

Product Information

Electronic Protection System

Flame retardant Melting Resin

Bectron[®] MR 3406 FR

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Product description

Bectron® MR 3406 FR is a one-component, halogen-, phosphate- and silicone-free melting resin, designed for thick film coating in electronic applications.

As a thermoplastic there is no curing reaction, only a rapid solidification of the resin on cooling.

Areas of application

Bectron® MR 3406 FR dielectric properties are ideal for electronic applications as well as protection against humidity, corrosion, vibration and migration. It is based on polyolefin resin chemistry, which is better suited to electronics than conventional polyamide based hot-melt thermoplastic. It is suitable for thick film application on PCB's and components to provide chemical protection and/or mechanical support, to secure them against shock and vibration. It can be placed selectively to secure and protect single components, or for whole PCB's or hybrids.

Bectron® MR 3406 FR is recommended for serial production, where fast solidification gives a short process time and requires no curing oven.

Properties of the cured material

The tough plastic resin Bectron® MR 3406 FR has a maximum operating temperature of 105°C. It has excellent dielectric properties and shows very good adhesive strength on many different substrates over the temperature range from -40°C to +105°C. It has low humidity absorption providing stable dielectric properties, even after water immersion.

Resistant to acids and bleach, polar solvents and fungal growth.

Not resistant to aliphatic aromatic and chlorinated solvents.

Very easy re-work as it can be melted and hardened reversibly.

Satisfies the requirements of ROHS

No shrinking on vertical PCB's @ 105°C.

Storage

Bectron® MR 3406 FR storage should be cool and dry, bricks kept separated as packed to prevent them sticking together and maintain the good properties of the material. Minimum shelf-life is 6 months.

Processing suggestions

Bectron® MR 3406 FR can be applied easily with commercially available hot melt guns, or heated dispensers containing a stirrer. During application the temperature should reach 190-200°C at the nozzle. Material in an equipment reservoir should be held at 170°C for 1 day maximum under stirring. After application the Bectron® MR 3406 FR solidifies during cooling.

The substrate should be dry in order to avoid bubbles of moisture. No equipment for mixing or curing is needed.

If a very thin layer is applied, special coating equipment e.g. spray nozzle, is necessary. Preheating of the substrate up to 90°C may be needed for thin layers to be uniform and free of defects.

To ensure satisfactory adhesion on the PCB surface the following should be checked:

- Use of residue-free flux
- ensure dry surfaces
- Check compatibility of the coating resin with the solder resist and solder paste.

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Table 1 - Properties of component as supplied

Property	Condition	Value	Unit
Viscosity (DIN 53229)	180°C	600 ± 150	mPas
Density (DIN 53217)	23°C	0,85 ± 0,1	g/cm ³
Shelf life	23°C	6	months

Table 2 - Thermal properties in cured condition

Property	Condition	Value °C	Unit
Colour	Shiny black		
Max. Operation temperature	168h @ 105°C	105	°C
Temperature Range		-40 to +107	°C

Table 3 - Mechanical properties in cured condition

Property	Condition	Value	Unit
Hardness, ISO 868	23°C	22	Shore A
	105 °C	undetectable	Shore A
Flammability class UL 94 (File E 140720)	3 mm	V0	---

Table 4 - Dielectric properties in cured condition

Property	Condition	Value	Unit
Volume resistivity after water immersion	Initial Value 7d	>10 ¹⁵	Ω • cm
Surface Resistance (according IPC TM 650 2.6.3.7)	500 h, 85% RH, 85°C	>10 ¹⁰	Ω
Dielectric strength (VDE 0303 Part 2)	23°C	9	kV/mm
Dielectric Constant (VDE 0303 Part 4)	23°C	2,7	-
Dielectric dissipation tanδ (VDE 0303 Part 4)	101°C	0,1	-
CTI	RT	>600	-

Table 5 - Chemical properties in cured condition

Property	Condition	Value	Unit
Water absorption (ISO 62 Method 1)	24h / 23°C	0,08	%

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