

Product Information

Electronic Protection System

Melting Resin

Bectron[®] MR 3406

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Product description

Bectron[®] MR 3406 is a one-component hot melt 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 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 application of a thick film coating on PCBs 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 PCBs or hybrids. Bectron[®] MR 3406 is recommended for serial production where fast solidification gives a short process time requiring no curing oven.

Properties of the cured material

The tough plastic resin MR 3406 has a maximum operating temperature of 125°C. It has excellent dielectric properties and shows very good adhesive strength on many different substrates over the temperature range from -40 °C to 125°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 requirements of ROHS.

Inspection of coated area is possible under UV light.

Storage

Bectron[®] MR 3406 storage should be cool and dry and 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 can be applied easily with commercially available hot melt guns or heated dispensers. On heating, Bectron[®] MR 3406 starts to soften at +140 °C. 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. After application the Bectron[®] MR 3406 solidifies during cooling and is normally hard below +100°C, but complete solidification may be slow. 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	520 ± 200	mPas
Density (DIN 53217)	23°C	0.86 ± 0.02	g/cm ³
Shelf life	23°C	6	months

Table 2 - Thermal properties in cured condition

Property	Condition	Value	Unit
Melting Range	DSC 20K/min	145-170	°C
Max. Operation temperature	168h @ 125	125	°C
Temperature Range		-40 to +125	°C

Table 3 - Mechanical properties in cured condition

Property	Condition	Value	Unit
Shore hardness (ISO 868)	23°C	14 ± 5	Shore A
Glass transition temperature		-25 ± 5	°C

Table 4 - Dielectric properties in cured condition

Property	Condition	Value	Unit
Volume resistivity after water immersion	Initial Value 7d	3 x 10 ¹⁵	Ω • cm
		5 x 10 ¹⁵	Ω • cm
Surface Resistance		5 x 10 ¹⁴	Ω
Dielectric strength (VDE 0303 Part 2)	23°C	>30	kV/mm
Dielectric Constant (VDE 0303 Part 4)	23°C	2.1	-
Dielectric dissipation tanδ (VDE 0303 Part 4)	23°C	< 0.001	-

Table 5 - Chemical properties in cured condition

Property	Condition	Value	Unit
Water absorption (ISO 62 Method 1)	24h / 23°C	0.05	%

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