

Micromax™ 5480

Electronic Inks & Pastes

PRODUCT DESCRIPTION

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

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

PRODUCT INFORMATION

General Properties	Value Unit
Application	Encapsulant
Color	White
Solvent or thinner	Micromax™ 5490
Blend member or series	548Xsrs

TECHNICAL DATA

Rheological Properties	Value Unit
Viscosity ¹	40 to 70 Pa.s

Application Technique	Value Unit
Mask mesh	200

Application Technique	Value	Unit
Mask emulsion	20	µm
Drying time	10	min
Drying temperature	150	°C
Theoretical coverage ²	240	cm ² /g
Recommended film thickness ³	12 to 14	µm
Leveling time	5 to 10	min
Electrical Properties	Value	Unit
Insulation Resistance ⁴	≥1E15	Ohm
Volume resistivity ⁵	≥-1E53	µOhm.cm
Storage and Stability	Value	Unit
Shelf life ⁶	3	months

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

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

³cured thickness

⁴Ω•cm, Encapsulant 5480, initial

⁵Encapsulant Micromax™ 5480, initial

⁶in unopened containers, from date of shipment, stable environment at refrigerated temperature between 0°C - 5°C

PROCESSING GUIDELINES

Design & compatibility

Design

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

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

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.

Typical Cured Properties*¹, Encapsulant Micromax™ 5480 (White)

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 refrigerated temperature between 0°C - 5°C. Storage at room temperature is not recommended. Shelf life of material in unopened containers is 3 months from date of shipment. Gradual polymerization and associated viscosity increase, and mechanical separation can be expected over a period of a few months. When refrigerating conditions are used for storage, materials should be allowed to equilibrate to room temperature before opening to prevent pick up of moisture from condensation. After the containers are opened, use and storage conditions and the possible effects of contamination make shelf limits unpredictable.

Storage conditions on the product data sheets are intended to represent long-term material storage recommendations and not a shipping or temperature-at-receipt requirement.

Transportation: Under normal shipping conditions, without temperature control, Micromax™ products are not expected to exhibit a change in quality or fitness for use. Should extraordinary events result in extended transportation periods, Micromax™ recommends customers confirm products remain suitable for the intended application.

Safety and handling

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

SAFETY & WARNING

It is recommended that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use.

Safety Data Sheets are available.

WASTE TREATMENT

Prior to using any recommendations or suggestions for waste treatment, the user is required to know the appropriate local/state/federal regulations for on-site or off-site treatment which may require permits. If there is any conflict regarding our recommendations, local/state/federal regulations take precedence.

CONTACT INFORMATION

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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE. Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

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