Indium509L
Solder Paste

Features
• Specifically designed for laser reflow
• Low solder ball and solder splattering
• Consistent fine pitch print deposition
• No-clean residue
• Meets RMA criteria (QQ-S-571F)
• Superior tack strength
• Works in both air and nitrogen
• Halogen-containing

Standard Product Specifications

<table>
<thead>
<tr>
<th>Alloy</th>
<th>SAC305</th>
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</thead>
<tbody>
<tr>
<td>Particle Size</td>
<td>T4 (20–38µ)</td>
</tr>
<tr>
<td>Metal Load</td>
<td>Recommended: 96% Range: 86%-89%</td>
</tr>
</tbody>
</table>

Initial Process Settings

<table>
<thead>
<tr>
<th>Laser/Paste Ratio</th>
<th>Wattage</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2</td>
<td>4 W</td>
<td>1W–5.5W 2 seconds 0.5–2 seconds</td>
</tr>
<tr>
<td>1/1</td>
<td>5.5 W</td>
<td></td>
</tr>
</tbody>
</table>

Higher laser energy tends to improve soldering.

Packaging
Standard packaging for stencil printing applications includes
500g jars and 600g cartridges. For dispensing applications, 10cc and 30cc syringes are standard. Other packaging options may be available upon request.

Storage and Handling Procedures
Refrigerated storage will prolong the shelf life of solder paste. The shelf life of Indium509L is 6 months when stored at <10°C. When storing solder paste contained in syringes and cartridges, they 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 two hours before use. Actual time to reach thermal equilibrium will vary with container size. Paste temperature should be verified before use.

Compatible Products
• Rework Flux: TACFlux®007

J-STD-004 (IPC-TM-650)
• Flux Type Classification: ROL1
• Flux Induced Corrosion (Copper Mirror) Pass
• Presence of Halide: Silver Chromate Pass
• Fluoride Spot Test Pass
• Post Reflow Flux Residue (ICA Test) 47%
• Corrosion Pass
• SIR Pass
• Bellcore Electromigration Pass

J-STD-005 (IPC-TM-650)
• Typical Solder Paste Viscosity (Sn63, 90.5%, Type 3)
• Brookfield (5 rpm) 1100 kcps
• Malcom (10 rpm) 2200 poise
• Slump Test Pass
• Solder Ball Test Pass
• Typical Tackiness 38 grams
• Wetting Test Pass
• RMA Paste Meets/Exceeds
• Rosin Content 26.51% of non-volatile flux components

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

Laser/Paste Ratio Wattage Time
1/2 4 W 1W–5.5W 2 seconds 0.5–2 seconds
1/1 5.5 W

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OVER→
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Printing

Stencil Design:
Electroformed and laser cut/electropolished stencils produce the best printing characteristics among stencil types. Stencil aperture design is a crucial step in optimizing the print process. The following are a few general recommendations:

- Discrete components — A 10–20% reduction in stencil area aperture has significantly reduced or eliminated the occurrence of solder beads. The “home plate” design is a common method for achieving this reduction.
- Fine pitch components — A surface area reduction is recommended for apertures of 20 mil pitch and finer. This reduction will help minimize solder balling and bridging that can lead to electrical shorts. The amount of reduction necessary is process dependent (5–15% is common).
- A minimum aspect ratio of 1.5 is suggested for adequate release of solder paste from stencil apertures. The aspect ratio is defined as the width of the aperture divided by the thickness of the stencil.

<table>
<thead>
<tr>
<th>Printer Operation</th>
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<tbody>
<tr>
<td>Solder Paste Bead Size</td>
<td>20-25mm in diameter</td>
</tr>
<tr>
<td>Print Speed</td>
<td>25-150mm/second</td>
</tr>
<tr>
<td>Squeegee Pressure</td>
<td>0.018-0.027Kg/mm of blade length</td>
</tr>
<tr>
<td>Underside Stencil Wipe</td>
<td>Start at once per every 5 prints and decrease frequency until optimum value is reached</td>
</tr>
<tr>
<td>Squeegee Type/Angle</td>
<td>Metal with appropriate length / ~45 degrees</td>
</tr>
<tr>
<td>Separation Speed</td>
<td>5-20mm/second or per equipment manufacturer’s specifications</td>
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<tr>
<td>Solder Paste Stencil Life</td>
<td>Up to 8 hours (at 30-60% RH and 22-28°C)</td>
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</tbody>
</table>

Cleaning

Indium509L meets no-clean requirements. The flux can be removed if necessary by using a commercially available flux residue remover.

Stencil Cleaning: This is best performed using an automated stencil cleaning system for both stencil and misprint cleaning to prevent extraneous solder balls. Most commercially available stencil cleaning formulations, including isopropyl alcohol (IPA), also work well.

Safety Data Sheets
The SDS for this product can be found online at http://www.indium.com/sds