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

Alloy	SAC305
Particle Size	T4 (20–38µ)
Metal Load	Recommended: 86% Range: 86–89%

Initial Process Settings

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

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. Jars and cartridges should be labeled with date and time of opening.

Compatible Products
- Rework Flux: TACFlux® 007

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BELLCORE AND J-STD TESTS & RESULTS

Test	Result
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
Cl Equivalent	<0.019% of paste
• Post Reflow Flux Residue (ICA Test)	47%
• Corrosion	Pass
• SIR	Pass
• Bellcore Electromigration	Pass
• Typical Acid Value	85

Test	Result
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
QQ-S-571F	
• RMA Paste	Meets/Exceeds
• Rosin Content	≥51% of non-volatile flux components

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

Form No. 99195 R0

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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.

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

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

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