



PRODUCT DATA SHEET

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

Initial Process Settings

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

Higher laser energy tends to improve soldering.

Bellcore and J-STD Tests and Results

Test	Result	Test	Result
J-STD-004 (IPC-TM-650)		J-STD-005 (IPC-TM-650)	
Flux Type Classification	ROL1	Typical Solder Paste Viscosity (Sn63, 90.5%, Type 3) Brookfield (5rpm) Malcom (10rpm)	1,100kcps 2,200 poise
Flux-Induced Corrosion (Copper Mirror)	Pass		
Presence of Halide: Silver Chromate Fluoride Spot Test Cl Equivalent	Pass Pass <0.019% of paste		
Post-Reflow Flux Residue (ICA Test)	47%	Slump Test	Pass
		Solder Ball Test	Pass
		Typical Tackiness	38g
		Wetting Test	Pass
Corrosion	Pass	QQ-S-571F	
SIR	Pass	RMA Paste	Meets/exceeds ≥51% of non-volatile flux components
Bellcore Electromigration	Pass	Rosin Content	
Acid Value	85	All information is for reference only. Not to be used as incoming product specifications.	

Packaging

Standard packaging for stencil printing applications includes 500g jars and 600g cartridges. For dispensing applications, 10 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 2 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

From One Engineer To Another®



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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 20mil 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.

Recommended 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.

Technical Support

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

Safety Data Sheets

The SDS for this product can be found online at <http://www.indium.com/sds>

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