

# TECHNICAL DATA SHEET

## fluteck™ C 100

### PCTFE

#### Product Description.

fluteck™C100 PCTFE is a high performance thermoplastic fluoropolymer based on Polychlorotrifluoroethylene.

#### Product Properties:

- Excellent mechanical properties
- Very good resistance to creep
- High performance in cryogenic applications
- Excellent electrical-insulating properties
- Low friction behaviour
- High hardness
- Near-zero moisture absorption
- Extremely low permeability
- Excellent barrier properties
- Flame retardant
- Excellent chemical resistance
- Good transparency

	Property	Method	Units	Specification
Physical	Color	-	-	Natural
	Specific gravity	ASTM D792	g/cm <sup>3</sup>	2,100 – 2,160
	Water absorption <sup>24 hours</sup>	ASTM D570	%	<0,01
	Mold shrinkage, along flow	ASTM D 955	%	1,5-2
Mechanical	Elongation, at break	ASTM D 638	%	50-150
	Tensile strength, at 23°C	ASTM D 638	MPa	31-45
	Tensile modulus at 23°C	ASTM D 638	GPa	1 – 1,6
	Izod impact strength, notched	ASTM D 256	J/m	≥ 75
	Hardness Shore	ASTM D 2240	Shore D	70-80
	Deformation under load, 7MPa for 24h at 25°C	ASTM D621	%	1
	Deformation under load, 7MPa for 24h at 70°C	ASTM D621	%	2,5
Deformation under load, 7MPa for 24h at 125°C	ASTM D621	%	12	
Thermal	Peak Melting Temperature	ASTM D3418	°C	210-212
	Specific heat capacity, at 23°C	DSC	kJ kg <sup>-1</sup> °C <sup>-1</sup>	0,9
	Thermal conductivity, at 23°C	ASTM E1530	W/mK	0.35
	Maximum service temperature, Air		°C	150°C
	Oxygen Index, LOI	ASTM D2863	%	>95
	Flammability	UL94	-	V-0
Electrical	Dielectric Strength , 1,6mm thk	ASTM D149	kV/mm	21
	Dielectric Constant	ASTM D257	-	2.3
	Volume Resistivity	ASTM D257	Ohm*cm	10 <sup>18</sup>

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#### Typical properties.

fluteck™C100 PCTFE is a fluorinated polymer preferred for parts and components requiring very good mechanical properties.

fluteck™C100 offers an excellent combination of properties typical of partially fluorinated fluoropolymer:

- Service Temperature: fluteck™C100 offers very good resistance to continuous service temperatures-working conditions from -240°C (-400°F) up to 150°C (302°F).
- Chemical resistance: fluteck™C100 resists attack by most industrial chemicals. The exceptions include alkali metal complexes and organic amines. Chlorine gas, nitrogen tetroxide, and a number of halogenated solvents are absorbed by fluteck™C100. Most silicones could induce stress cracking.

#### Typical Application.

The unique balance of properties exhibited by fluteck™C100 PCTFE Suits it to many applications where usual other materials are unsatisfactory.

It has high compressive strength and low deformation under load. It's cold-flow characteristic is lower than other fluoropolymers and it does not deform under load at room temperature. In addition, fluteck™C100 retains its excellent properties over a wide thermal range.

Its great barrier properties makes fluteck™C100 particularly suitable in films for packaging in applications especially where there are high moisture barrier demands, such as pharmaceutical industry, health care markets, packaging of corrosion-sensitive military and electronic components.

fluteck™C100 is characterized by excellent stability, high mechanical strength and a low shrinkage rate at extremely low temperatures. For these reasons, it is widely used for cryogenic seals, low temperature machineries and equipment.

Other applications include chemical apparatus, pump parts, transparent sight glasses, tubes, and linings in the chemical industry and for laboratory ware.

#### Storage and Handling.

fluteck™C100 PCTFE can be stored for a long period of life and is exceptionally resistant to aging and weather conditions up to 10 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™C100 is supplied in the following shapes and formats:

Semi-finished products: rod and tubes through extrusion, 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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## fluorseals



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