

PRODUCT DATA SHEET

LV299

Flux Coating for Solder Preforms

Introduction

Indium Corporation's **LV299 Flux Coating** for solder preforms is an ultra-low-void formulation with superior wetting to ensure solder joint reliability.

LV299 is applied in a well-controlled, repeatable manufacturing process that guarantees complete and uniform flux coverage of the solder preform. Coating process reduces risk of residual flux loss or flaking during handling, and maintains the flatness and integrity of the preform to readily be used for pick and place operations.

As an ROL1 no-clean flux, **LV299** offers a highly effective activator package that is suitable for most substrate finishes, and can be used to coat SAC, SnPb, and In-containing alloys.



Features

- Ensures maximum preform co-planarity
- Tight flux tolerance; precise % by weight
- Available with most Indalloy®
- Compatible with pick and place or bowl feeding equipment

Properties

IPC Classification	Substrate Finishes	Reliability J-STD-004B
ROL1	Au, Ag, Pd, Pt, Cu, HASL, ENIG, Sn, Ni	Pass

Flux Percentage

The recommended amount of flux coating is generally $1\% \pm 0.5\%$ by weight. This precise amount of flux eliminates operator variations when applying flux as a separate step. It also reduces the post-reflow flux residue. Coatings up to 3% are possible, although not generally required.

Cleaning

LV299 is designed for no-clean applications. If desired, the flux residue can be removed by a commercially available flux cleaner.

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.

From One Engineer To Another®



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Test Data

Copper Mirror

The J-STD-004B copper mirror test is performed per IPC-TM-650 2.3.32. To be classified as "L" type flux, there should be no complete removal of the mirror surface. **LV299** shows no removal of the mirror surface and can be classified an "L" type flux.

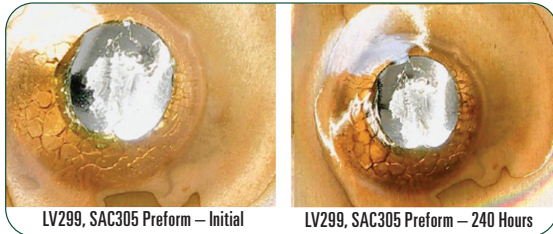


LV299

Control
Standard Flux

Copper Corrosion

Copper corrosion is tested per IPC-TM-650 method 2.6.15. This test gives an indication of any visible reactions that take place between the flux residue after soldering and copper surface finishes. In particular, green copper corrosion (formed as copper-chloride) should not be seen. **LV299** has no corrosion observed.

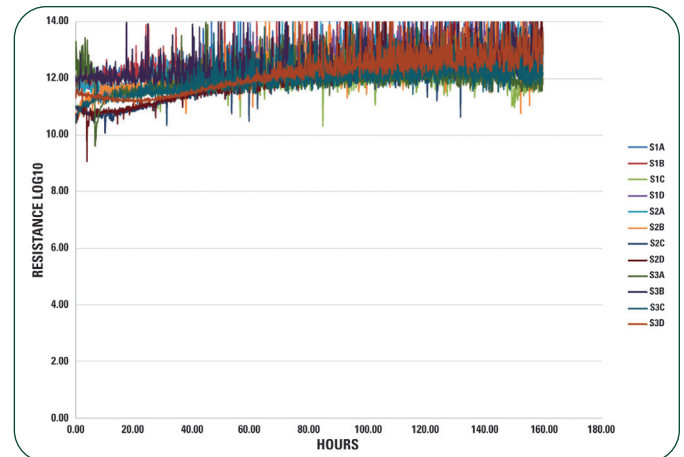


LV299, SAC305 Preform – Initial

LV299, SAC305 Preform – 240 Hours

Surface Insulation Resistance (SIR)

The Surface Insulation Resistance test is performed per IPC-TM-650 Method 2.6.3.7, using boards prepared per IPC-TM-650 method 2.6.3.3. All boards soldered with **LV299** pass the requirements of having exhibited no dendritic growth, no visible corrosion, and a minimum insulation resistance of 100 Megohms (1×10^8). The values presented on the below graph shows the number of Ohms times ten to the power of the vertical axis. The IPC-TM-650 SIR is a 7-day test and gives a general idea of the effect of the flux residue on the electrical properties of the surface of the circuit board.



Summary

Test	Test Requirement		Result	Classification
Copper Mirror	No Breakthrough	L	No Breakthrough	L
	<50% Breakthrough	M		
	>50% Breakthrough	H		
Halides	<0.5%	L	<0.5%	L
	0.5–2.0%	M		
	>2.0%	H		
Corrosion	No Corrosion	L	No Corrosion	L
	Minor Corrosion	M		
	Major Corrosion	H		
SIR	No-Clean $\geq 100\text{M}\Omega$	L	Pass	L
	Cleaned or No-Clean $\geq 100\text{M}\Omega$	M		
	Cleaned $\geq 100\text{M}\Omega$	H		
ECM	No-Clean <1 Decade Drop	L	Pass	L
	Cleaned or No-Clean <1 Decade Drop	M		
	Cleaned <1 Decade Drop	H		
Halides	<0.05%	0	>0.05%	1
	>0.05%	1		

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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.

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