

F13 - PTFE+grafite

Product Description

F13 is a filled compound based on Virgin PTFE containing 10% Graphite for Ram Extrusion, Compression and Isostatic moulding.

Product Properties

- Improved thermal dimensional stability
- Good chemical stability
- Improved deformation under load
- Good thermal conductivity
- Improved compression strength
- Improved surface hardness
- Exceptional temperature resistance
- Low friction behaviour
- Limited wear rate
- Improved sliding properties

Physical

Property	Metodo	Units	Specification
Color	-	-	Black
Specific gravity	ASTM D792	g/cm ³	2,140 - 2,180
Water absorption	ASTM D570	%	0,05
Flamability	UL 94		V-0

Mechanical

Property	Metodo	Units	Specification
Tensile strength	ASTM D4745	MPa	≥ 18
Elongation	ASTM D4745	%	≥ 200
Hardness	ASTM D2240	Shore D	≥ 54
Ball Hardness	ASTM D785	MPa	≥ 25
Deformation under load (140 Kg/cm ² for 24 hrs. At 23°C)	ASTM D621	%	9,5 - 12
Permanent deformation (after 24 hrs. Relaxation at 23°C)	ASTM D621	%	5,5 - 6,5
Coefficient of static friction	ASTM D1894		0,12 - 0,14
Coefficient of dynamic friction	ASTM D1894		0,10 - 0,12
Wear coefficient		cm ³ min 10 ⁻⁸ Kg m h	2000 - 2500

Thermal

Property	Metodo	Units	Specification
Thermal conductivity	ASTM C177	W/m • K	0,73
Coefficient of linear thermal expansion From 25 to 100 °C	ASTM D696	10 ⁻⁵ / °C	9 - 12,5

Electrical

Property	Metodo	Units	Specification
Volume resistivity	ASTM D257	Ohm • cm	10 ⁷
Surfaceresistivity	ASTM D257	Ohm	10 ⁶

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Typical properties

F13 is a PTFE Graphite Compound preferred for parts and components requiring very good mechanical properties. F13 offers an excellent combination of properties Typical of the PTFE fluoropolymer resins:

- Service Temperature: F13 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: F13 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: F13 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.
- F13 enhances some characteristics of virgin PTFE such as wear, compression strength, deformation under load, cold creep, thermal conductivity and dimensional stability.

Typical Application

F13 offers excellent properties of high resistance to deformation, low coefficient of friction, good thermal and electrostatic dissipation in chemical, in automotive industries, in sealing application, in water application (one of the lowest wear rates in fresh water), in mechanical applications. High wear resistance, chemical resistance, lowest coefficient of friction, self-lubrication and good mechanical properties are suitable for the majority of dry and wet applications.

F13 is commonly used in dynamic high speed application thanks to his improved wear life against soft to medium hardness surface. Typical application in mechanical field for pumps, mixers, compressors, wear bands, in appliances, in automotive lip seals, slides and solenoid valves and where electrical insulation is not required.

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

F13 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

F13 is supplied in the following shapes and formats:

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