

## **Product Information**

Electronic Protection System

**Melting Resin**

**Bectron<sup>®</sup> MR 3402**

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## Product description

Bectron<sup>®</sup> 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<sup>®</sup> 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<sup>®</sup> MR 3402 can be applied easily with commercially available hot melt guns or heated dispensers. On heating, Bectron<sup>®</sup> 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<sup>®</sup> 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<sup>®</sup> 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/cm <sup>3</sup>
Shelf life	23°C	6	months

**Table 2 - Thermal properties in cured condition**

Property	Value	Unit
Melting Point	>150	°C
Temperature Range	-40 to +130	°C

**Table 3 - Mechanical properties in cured condition**

Property	Condition	Value	Unit
Shore hardness	23°C	14 ± 4	Shore A

**Table 4 - Dielectric properties in cured condition**

Property	Condition	Value	Unit
Volume resistivity after water immersion	Initial Value 7d	3 x 10 <sup>15</sup>	Ω • cm
		5 x 10 <sup>15</sup>	Ω • cm
Surface Resistance after water immersion	7 d	5 x 10 <sup>14</sup>	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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