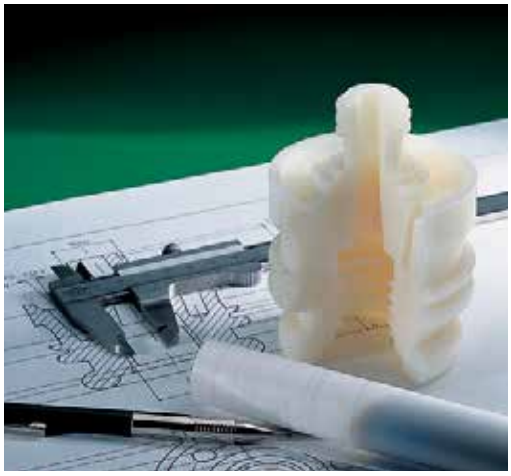
ENGINEERING PLASTIC PRODUCTS

POLYVINYLIDENE FLUORIDE - **POLYSTONE® PVDF**



PVDF is a specialty plastic material in the fluoropolymer family; it is used generally in applications requiring the highest purity, strength, and resistance to solvents, acids, bases and heat and low smoke generation in the event of fire. The strong bonds between the fluorine and the carbon are the reason for the extremely high chemical resistance of PVDF. (Close to that of PTFE.)

PROPERTIES:

- High mechanical strength rigidity and toughness (in particular compared to PTFE).
- Relatively high service temperature range (-10 °C to 150 °C).
- Very high density.
- Very high acid resistance.
- Good abrasion resistance.
- Good UV resistance.
- Manufacturing (and welding-) characteristics “similar” to PP.
- High Molecular weight = Enhanced long term strength and welding characteristics.

APPLICATIONS:

Chemical tanks, vessels.
Chromic acid applications, Fuel handling Components, Pharmaceutical Pipe-lines

DELIVERY PROGRAMME

Sheets | Rods
Available on request

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ENGINEERING PLASTIC PRODUCTS

Stock Shapes and Finished Components
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POLYSTONE (PVDF)			
PROPERTIES	**TEST METHOD**	**UNIT OF MEASURE**	**NATURAL**
GENERAL			
DENISTY	DIN EN ISO 1183-1	g/cm³	1,78
WATER ABSORPTION	DIN EN ISO 62	%	<0.30
FLAMABILITY 3mm	DIN 4102	3mm	B1
FLAMABILITY 6mm	UL 94	6mm	V0
MECHANICAL			
TENSILE STRENGTH	DIN EN ISO 527-1	MPA	55
ELONGATION AT BREAK	DIN EN ISO 527-1	%	>60
E MODULUS	DIN EN ISO 527-1	MPA	2 200
NOTCHED IMPACT STRENGTH	DIN EN ISO 179-2	kJ/m²	15
BALL INDENTATION HARDNESS	NOT APPLICABLE	MPA	N/A
SHORE HARDNESS	DIN EN ISO 868/15sek	SCALE D	77
THERMAL			
MELTING TEMPERATURE	NOT APPLICABLE	°C	172…175
THERMAL CONDUCTIVITY	DIN 52612-1	W/(m.K)	0,19
SPECIFIC THERMAL CAPACITY	NOT APPLICABLE	kJ/(kg.K)	1,2
COEFFICIENT OF LINEAR THERMAL EXPANSION	DIN 53752	10^{-6} K-1	100…140
LONG TERM SERVICE TEMPERATURE	GUIDELINE ONLY	°C	0…140
SHORT TERM SERVICE TEMPERATURE	GUIDELINE ONLY	°C	150
HEAT DEFLECTION TEMPERATURE	DIN EN ISO 306 VICAT B	°C	140
ELECTRICAL			
DIELECTRIC CONSTANT	IEC 60250	N/A	8,0
DIELECTRIC DISSIPATION FACTOR	IEC 60250	N/A	0,17
SPECIFIC VOLUME RESISTIVITY	IEC 60093	Ω.cm	>10^14
SURFACE RESISTIVITY	IEC 60093	Ω	<10^14
DIELECTRIC STRENGTH	IEC 60243	kV/mm	20

When machining thermoplastic stock shapes, remember…

- Thermal expansion is up to 10 times greater with plastics than metals.
- Plastics lose heat more slowly than metals, so avoid localized overheating.
- Softening (and melting) temperatures of plastics are much lower than metals and plastics are much more elastic than metals.

Getting started

- Positive tool geometries with ground peripheries are recommended.
- HSS/Tip tooling with polished top surfaces is suggested for optimum tool life and surface finish.
- Use adequate chip clearance to prevent clogging.
- Adequately support the material to restrict deflection away from the cutting tool.

Coolants

Coolants are generally not required for most machining operations, but are strongly suggested during drilling operations, especially with notch sensitive materials such as Nylon, PET-P, PAI, PBI and glass or carbon reinforced products.

In addition to minimizing localized part heat-up, coolants prolong tool life. For optimum surface finishes and close tolerances, non-aromatic, water soluble coolants are suggested. General purpose petroleum based cutting fluids, although suitable for many metals and plastics, may contribute to stress cracking of amorphous plastics such as Polycarbonate.

Because of these differences, you may wish to experiment with fixtures, tool materials, angles, speeds and feed rates to obtain optimum results.

GENERAL NOTE:

The data shown fall within the normal parameters of product properties. They should only be used as a guide to initial material selection for the relevant application and for material specification limits. Further technical information is available for specific application requirements. When no value is listed, insufficient details were available to present a usable value.