

## PRODUCT DATA SHEET

# GS-3434

## Low-Residue, No-Clean Photovoltaic Flux

### Introduction

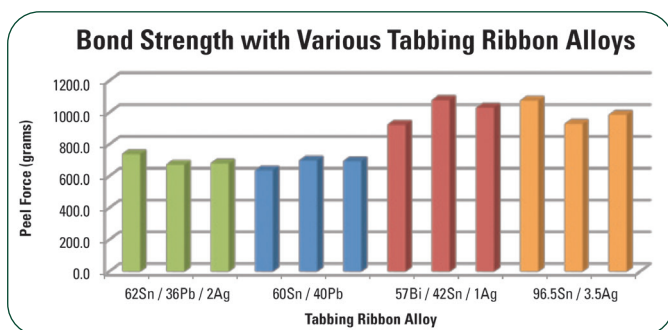
**GS-3434 Liquid PV Flux** is formulated for solar PV tabbing processes using SnPb and Pb-free PV ribbons. It is an organic, no-clean, and invisible-residue flux that can be applied by spraying, by immersion in a flux bath, or by hand (with a flux pen). GS-3434 is classified as Type L flux under the J-STD-004 specification and passes the surface insulation resistance requirements for high reliability.

### Features

- Invisible residue flux for SnPb and Pb-free alloys
- Non-corrosive, non-conductive residue
- Provides excellent PV ribbon bond strength on all PV metallizations
- Superior wetting on all types of PV metallizations
- Spray, immersion, or manual application

### Tabbing Ribbon Compatibility and Performance

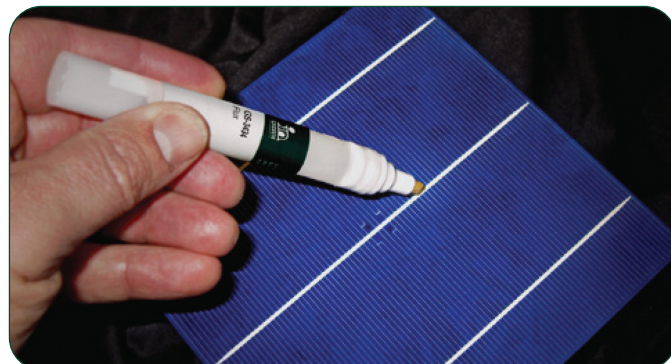
**GS-3434 Tabbing Flux** can be used with all available tabbing ribbon variations.



**GS-3434** has proven to yield high bond strength tabbing interconnections without compromising cell integrity.

### Flux Deposition

- **Spray** – **GS-3434** has been tested with all major flux spray equipment. Automated tabbing machines benefit from longer uptimes due to less nozzle clogging.
- **Flux Bath** – **GS-3434** is suited for continuous flux bath application as well as batch soaking.
- **Manual** – **GS-3434** can be used for hand soldering solar cells. Flux pens are an option for manually dispensing this flux, providing optimal ribbon coverage, and eliminating over-fluxing and reducing contamination.



### Target Settings for (Induction) Automated Tabbing Machines

- **SnPb and SnPbAg tabbing ribbon**
  - Pre-heat Temperature: 110°C
  - Peak Zone Temperature: 210°C
  - Ramp: 800ms
  - Soak: 250ms
- **BiSn and BiSnAg tabbing ribbon**
  - Pre-heat Temperature: 110°C
  - Peak Zone Temperature: 200°C
  - Ramp: 800ms
  - Soak: 250ms
- **SnAg tabbing ribbon**
  - Pre-heat Temperature: 110°C
  - Peak Zone Temperature: 230°C
  - Ramp: 800ms
  - Soak: 400ms

### Target Settings for (Conduction) Automated Tabbing Machines

- **SnPb and SnPbAg tabbing ribbon**
  - Contact Temperature: 240°C
  - Reflow Time: 1000ms
  - Additional Hold Time: 700ms
  - Underside Temperature: 170°C
- **BiSn and BiSnAg tabbing ribbon**
  - Contact Temperature: 180°C
  - Reflow Time: 1100ms
  - Additional Hold Time: 2400ms
  - Underside Temperature: 120°C

**From One Engineer To Another®**



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### Hand Soldering Recommendations

1. Use the correct soldering tip. The chisel tip allows heat to flow across the ribbon, instead of only heating a single point. More heat flow = more heat in the solder joint.
2. Pre-tin the soldering iron. Just as an appropriately sized soldering tip will distribute heat across the soldering surface, a bit of molten alloy can help create a thermal interface to maximize heat transfer.
3. Consider the alloy.
4. Use a bottom side heater. Silicon is known to pull heat away; underside heating pads help prevent excessive heat loss.
5. Keep the iron clean. Oxides and charred flux residues can be easily removed by wiping the hot iron across a wet sponge that should be at the soldering station. This will lead to better heat transfer, and it will make the fluxes more effective.

### Physical Properties

Test	Result	
	GS-3434	16-3000
Color	Clear	Clear
Specific Gravity: @25°C (77°F) @15.5°C (60°F)	0.828 0.833	0.783 0.788
Acid Value	36.0	0
Solids Content	4.37	0
Flash Point (°F TCC)	54	54
J-STD-004 Flux Type	ORLO	N/A
Shelf Life	2 years	N/A

All information is for reference only.

Not to be used as incoming product specifications.

### Packaging

- 10-gram flux pens:  
IPN #FLUXSR-84505-PEN
- 1-pint evaluation size container:  
IPN #FLUXSR-84505-1PT
- 1-gallon standard size container:  
IPN #FLUXSR-84505-1GL
- 5-gallon container  
IPN #FLUXSR-84505-5GL
- 5-liter container
- Other packaging available upon request

### Safety

Any fluxes with low flash points should be handled with caution. Store in a dry, well ventilated area away from sparks, flames, and direct heat. Consult the Material Safety Data Sheet for full details.

### 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 solar, 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.



This product data sheet is provided for general information only. It is not intended, and shall not be construed, to warrant or guarantee the performance of the products described which are sold subject exclusively to written warranties and limitations thereon included in product packaging and invoices. All Indium Corporation's products and solutions are designed to be commercially available unless specifically stated otherwise.

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.

Contact our engineers: [askus@indium.com](mailto:askus@indium.com)

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