

DATASHEET

SEMITRON ESd 520HR

Semitron ESd 520HR has an industry first combination of electrostatic dissipation (ESd), high strength and heat resistance. This new ESd material is ideal for making nests, sockets and contactors for test equipment and other device handling components in the semiconductor industry. The key feature of Semitron ESd 520HR is its unique ability to resist dielectric breakdown at high voltages (>100V).

Applications

- Wafer Combs
- Handling Trays
- Inserts
- IC Device Testing Fixtures

Availability

- Colour – Black
- Type – Sheets & Rods
- Regularly produced in a wide variety of thicknesses

Typical Properties

General Properties	Method	Unit	Test Result
Physical Properties			
Colour	-	-	Black
Density	ISO 1183-1	g/cm ³	1.58
Water Absorption:			
- After 24h immersion in water of 23°C	ISO 62	mg	0.60
- At saturation in water of 23°C	-	%	4.6
Thermal Properties			
Melting Temperature (DSC, 10°C/min)	ISO 11357 – 1/-3	°C	-
Glass Transition Temperature (DSC, 10°C/min)	ISO 11357 – 1/-2	°C	280
Thermal Conductivity at 23°C	-	W/(K.m)	0.34
Coefficient of Linear Thermal Expansion:			
- Average value between 23 and 100°C	-	W/(K.m)	35x10 ⁻⁶
- Average value between 23 and 150°C	-	W/(K.m)	35x10 ⁻⁶
- Average value above 150°C	-	W/(K.m)	40x10 ⁻⁶
Temperature of Deflection Under Load:			
- Method A: 1.8 MPa	ISO 75-1/-2	°C	280
Max Allowable Service Temperature in Air:			
- Continuously: for 5,000 to 20,000h	-	°C	250
Minimum Service Temperature	-	°C	-20
Flammability:			

- According to UL94 (3/6mm thickness)	-	-	V-0
Mechanical Properties			
Tension Test:			
- Tensile Strength	ISO 527-1/-2	MPa	83
- Tensile Strain at Yield	ISO 527-1/-2	%	-
- Tensile Strain at Break	ISO 527-1/-2	%	3
- Tensile Modulus of Elasticity	ISO 527-1/-2	MPa	5500
Flexural Test:			
- Flexural Strength	ISO 178	MPa	105
- Flexural Modulus of Elasticity	ISO 178	MPa	-
Compression Test:			
- Compressive Stress @ 1/2/5% Nominal Strain	ISO 604	MPa	42/80/145
Charpy Impact Strength - Unnotched	ISO 179-1-1eU	kJ/m ²	20
Charpy Impact Strength - Notched	ISO 179-1-1eU	kJ/m ²	4
Rockwell Hardness	ISO 2039-2	-	110
Dynamic Coefficient of Friction	ISO 7148-2(15)	-	-
Wear Rate	ISO 7148-2(15)	Um/km	-
Electrical Properties			
Electric Strength	EC 60243-1	kV/mm	-
Volume Resistivity	IEC 60093	Ohm.cm	10 ¹⁰ – 10 ¹²
Surface Resistivity	IEC 60093	Ohm	10 ¹⁰ – 10 ¹²
Relative Permittivity – at 1MHz	IEC 60250	-	5.80
Dielectric Dissipation Factor – at 1 MHz	IEC 60250	-	0.18