>> REINFORCED POLYTETRAFLUORETHYLENE [PTFE + MICA]

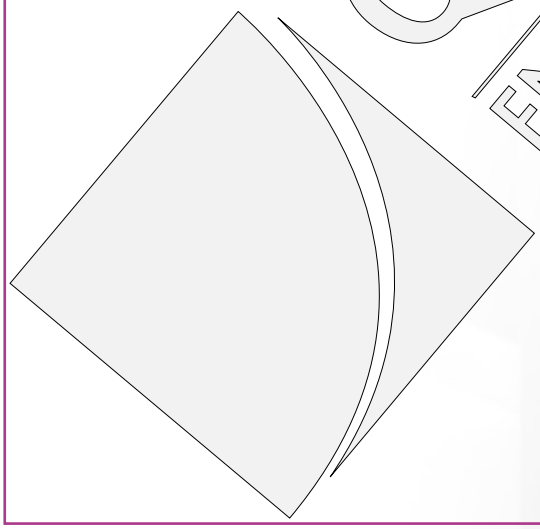
FLUOROSINT® 500

QUADRANT
ENGINEERING PLASTIC PRODUCTS

FLUOROSINT 500 has nine times greater resistance to deformation under load than unfilled PTFE (tested according to ASTM D 621; stress of 14 MPa at 50°C). Its coefficient of linear thermal expansion approaches the expansion rate of aluminium and is 1/5 that of virgin PTFE. It is considerably harder than virgin PTFE, has better wear characteristics and maintains low frictional properties. FLUOROSINT 500 is also non-abrasive to most mating materials.

Physical properties (indicative values•)

PROPERTIES	Test methods ISO/(IEC)	Units	VALUES
Colour	—	—	ivory
Density	1183	g/cm³	2.32
Water absorption:			
- after 24 h immersion in water of 23°C (1)	62	mg	14
	62	%	0.10
- at saturation in water of 23°C	—	%	3.0
Thermal Properties			
Melting temperature	—	°C	327
Thermal conductivity at 23°C	—	W/(K·m)	0.77
Coefficient of linear thermal expansion:			
- average value between 23 and 100°C	—	m/(m·K)	$45 \cdot 10^{-6}$
- average value between 23 and 150°C	—	m/(m·K)	$45 \cdot 10^{-6}$
- average value above 150°C	—	m/(m·K)	$60 \cdot 10^{-6}$
Temperature of deflection under load:			
- method A: 1.8 MPa	75	°C	130
Max. allowable service temperature in air:			
- for short periods (2)	—	°C	280
- continuously: for min. 20,000h (3)	—	°C	260
Flammability (4):			
- "Oxygen index"	4589	%	≥ 95
- according to UL 94 (1.5/3 mm thickness)	—	—	V-0/V-0
Mechanical Properties at 23°C			
Tension test (5):			
- tensile stress at break (6)	527	MPa	8
- tensile strain at break (6)	527	%	10
- tensile modulus of elasticity (7)	527	MPa	2,200
Charpy impact strength - Unnotched (8)	179/1eU	kJ/m²	no break
Charpy impact strength - Notched	179/1eA	kJ/m²	4
Rockwell hardness (9)	2039-2	—	R 55
Electrical Properties at 23°C			
Electric strength (10)	(60243)	kV/mm	11
Volume resistivity	(60093)	Ω·cm	$> 10^{12}$
Surface resistivity	(60093)	Ω	$> 10^{12}$
Relative permittivity ε_r : - at 1 MHz	(60250)	—	2.85
Dielectric dissipation factor tan δ : - at 1 MHz	(60250)	—	0.008



Note: 1 g/cm³ = 1,000 kg/m³; 1 MPa = 1 N/mm²; 1 kV/mm = 1 MV/m

Legend

(1) According to method 1 of ISO 62 and done on discs Ø 50 x 3mm.
(2) Only for short time exposure (a few hours) in applications where no or only a very low load is applied to the material.
(3) Temperature resistance over a period of min. 20,000 hours. After this period of time, there is a decrease in tensile strength of about 50% as compared with the original value. The temperature value given here is thus based on the thermal-oxidative degradation which takes place and causes a reduction in properties. Note, however, that the maximum allowable service temperature depends in many cases essentially on the duration and the magnitude of the mechanical stresses to which the material is subjected.
(4) These mostly estimated ratings, derived from raw material supplier data, are not intended to reflect hazards presented by the materials under actual fire conditions. There is no UL yellow card available for FLUOROSINT 500 stock shapes.
(5) Test specimens: Type 1 B.
(6) Test speed: 5 mm/min.
(7) Test speed: 1 mm/min.
(8) Pendulum used: 4 J.
(9) 10 mm thick test specimens.
(10) 1 mm thick test specimens.

• This table is a valuable help in the choice of a material. The data listed here fall within the normal range of product properties of dry material. **However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design.**
It has to be noted that FLUOROSINT 500 is a filled, and consequently anisotropic material (properties differ when measured parallel and perpendicular to the extrusion direction).

Availability

Round Rods: ∅ 12.70-222.25 mm - **Plates:** Thicknesses 6.35-76.20 mm - **Tubes:** O.D. 31.75-304.80 mm

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