

Reinforced with a proprietary synthetic mica, SEMITRON ESd 500HR offers an excellent combination of low frictional properties, good dimensional stability and electrostatic dissipation. Whenever virgin PTFE causes electrical discharge problems, SEMITRON ESd 500HR will provide a controlled bleed-off of static charges while maintaining typical PTFE-properties such as broad chemical resistance, temperature resistance and low coefficient of friction.

Physical properties (indicative values*)

PROPERTIES	Test methods ISO/(IEC)	Units	VALUES
Colour	—	—	white
Density	1183	g/cm ³	2.30
Water absorption:			
– after 24 h immersion in water of 23°C (1)	62	mg	4
	62	%	0.03
– at saturation in water of 23°C	—	%	2.0
Thermal Properties			
Melting temperature	—	°C	327
Coefficient of linear thermal expansion:			
– average value between 23 and 100°C	—	m/(m·K)	100 · 10 ⁻⁶
– average value between 23 and 150°C	—	m/(m·K)	100 · 10 ⁻⁶
– average value above 150°C	—	m/(m·K)	140 · 10 ⁻⁶
Temperature of deflection under load:			
– method A: 1.8 MPa	75	°C	100
Max. allowable service temperature in air:			
– for short periods (2)	—	°C	280
– continuously: for min. 20,000 h (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	10
– tensile strain at break (6)	527	%	50
– tensile modulus of elasticity (7)	527	MPa	1,800
Charpy impact strength – Unnotched (8)	179/1eU	kJ/m ²	no break
Charpy impact strength – Notched	179/1eA	kJ/m ²	5
Rockwell hardness (9)	2039-2	—	R 50
Electrical Properties at 23°C			
Volume resistivity	(60093)	Ω·cm	10 ¹⁰ - 10 ¹²
Surface resistivity	(60093)	Ω	10 ¹⁰ - 10 ¹²

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

Availability

Plates: Thicknesses 6.35-50.80 mm

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Legend

- (1) According to method 1 of ISO 62 and done on discs Ø 50 x 3 mm.
- (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 SEMITRON ESd 500HR 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.

- 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 SEMITRON ESd 500HR is a filled, and consequently anisotropic material (properties differ when measured parallel and perpendicular to the extrusion direction).