SEMITRON® ESd 410C

QUADRANT
ENGINEERING PLASTIC PRODUCTS

PRODUCT DATA SHEET

Having an excellent mechanical performance up to 210°C, SEMITRON ESd 410C provides ESd-solutions at higher temperatures.
Additionally, SEMITRON ESd 410C exhibits excellent dimensional stability (low coefficient of linear thermal expansion and small water absorption), ideal for handling equipment in the electrical / electronic or semiconductor industries.

Physical properties (indicative values•)

PROPERTIES	Test methods ISO/(IEC)	Units	VALUES
Colour	—	—	black
Density	1183	g/cm³	1.41
Water absorption:			
– at saturation in air of 23°C / 50% RH	—	%	0.75
– at saturation in water of 23°C	—	%	1.35
Thermal Properties			
Melting temperature	—	°C	NA
Glass transition temperature	—	°C	215
Thermal conductivity at 23 °C	—	W/(K·m)	0.35
Coefficient of linear thermal expansion:			
– average value between 23 and 100°C	—	m/(m·K)	$35 \cdot 10^{-6}$
– average value between 23 and 150°C	—	m/(m·K)	$35 \cdot 10^{-6}$
– average value above 150°C	—	m/(m·K)	$35 \cdot 10^{-6}$
Temperature of deflection under load:			
– method A: 1.8 MPa	75	°C	210
Max. allowable service temperature in air:			
– for short periods (1)	—	°C	200
– continuously: for min. 20,000 h (2)	—	°C	170
Flammability (3):			
– "Oxygen Index"	4589	%	47
– according to UL 94 (1.5/3 mm thickness)	—	—	V-0/V-0
Mechanical Properties at 23°C			
Tension test (4):			
– tensile stress at break (5)	527	MPa	62
– tensile strain at break (5)	527	%	2
– tensile modulus of elasticity (6)	527	MPa	6,400
Charpy impact strength – Notched	179/1eA	kJ/m²	4
Rockwell hardness (7)	2039-2	—	M 115
Electrical Properties at 23°C			
Volume resistivity	(60093)	Ω·cm	10^4 - 10^6
Surface resistivity	(60093)	Ω	10^4 - 10^6

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

NA = Not applicable

Legend

(1) Only for short time exposure (a few hours) in applications where no or only a very low load is applied to the material.
(2) 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.
(3) 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 410C stock shapes.
(4) Test specimens: Type 1 B.
(5) Test speed: 5 mm/min.
(6) Test speed: 1 mm/min.
(7) 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.**

Availability

Round Rods: ∅ 12.70-247.65 mm - **Plates:** Thicknesses 9.53-50.80 mm - **Tubes:** O.D. 50.80-374.65 mm