

DSM 5.1.3

Semitron ESd 410C

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 expansion and small water absorption), ideal for handling equipment in the electrical/electronic or semiconductor industries.

Physical properties (indicative values [■])

PROPERTIES			
Colour	-	-	Black
Density	ISO 1183-1	g/cm ³	1.41
Water absorption:			
- after 24 immersion in water of 23 °C (1)	ISO 62	%	
- at saturation in water of 23 °C	-	%	1.10
Thermal Properties (2)			
Melting temperature (DSC, 10 °C/min)	ISO 11357-1/-3	°C	
Glass transition temperature (DSC, 20 °C/min) - (3)	ISO 11357-1/-2	°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)	40 x 10 ⁻⁶
- average value between 23 and 150 °C	-	m/(m.K)	40 x 10 ⁻⁶
- average value above 150 °C	-	m/(m.K)	45 x 10 ⁻⁶
Temperature of deflection under load:			
- method A: 1.8 MPa	ISO 75-1/-2	°C	200
Max. allowable service temperature in air:			
- continuously : for min. 20,000 h (4)	-	°C	170
Min. service temperature (5)	-	°C	-20
Flammability (6):			
- according to UL 94 (3 mm thickness)	-	-	V-0
Mechanical Properties at 23 °C (7)			
Tension test (8):			
- tensile strength (9)	ISO 527-1/-2	MPa	62
- tensile strain at yield(9)	ISO 527-1/-2	%	
- tensile strain at break (9)	ISO 527-1/-2	%	2
- tensile modulus of elasticity (10)	ISO 527-1/-2	MPa	5850
Compression test (11):			
- compressive stress at 1 / 2 / 5 % nominal strain (10)	ISO 604	MPa	44 / 76 / 114
Flexural test (12):			
- flexural strength	ISO 178	MPa	80
- flexural modulus of elasticity	ISO 178	MPa	
Charpy impact strength - unnotched (13)	ISO 179-1/1eU	kJ/m ²	20
Charpy impact strength - notched	ISO 179-1/1eA	kJ/m ²	4
Rockwell M-hardness (14)	ISO 2039-2	-	115
Dynamic Coefficient of Friction (-)	ISO 7148-2 (15)	-	
Wear rate	ISO 7148-2 (15)	µm/km	
Electrical Properties at 23 °C			
Electric strength (16)	IEC 60243-1	kV/mm	
Volume resistivity	IEC 60093	Ohm.cm	10 ⁴ - 10 ⁶
Surface resistivity	ANSI/ESD STM 11.11	Ohm/sq.	10E4 - 10E6
Relative permittivity ε _r : - at 1 MHz	IEC 60250	-	3.00
Dielectric dissipation factor tan δ: - at 1 MHz	IEC 60250	-	0.002

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

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