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data sheet

PTFE

F1

35% CARBON (65% VIRGIN PTFE + 35% CARBON)

COLOR

MATERIAL

PTFE Carbon Compound preferred for parts and components requiring very good mechanical properties.

This material offers an excellent combination of properties Typical of the PTFE fluoropolymer resins:

- Service Temperature: 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: 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: 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.

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

Properties

- Improved thermal dimensional stability
- Excellent chemical stability
- Improved creep resistance
- Good thermal and electrical conductivity
- Improved compression strength
- Good cold flow reduction
- Excellent wear resistance
- Excellent resistance to abrasion
- Exceptional temperature resistance
- Improved surface hardness

Main applications

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.

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.

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

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Property		Method	Units	Specification
Physical	Color	-	-	Black
	Specific gravity	ASTM D792	g/cm ³	2,030 – 2,100
	Water absorption	ASTM D570	%	0,05
	Flamability	UL 94		V-0
Mechanical	Tensile strength	ASTM D4745	MPa	≥ 15
	Elongation	ASTM D4745	%	≥ 40
	Hardness	ASTM D2240	Shore D	≥ 63
	Ball Hardness	ASTM D785	MPa	≥ 30
	Deformation under load (140 Kg/cm ² for 24 hrs. At 23° C)	ASTM D621	%	4,5 - 5,5
	Permanent deformation (after 24 hrs. Relaxation at 23° C)	ASTM D621	%	2 - 3
	Coefficient of static friction	ASTM D1894		0,14 – 0,16
	Coefficient of dynamic friction	ASTM D1894		0,13 – 0,15
Thermal	Wear coefficient	-	$\frac{\text{cm}^3 \cdot \text{min}}{\text{Kg} \cdot \text{m} \cdot \text{h}} \cdot 10^{-8}$	30
	Thermal conductivity	ASTM C177	W/ m*K	0,62
Electrical	Coefficient of linear thermal expansion From 25 to 100 °C	ASTM D696	10 ⁻⁵ / °C	6 - 9,5
	Volume resistivity	ASTM D257	Ohm*cm	10 ⁴
	Surface resistivity	ASTM D257	Ohm	10 ³