

PRELIMINARY PRODUCT DATA SHEET

141-74-2

Cu Sinter Paste

Introduction

141-74-2 is a pressure copper sinter paste developed by Indium Corporation to be sinter-able under nitrogen. This paste is formulated for TPak size sintering applications where high thermal and electrical conductivity is required. The paste is available for dry process and wet process.

Features

- Pressure sinter
- Dispensable
- Printable
- Jar/syringe package
- Dry process
- Wet process
- RoHS-compliant
- Sinters to Cu (preferred), Ag, and Au



Paste in Jar

Processing of Cu Sinter Paste 141-74-2

The paste should reach ambient temperature before use to ensure material stability. If stored under $\leq -15^{\circ}\text{C}$, allow for 4 hours of stabilization before use.

Properties

Metal	Cu
Metal Content (by weight)	85–87%
Max. Particle Size	15 μm
Paste Application	Printing, slot nozzle dispensing
Shear Strength (5x5mm)	>40MPa
Thermal Conductivity	>200W/mK
TCT (-65°C – 150°C), 1,500 cycles	Pass

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All of Indium Corporation's solder paste and preform manufacturing facilities are IATF 16949:2016 certified. Indium Corporation is an ISO 9001:2015 registered company.

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Re-Homogenization

Before applying to the stencil, the paste should be re-homogenized using a planetary mixer at speeds between 700–1,200rpm for 90–120s. The paste should be smooth and free from bubbles.

Wet Process



Wet Process – Stencil Printing

A slow printing speed of 20–30mm/s is recommended. Lower separation speed with 0.1mm/s and 1mm separation distance can be used to minimize lifted edges or “dog ears.” Print speed can be adjusted for good stencil clearing, 2–5kgf is recommended to start.

Wet Process – Pre-Dry after Module-Attach

The actual profile depends on equipment capability. Ramp to 150°C (typically for 12–15 minutes), then keep the temperature at 150°C for 2.5 hours, before starting cool down. N_2 ($\text{O}_2 < 1,000\text{ppm}$) is required to resist the oxidation of Cu paste.

Wet Process – Pressure Sintering

141-74-2 sinters most easily to Cu surfaces. Pre-heating to 160°C for 5 minutes is suggested before pressure sintering. Sintering with a pressure of 10–15MPa at 220 – 230°C for ≥ 7 minutes is suitable for 23x23mm TPak module.

Shelf Life / Storage Condition

141-74-2 will last for more than 1 month at the recommended storage conditions ($\leq -15^{\circ}\text{C}$).

Handling Procedure

Refrigerated storage will prolong the shelf life of Cu sintering paste. Cu sintering paste should be allowed to reach ambient working temperature prior to use. Generally, paste should be removed from refrigeration at least 4 hours before use. The actual time to reach thermal equilibrium will vary with the container size.



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ASIA +65 6268 8678 • CHINA +86 (0) 512 628 34900 • EUROPE +44 (0) 1908 580400 • USA +1 315 853 4900