

# TECHNICAL DATA SHEET

## PTFE Carbon Compound

### Product Description.

CA PTFE Carbon Compound is a filled compound based on Virgin PTFE containing 25% Carbon Coke for Ram Extrusion, Compression and Isostatic moulding.

### Product Properties:

Improved thermal dimensional stability  
Improved creep resistance  
Improved compression strength  
Good cold flow reduction  
Exceptional temperature resistance

Excellent chemical stability  
Good thermal and electrical conductivity  
Excellent wear resistance  
Excellent resistance to abrasion  
Improved surface hardness

	Property	Method	Units	Specification
Physical	Color			Black
	Specific gravity	ASTM D792	g/cm <sup>3</sup>	2,050– 2,120
	Water absorption	ASTM D570	%	0,03
	Flamability	UL 9J		V–0
Mechanical	Tensile strength	ASTM D4745	MPa	>13
	Elongation	ASTM D4745	%	>60
	Hardness	ASTM D22J0	Shore D	>62
	Ball Hardness	ASTM D785	MPa	>30
	Deformation under load (140 Kg/cm <sup>2</sup> for 24 hrs. At 23°C)	ASTM D621	%	5– 7.5
	Permanent deformation (after 24 hrs. Relaxation at 23°C)	ASTM D621	%	2–
	Coefficient of static friction	ASTM D1894		0,1– 0,16
	Coefficient of dynamic friction	ASTM D1894		0,12– 0,1
Wear coefficient		cm <sup>3</sup> min <sup>-1</sup> 10 <sup>-4</sup> Kg m h	35	
Thermal	Thermal conductivity	ASTM C177	W/m K	0,59
	Coefficient of linear thermal expansion From 25 to 100 °C	ASTM D696	10 <sup>-4</sup> / °C	7– 12,5
Electrical	Volume resistivity	ASTM D257	Ohm cm	10*
	Surface resistivity	ASTM D257	Ohm	10*

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### Typical properties.

CA is a PTFE Carbon Compound preferred for parts and components requiring very good mechanical properties. CA offers an excellent combination of properties Typical of the PTFE fluoropolymer resins:

**Service Temperature** CA 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** CA 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:** CA 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.

CA Carbon Compound enhances some characteristics of virgin PTFE such as wear and compression strength, deformation under load, cold creep, thermal conductivity and dimensional stability.

### Typical Application.

CA PTFE Carbon Compound offers excellent properties in the chemical processing, in automotive industries, in sealing application, in water application (one of the lowest wear rates in fresh water) and in mechanical applications, in general for bushing, sliding pads, and for slide ways for machine tools. High wear resistance, abrasion resistance and good wear compression properties are suitable for the majority of dry bearing applications against hard counter-surfaces.

CA PTFE Carbon Compound is widely used in seal applications where high wear resistance is required under high compression, e.g., piston rings for dry compressor, bearings, grooved mechanical support.

CA PTFE Carbon Compound is recommended for dry and poorly lubricated applications, suitable in water and steam service, also when a fast dissipation of electric charge is needed.

### Statement on suitability for contact with foodstuff. FDA

#### Approved US Regulation

- Code of Federal regulation 21 CFR Ch.1; section 177.1550 Perfluorocarbon Resins of the Food and Drug Administration/US.

#### EU Regulation

EU 1935/2004 - 10/2011 on plastic materials and articles to come in contact with food. It is suitable to be used in contact with aqueous, acidic, alcoholic and oily fatty foodstuffs for which stimulants A, B and D2 are used, according to EU Reg.10/2011

### Storage and Handling.

CA PTFE Carbon Compound 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 than 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 fluoropolymers.

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.

CA PTFE Carbon Compound is supplied in the following shapes and formats:

Semi-finished products: rods, tubes, sheets, tapes, strips. Shapes and sizes as per fluroseals 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. It 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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