ELANTAS
Electrical Insulation

Product Information

Electronic Protection System

Melting Resin

Bectron® MR 3402

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Product description

Bectron® MR 3402 is a one-component hot melt resin thick film coating developed for electronic applications. It is based on polyolefin resin chemistry which is better suited to electronics than conventional polyamide based hot-melt thermoplastic.

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

Areas of application

Bectron MR 3402 dielectric properties are ideal for electronic applications as well as protection against humidity, corrosion vibration and migration. 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 3402 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 3402 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 the requirements of ROHS
Inspection of coated area is possible under UV light

Storage

Bectron® MR 3402 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 3402 can be applied easily with commercially available hot melt guns or heated dispensers. On heating, Bectron® MR 3402 starts to soften at +150 °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 3402 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.

Bectron® MR 3402

Table 1 - Properties of component as supplied

Property	Condition	Value	Unit
Viscosity (DIN 53018)	190°C	8,500 ± 1,000	mPas
Density (DIN 53217)	23°C	0.86 ± 0.02	g/cm³
Shelf life	23°C	6	months

Table 2 - Thermal properties in cured condition

Property	Value	Unit
Melting Point	>150	°C
Temperature Range	-40 to +125	°C

Table 3 - Mechanical properties in cured condition

Property	Condition	Value	Unit
Shore hardness	23°C	15 ± 5	Shore A

Table 4 - Dielectric properties in cured condition

Property	Condition	Value	Unit
Volume resistivity after water immersion	Initial Value 7d	3×10^{15} 5×10^{15}	Ω • cm Ω • cm
Surface Resistance after water immersion	7 d	5×10^{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	0.06	%

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