

Micromax™ QM14

Electronic Inks and Pastes

Silver Conductor

Micromax™ QM14 silver conductor is part of the Micromax™ QM System, a silver-based system for low cost multilayers, Micromax™ QM14 silver conductor is recommended as an inner conductor for dielectrics Micromax™ QM42 and Micromax™ QM44.

Product benefits

- High conductivity
- High speed printing
- Fugitive blue dye.
- Excellent solderability and adhesion on Micromax™ QM42 dielectric and Micromax™ QM44

Product information

Solvent or thinner Micromax™ 4553

Rheological properties

Viscosity 90 - 125^[1] Pa.s

[1]: Brookfield HAT, UC&S, SC4-14/6R, 10 rpm, 25°C ± 0.2°C

Application technique

Mask mesh	325
Mask emulsion	12 μm
Drying time	10 - 15 min
Drying temperature	150 °C
Theoretical coverage	85 - 95 ^[2] cm ² /g
Print resolution, lines	175 ^[3] μm
Leveling time	5 - 10 min

[2]: based on fired thickness of 10μm

[3]: On Alumina. In the case of on Micromax™ QM44 200μm. [lines/spaces],

Specific Application Suitability

Solder leach resistance	2 - 3 ^[4] cycles
Solder acceptance	95 ^[5] %

[4]: 62Sn/36Pb/2Ag at 230°C 10 dips, on alumina.

[5]: 62Sn/36Pb/2Ag at 220°C, on alumina. Percentage of defect free 2mm x 2mm squares. Alpha 611 flux.

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Electrical properties

Surface resistivity

1.5 - 2.5^[6] mOhm per square

[6]: at 12µm fired thickness

Storage and stability

Shelf life

6^[7] months

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

Additional information

How to use

Processing

- **Substrates**
 - Properties are based on tests on 96% alumina substrates. Substrates of other compositions and from various manufacturers may result in variations in performance properties.
- **Printing**
 - Screen-print with a 325-mesh stainless steel screen with a 12µm emulsion thickness. Print speeds of 10 to 30 cm/s may be used.
- **Drying**
 - Allow prints to level for 5-10 minutes at room temperature. Then dry for 10-15 minutes at 150°C.
- **Firing**
 - Fire in a well ventilated moving conveyor furnace, in air with a 30-minute cycle, to peak temperature of 850°C.

Properties

- Information in this datasheet shows anticipated typical physical properties for Micromax™ QM14 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 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).

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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