**Introduction**

Indium Corporation’s **Indium12.8HF** 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, **Indium12.8HF** is optimized for long-term jetting and microdispense applications. **Indium12.8HF** was originally formulated for micro-LED applications, but has proven to be useful in a wide range of applications requiring dot diameter/line width deposits down to 80µm. **Indium12.8HF** 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 Indium8.9HF Solder Pastes series
- No-clean paste meets IPC J-STD-004B with Amendment 1 ROL0 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
- Minimal reflow spatter compared to similar solder pastes

**Typical Paste Viscosities**

<table>
<thead>
<tr>
<th>Metal Load</th>
<th>SAC305</th>
<th>Type 6 SG</th>
</tr>
</thead>
<tbody>
<tr>
<td>% w/w</td>
<td>78%</td>
<td>80%</td>
</tr>
<tr>
<td>Poise</td>
<td>340</td>
<td>420</td>
</tr>
</tbody>
</table>

25°C Malcom viscometer.

Metal load range of 78–92% is a general recommendation for Type 6 SG. Different powder types and metal loadings are available upon request. Please consult one of Indium Corporation’s Technical Support Engineers to determine which is best for your application.

**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.

<table>
<thead>
<tr>
<th>Storage Conditions (unopened syringes)</th>
<th>Shelf Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;-10°C</td>
<td>6 months</td>
</tr>
</tbody>
</table>

**Packaging**

Paste is available airlessly packaged in 10 or 30cc syringes.

**Standard Product Specifications**

**Industry Standard Test Results and Classification**

<table>
<thead>
<tr>
<th>Flux Classification</th>
<th>ROL0</th>
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</thead>
<tbody>
<tr>
<td>Based on the testing required by IPC J-STD-004B with Amendment 1</td>
<td>Conforms with all requirements from IPC J-STD-005A</td>
</tr>
<tr>
<td>Halogen-free per IEC 61249-2-21, Test Method EN14582</td>
<td>&lt;900ppm Cl</td>
</tr>
</tbody>
</table>

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

Indium12.8HF 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: Indium8.9HF
- 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. The stated profile recommendations apply to most Pb-free alloys in the SnAgCu (SAC) alloy system, including SAC305 (96.5Sn/3.0Ag/0.5Cu). This can be used as a general guideline in establishing a reflow profile. Deviations from these recommendations are acceptable, and may be necessary, based on specific process requirements, including board size, thickness, and density. Reach out to our Technical Support team for specific reflow recommendations.

- 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

- Time above liquidus
  - 30–40 seconds

- Ambient to peak
  - 2–3 minutes

- Atmosphere
  - Nitrogen (<100ppm O₂ preferred) will enhance reflow and wettability onto surfaces