Micromax™ 5487

Electronic Inks and Pastes

Polymer Series Composition

Micromax™ 548X polymer compositions are intended for encapsulation on hybrid circuits, resistor networks and chip components. The polymers are intended to be applied to ceramic substrates by screen printing, then cured at 180-200 °C.

Product benefits

- Smooth surface with excellent hardness
- Non-flammable single component epoxy type
- Thermoset process (180-200 °C, 20-30 min)
- High adhesion
- Good Printability
- Good solvent and environmental resistance

Product information

Colour	Green
Solvent or thinner	Micromax™ 5490
Blend member or series	548Xsrs

Rheological properties

Viscosity	50 - 110[1]	Pa.s

[1]: Brookfield HAT, UC&SP, SC4-14/6R, 10 rpm, 25 °C ± 0.5 °C

Application technique

Mask mesh	200	
Mask emulsion	20	µm
Drying time	10	min
Drying temperature	150	°C
Theoretical coverage	240[2]	cm^2/g
Recommended film thickness	12 - 14[3]	µm
Leveling time	5 - 10	min

[2]: ~240, based on a cured film thickness of 13µm

[3]: cured thickness

Electrical properties

Insulation Resistance, DC	≥1E15	Ohm

[4]: Ω•cm, Encapsulant Micromax™ 5487, initial

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Storage and stability

Shelf life	3[5] months

[5]: in unopened containers, from date of shipment, at temperature between 0-5 °C

Additional information

How to use

Design & compatibility

- Design
  - For optimum smoothness, printing with a double pass squeegee is recommended.

Processing

- Substrates
  - Substrates of different compositions and from various manufacturers may result in variations in performance properties.
- Printing
  - 12-14µm cured thickness, this is best achieved using a 200 mesh stainless steel screen with a 20µm emulsion thickness and squeegee of 70 durometer.
  - The composition should be thoroughly mixed before use. This is best achieved by slow, gentle hand stirring with a clean burr-free spatula (flexible plastic) for 1-2 minutes. Care must be taken to avoid air entrapment. Printing should be performed in a clean and well ventilated area.
  - Note : Optimum printing characteristics are generally achieved in the room temperature range of 20 °C - 23 °C. It is therefore important that the material, in its container, is at this temperature prior to commencement of printing.
- Thinning
  - The compositions are optimized for screen printing, thinning is not normally required. When necessary, use the Micromax™ recommended thinner for slight adjustments to viscosity or to replace evaporation losses. The use of too much thinner or the use of a non recommended thinner may affect the rheological behavior of the material and its printing characteristics.
- Clean-up solvent
  - Micromax™ 5490
- Drying
  - Allow prints to level for 5-10 minutes at room temperature, then dry for 10 minutes at 150 °C.
- Curing

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- 180-200°C for 20-30 minutes. A darkening of the polymer film will occur with higher curing temperatures. Fast curing can be achieved with an infrared dryer. Conditions need to be optimized for type of dryer and color of paste.

Properties

Typical Cured Properties*1, Encapsulant Micromax™ 5487 (Green)

Test	Properties
Bulk Resistivity (Ω.cm) After PCT*2	> $1x10^{12}$
Insulation resistivity (Ω.cm) After PCT*2	> $3x10^{12}$
Solvent resistance*3 Acetone	No appearance change
Solvent resistance*3 MEK	No appearance change
Alkali resistance*3 (10 wt%/NaOH)	No appearance change
Acid resistance*3 (10 vol %/HCl)	No appearance change
Adhesion*4 On glass substrate Initial	OK
Adhesion*4 On glass substrate After PCT*2	OK
Adhesion*4 On alumina substrate Initial	OK
Adhesion*4 On alumina substrate After PCT*2	OK

*1 Curing conditions are 180°C, 30 minutes profile single curing cycle
*2 PCT : Pressure cooker test at 125°C, 2 atmospheres, for 3 hours
*3 5 hours Immersion at 25°C
*4 Crosscut Scotch tape peel test (100 pads)

Information in this datasheet shows anticipated typical physical properties for Micromax™ 548X series based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

Storage and shelf life

Containers should be stored, tightly sealed, in a clean, stable environment at 0°C - 5°C. Shelf life of material in unopened containers is three months from date of shipment. Some settling of solids may occur and compositions should be thoroughly mixed prior to use.

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Safety and handling

For safety and handling information pertaining to this product, read Safety Data Sheet (SDS).

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