

Micromax™ LF161

Microcircuit and Component Materials

Encapsulant Composition

Micromax™ LF161 glass encapsulant composition is intended to form an insulating and protective layer over thick film circuits and is an integral element of the System LF multilayer system. It is applied to ceramic substrates by screen printing and fired in an air (oxidizing) atmosphere.

Product benefits

- Lead, Cadmium, Chromium and Nickel Free*
- Protection against reactive chemicals
- Fireable on a low temperature (620 °C) profile

* Cadmium, chromium, nickel and lead 'free' as used herein means that these are not intentional ingredients in and are not intentionally added to the referenced product. Trace amount however may be present.

Product information

Solvent or thinner

Micromax™ 8250

Rheological properties

Viscosity

90 - 130^[1] Pa.s

[1]: Brookfield HAT, UC&SP, 10 rpm, 25 °C

Application technique

Mask mesh

325

Mask emulsion

10 µm

Drying time

10 - 15 min

Drying temperature

150 °C

Theoretical coverage

165^[2] cm²/g

Recommended film thickness, fired

7 - 10 µm

Leveling time

5 - 10 min

[2]: based on average fired thickness of 9µm

Storage and stability

Shelf life

6^[3] months

[3]: in unopened containers, from date of shipment, at temperature <25 °C

Additional information

How to use

Processing

• Substrates

- Substrates of different compositions and various manufacturers

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may result in variation in performance properties.

- **Printing**

- 325 mesh stainless steel with 10µm emulsion.
- The composition should be thoroughly mixed before use. This is best achieved by slow, gently, hand stirring with a clean burr-free spatula (flexible plastic) for 0.5-1 minute. 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**

- This composition is optimized for screen-printing, thinning is not normally required. 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.

- **Drying**

- Allow prints to level for 5-10 minutes at room temperature, then dry for 10-15 minutes at 150 °C.
- Dry in a well-ventilated oven or conveyor dryer.

- **Firing**

- 620 °C plateau for at least 4 minutes, 7 to 10 minutes above 600 °C, and at least 25 minutes above 100 °C on a 30-minute cycle in an air atmosphere.
- Fire in a well ventilated belt, conveyor furnace, or static furnace. Airflows and extraction rates should be optimized to ensure that oxidizing conditions exist within the muffle.

Properties

- Information in this datasheet shows anticipated typical physical properties for Micromax™ LF161 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 room temperature (<25 °C). Shelf life of material in unopened containers is six months from date of shipment. Some settling of solids may occur and compositions should

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be thoroughly mixed prior to use.

Safety and handling

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

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may cause significant variations in data values. Properties of moulded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Other than those products expressly identified as medical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication. Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards. We strongly recommend that users seek and adhere to the manufacturer's current instructions for handling each material they use, and entrust the handling of such material to adequately trained personnel only. Please call the telephone numbers listed for additional technical information. Call Customer Services for the appropriate Materials Safety Data Sheets (MSDS) before attempting to process our products.

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