

TECHNICAL DATA SHEET

fluteck[®] F100 PFA

Product Description.

fluorseals™ fluteck™ F100 PFA is a thermoplastic fluoropolymer based on perfluoroalkoxy resin (PFA).

Product Properties:

- Excellent mechanical properties
- Extremely high weathering resistance and UV stability
- High thermal resistance
- Very good electrical strength
- Low friction behaviour
- Flame retardant
- Excellent chemical resistance
- Very low surface energy
- Excellent dielectric properties
- Very low surface roughness

Property	Method	Units	Specification	
Physical	Specific gravity	ASTM D 792	g/cm ³	2,13-2,17
	Water absorption, 24 hours	ASTM D 570	%	<0.03
	Mold shrinkage, along flow	ASTM D 955	%	4-5
Mechanical	Elongation, at break	ASTM D 638	%	≥250
	Tensile strength, at 23°C	ASTM D 638	MPa	≥ 23
	Tensile modulus, at 23°C	ASTM D 638	MPa	500-600
	Izod impact strength, notched	ASTM D 256	J/m	n/b
	Hardness Shore	ASTM D 2240	Shore D	50-65
Thermal	Peak Melting Temperature	ASTM D3418	°C	300-310
	Specific heat capacity, at 23°C	DSC	kJ kg ⁻¹ °C ⁻¹	0,9 – 1,1
	Thermal conductivity, at 23°C	ASTM E1530	W/mK	0.20
	Continuous Use Temperature		°C	260
	Oxygen Index, LOI	ASTM D2863	%	95
	Flammability	UL94	-	V-0
Electrical	Dielectric Strength, 1mm thk	ASTM D149	kV/mm	35-40
	Surface Resistivity	ASTM D257	Ohm	10 ¹⁷
	Volume Resistivity	ASTM D257	Ohm*cm	10 ¹⁷
	Arc Resistance	ASTM D495	S	>200

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Typical properties.

fluteck™F100 PFA is a fully fluorinated polymer preferred for parts and components requiring very good mechanical properties.

fluteck™F100 offers an excellent combination of properties typical of the fluoropolymer resins:

- Service Temperature: fluteck™F100 offers excellent resistance to continuous service temperatures-working conditions from -100°C (-148°F) up to 250°C (482°F) and, for limited periods, even to higher temperatures; Product's low temperature resistance allows satisfactory performance down to -200° C (-328°F).
- Chemical resistance: fluteck™F100 offers high inertness towards nearly all known chemicals. Only attacked elemental alkali metals, chlorine trifluoride and elemental fluorine at high temperature and pressures might affect properties.
- Solvents resistance: fluteck™F100 offers insoluble properties in all solvents up to temperatures as high as 300° C (572° F). Certain highly fluorinated oils only swell and dissolve PTFE at temperatures close to the crystalline melting point

Typical Application.

fluteck™F100 PFA is specifically suitable for high service temperature and has virtually universal chemical resistance. It combines exceptional value with high performance properties. fluteck™F100 PFA can be used in several applications as tubing, tank linings, tower packing, fittings and valve linings, films, high purity, heat tracing wiring, avionics and specialty cables.

The excellent resistance against aggressive environments and against thermal stress cracking makes fluteck™F100 PFA particularly suitable for pipes and tubes in the field of transportation of chemicals and in the oil industry.

In the electrical industry, fluteck™F100 PFA products are used as primary insulation for high temperature hook-up wires. Thanks to their good dielectric properties, it is suitable for applications where low dissipations are required at very high frequencies.

These outstanding properties allow the application of fluteck™F100 PFA several fields such as Chemical, Electrical and Electronic, Petrochemical, Automotive, Mechanical, Medical, Aeronautics, Semiconductor and Food industry

Storage and Handling.

fluteck™F100 PFA can be stored for a long period of life and is exceptionally resistant to aging and weather conditions up to 20 years. Specific aging tests carried out on sample exposed to aging and atmospheric conditions, showed no changes in weight and volume.

In case of semi-finished products, before processing or before the machining, it is advisable to store the material for 24 hours in the production area, preferable in a clean and dry place at a temperature of less 25°C (77°F), preferably between 21-25°C (70-77°F). This is very important when room temperature is low; in such cases the material should be conditioned up to 72 hours in the production area in the recommended temperature range.

Safety instruction.

Follow the normal precautions observed with all fluoropolymer materials.

Please consult the Material Safety Data Sheet and Product Label for information regarding the safe handling of the material. By following all precautions and safety measures, processing, machining, and using these products poses no known health risks. General handling and processing precautions include: 1) Process only in well-ventilated areas. 2) Do not smoke in working areas. 3) Avoid eye contact. 4) Avoid mouth contact. 5) If skin comes into contact with these products during handling, wash with soap and water afterwards. 6) Avoid contact with hot fluoropolymers.

The user must verify that the finished parts, made out of the semi-finished product, are technically suitable for the requested application. The user must also verify that the finished item may not cause any modification to the organoleptic properties of the foodstuff and that the item's technological fitness it is assigned to may be guaranteed.

For each foreign country market, where the articles are introduced into, it is user's responsibility to verify whether both material than articles comply with the applicable laws and regulations.

Delivery format.

fluteck™F100 is supplied in the following shapes and formats:

Semi-finished products: rod and tubes through compression and spin-casting moulding. Shapes and sizes as per fluorseals™ General Size List and/as per customer request.

Machined parts: Shapes and sizes as per customer request.

Note: The information contained in this technical data sheet have been collected and ranked on technical data coming from reliable statistic series gathered in the field over the years. All information are intended only as general guidelines for use at user discretion. Fluorseals do not guarantee any specific result and do not assume any liability in connection with the use of the products in the described application. None of the information included in this document is to be taken as a licence to operate under, or recommendations to infringe any existing patents. Before the use, the product has to be sampled and tested in the specific application and in the field of use at working condition in order to be approved by the us.

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