

# PRODUCT DATA SHEET

# Indium12.9HF

## Jetting and MicroDispense Solder Paste

### Introduction

Indium Corporation's **Indium12.9HF** jetting and microdispense solder paste is a no-clean, halogen-free material specifically formulated to be compatible with a wide range of microdispense and jetting systems. Inherently chemically compatible with Indium8.9HF solder paste, **Indium12.9HF** is optimized for long-term jetting and microdispense applications. **Indium12.9HF** was originally formulated for microLED applications, but has proven to be useful in a wide range of applications requiring dot diameter/line width deposits down to 80 $\mu$ m. **Indium12.9HF** provides exceptional deposition performance, and its unique oxidation barrier promotes complete powder coalescence during reflow to eliminate graping and similar reflow issues.

### Features

- Exceptional microdispense and jetting performance
- Compatible with Indium12.9HF Solder Pastes series
- No-clean paste meets IPC J-STD-004B with Amendment 1 ROLO requirements
- Exceptional electrical reliability
  - SIR and ECM exceed IPC standards
- Unique flux oxidation barrier promotes complete powder coalescence during reflow
  - Minimizes graping
- Clear residue with minimal flow-out
- Reduces head-in-pillow (HIP) defects
- Excellent voiding on BGA/QFN

### Alloys

Indium Corporation manufactures low-oxide spherical powder composed of a variety of alloys that cover a broad range of melting temperatures. Type 4, Type 5, Type 6, and Type 7 powders are standard offerings with SnAgCu, SnAg, and SnSb alloy systems. The metal percent is the weight percent of the solder powder in the solder paste and is dependent upon the powder type and application.



### Standard Product Specifications

| Industry Standard Test Results and Classification                |   |  |
|--|---|--|
| Flux Classification  | ROLO  | Conforms with all requirements from IPC J-STD-005A |
| Based on the testing required by IPC J-STD-004B with Amendment 1 |   |  |
| Halogen-free per IEC 61249-2-21, Test Method EN14582             | <900ppm Cl<br><900ppm Br<br><1,500ppm Total |  |

*All information is for reference only.  
Not to be used as incoming product specifications.*

### Packaging

Paste is available airlessly packaged in 10, 30, and 55cc syringes.

### Storage and Handling

Refrigerated storage will prolong the shelf life of solder paste. Solder paste packaged in syringes should be stored tip down. Solder paste should be allowed to reach ambient working temperature prior to use. Generally, paste should be removed from refrigeration at least 2 hours before use. Actual time to reach thermal equilibrium will vary with container size and ambient conditions such as local air flow. Paste temperature should be verified before use. For a storage condition between 1–10°C, this product has a 3 month shelf life.

| Storage Conditions (unopened syringes) | Shelf Life |
|--|------------|
| -20°C–0°C                              | 6 months   |
| 1–10°C                                 | 3 months   |



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### Cleaning

Indium12.9HF is designed for no-clean applications; however, the flux can be removed, if necessary, using commercially available flux residue cleaners. Indium Corporation's Technical Support team can advise, as needed.

### Complementary Products

- **Equipment Conditioner:** PicoShot® Conditioner C-1
- **Solder Paste:** Indium12.9HF
- **Rework Flux:** TACFlux® 020B-RC
- **Tacky Flux:** TACFlux® 089HF
- **Cored Wire:** Core 230-RC
- **Wave Flux:** WF-9945, WF-9958

### Technical Support

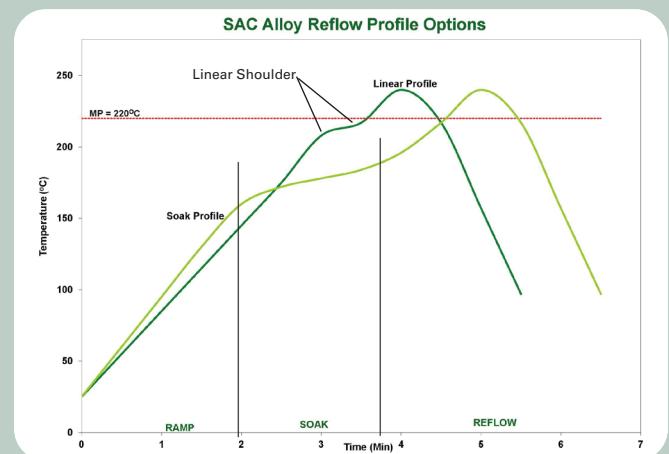
Indium Corporation's internationally experienced engineers provide in-depth technical assistance to our customers. Thoroughly knowledgeable in all facets of Materials Science as it applies to the electronics and semiconductor sectors, Technical Support Engineers provide expert advice in solder properties, alloy compatibility and selection of solder preforms, wire, ribbon, and paste. Indium Corporation's Technical Support Engineers provide rapid response to all technical inquiries.

### Safety Data Sheets

Please refer to the SDS document within the product shipment, or contact our local team to receive a copy.

### Reflow

#### Recommended Profile:



Standard ramp-to-spike (linear) profile is preferred.

- Preheat ramp rate
  - 1.8–2.2°C/second is typical
  - Avoid using profiles with a plateau temperature above 180°C to prevent excessive flux burn-off
- Peak temperature
  - 235–245°C (SAC305)
- Time above liquidus
  - 30–40 seconds
- Ambient to peak
  - 2–3 minutes
- Atmosphere
  - Nitrogen (<100ppm O<sub>2</sub> preferred) will enhance reflow and wettability onto surfaces

This product data sheet is provided for general information only. It is not intended, and shall not be construed, to warrant or guarantee the performance of the products described which are sold subject exclusively to written warranties and limitations thereon included in product packaging and invoices. All Indium Corporation's products and solutions are designed to be commercially available unless specifically stated otherwise.

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.

Contact our engineers: [askus@indium.com](mailto:askus@indium.com)

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