# Micromax™ 7484R

## Electronic Inks and Pastes

### Palladium/Silver Conductor

Micromax™ 7484R Palladium/silver conductor Composition is intended to be applied to ceramic substrates by screen printing and fired in a conveyor furnace in an air atmosphere to form interconnection tracks and pads for component and lead attachment, in hybrid microcircuits and networks.

## Product benefits

- Fine line resolution
- Thin, dense fired films
- Fireable on 30-or 60-minutes 850°C profiles
- Excellent solderability on both Alumina and Micromax™ QM44 or Micromax™ 5704 Dielectric
- Excellent aged adhesion on Alumina and on Micromax™ QM44 or Micromax™ 5704 Dielectric
- Phthalate, Cadmium, Nickel oxide free*

*Phthalate, Cadmium, and Nickel oxide 'free' as used herein means that cadmium, phthalate and nickel oxide are not intentional ingredients in and are not intentionally added to the referenced product. Trace mounts however may be present.

## Product information

| | |
|---|---|
| Solvent or thinner | Micromax™ 4553 |

## Rheological properties

| | | |
|---|---|---|
| Viscosity | 150 - 230[1] | Pa.s |

[1]: Brookfield HBT, #14 spindle, UC&S @10 rpm, 25°C

## Application technique

| | | |
|---|---|---|
| Mask mesh | 325[2] | |
| Mask emulsion | 10 - 12 | µm |
| Drying time | 10 - 15 | min |
| Drying temperature | 150 | °C |
| Theoretical coverage | 85 - 95[3] | $cm^2/g$ |
| Recommended film thickness, fired | 9 - 13[4] | µm |
| Print resolution, lines | ≥150 | µm |
| Leveling time | 5 - 10 | min |

[2]: Screen Types: Stainless steel

[3]: based on fired film thickness of 11µm

[4]: Fired Thickness line, pads. On Alumina.

[5]: on Alumina

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## Specific Application Suitability

| | | |
|---|---|---|
| Solder leach resistance | 7 - 9[6] | cycles |
| Solder acceptance | ≥96 | % |

[6]: On Alumina and on Micromax™ 5704 are the sane, #of dips. Firing 1,3 or 5 firing 30 or 60 minute profile. Number of 10 sec dips on 62Sn/36Pb/2Ag solder at 230 °C, 500 µm lines.

[7]: On Alumina and on Micromax™ 5704 are the sane. Percentage of defect free 2 x 2 mm pads, Alpha 611 RMA flux, 5 sec dips in 62Sn/36Pb/2Ag solder at 220 °C. Firing 1,3 or 5 firing 30 or 60 minute profile.

## Electrical properties

| | | |
|---|---|---|
| Surface resistivity | 15 - 30[8] | mOhm per square |

[8]: On Alumina. In the case of on Micromax™ 5704, 23 - 28 mΩ/sq. Normalized to fired thickness of 12 µm.

## Storage and stability

| | | |
|---|---|---|
| Shelf life | 6[9] | months |

[9]: in unopened containers, from date of shipment, at room temperature (<25 °C)

## Additional information

How to use

### Design & compatibility

- Compatibility
  - When processed under recommended conditions, Micromax™ 7484R is compatible with most Micromax™ Resistors systems. Compatible with Micromax™ 5704 and Micromax™ QM44 Dielectrics when separately fired. Micromax™ 7484R is not suitable for cofiring on top of Micromax™ 5704 and Micromax™ QM44 Dielectrics.

### Processimg

- Substrates
  - Properties are based on test on 96% alumina substrates. Substrates of other compositions and from various manufacturers may result in variations in performance properties, as may different lots of substrates, and any subsequent processing of substrates (e.g., laser scribing/drilling) prior to printing.
- Printing
  - Conductor compositions Micromax™ 7484R should be thoroughly mixed before use. This is best achieved by slow, gentle, hand stirring with a clean, burr-free spatula (flexible plastic) for 30 seconds. Care must be taken on avoid air-bubble entrapment. Printing should be carried our in a clean, well-ventilated area.

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- Note : Optimum printing characteristics of Micromax™ 7484R are generally achieved in the temperature range 20-23°C. It is therefore important that the material, in its container, is at this temperature prior to printing. A 325-mesh stainless steel screen with a 10-12µm emulsion thickness is normally suggested. 200 mesh screens, can be used but will result in greater fired thickness. Print speeds of up to 25 cm/s may be used.
- Fine Line Printing : To achieve the optimum print resolution the following printing parameters are suggested: 325-mesh stainless steel screen with a tension of 30N/cm, emulsion thickness of 12µm, a print speed of 12.5 cm/s with a 70-80 durometer shore hardness squeegee at an angle of 45°, snap-off of 1.0 mm for a 10 x 8 inch screen.

- **Drying**
  - Allow prints to level at room temperature, in a clean. Environment, followed by drying in a well-ventilated oven or conveyor dryer.
- **Firing**
  - Fire in a well ventilated belt or conveyor furnace, in air with 30-60 minutes cycle to a peak temperature of 850°C. Care must be taken to ensure that any gases/vapors from other chemicals/ materials (e.g., halogenated solvents) do not enter the furnace muffle. It is also essential that the air supply to the furnace is clean, dry and free of contamination.

## Properties

- Information in this datasheet shows anticipated typical physical properties for Micromax™ 7484R 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.

## Safety and handling

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

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### Adhesion solder after heat ageing 0




Revised: 2023-08-21 Source: Celanese Materials Database