

# PRODUCT DATA SHEET

# WS-3910

## Flip-Chip Flux

### Introduction

**WS-3910 Flip-Chip Flux** is a liquid flux specifically designed to meet process needs for low-temperature flip-chip applications. By virtue of its chemical design, **WS-3910** exhibits minimal evaporation after application. It also eliminates compatibility issues with underfills by having a completely water-cleanable residue.

### Features

- Designed for low-temperature (140°C), bismuth-tin applications
- Water-soluble
- Halogen-free: no intentionally added halogens
- Activated at low temperatures
- Low evaporation after application

### Properties

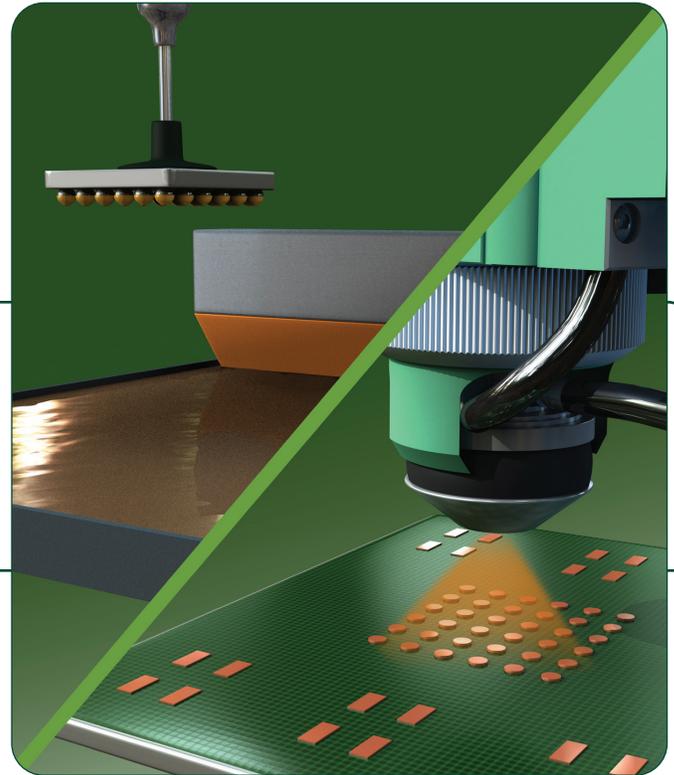
	Value	Test Method
Flux Type Classification	ORLO	J-STD-004 (IPC TM-650: 2.3.32 and 2.3.33)
Typical Viscosity	90cSt	Cannon Fenske
SIR (Ohms, after reflow)	Pass (>10 <sup>8</sup> after 7 days @ 85°C and 85% RH)	J-STD-004 (IPC-TM-650: 2.6.3.3 IPC-B-24)
Typical Acid Value	63.1mg KOH/g	KOH/g titration
Color	Amber	Visual inspection
Preliminary Shelf Life	3+ months	Viscosity change/ microscope examination

*All information is for reference only.*

*Not to be used as incoming product specifications.*

### Application

Recommended flux amount: 500–1,500 micrograms/mm<sup>2</sup>, depending on the solder bump alloy, substrate metallizations, and pitch. For spray applications, the flux storage tank should hold enough flux for one 8-hour shift. Additional flux remaining in tank may expire (pot life <10 hours at room temperature) if left for a prolonged period of time. Spray equipment should also be cleaned frequently to ensure uniform spray deposition and flux homogeneity.



### Cleaning

The material can be cleaned with DI water, or water with an added cleanser. Ideal conditions for spray-cleaning: 25°C (room temperature) or higher for >1 minute at >60psi.

### Packaging

**WS-3910** is available in 100–500g containers. Other packaging can be provided to meet specific requirements.

### Storage

Storage temperatures should not exceed 25°C for more than 4 days, and should never exceed 30°C. After removing from cold storage, **WS-3910** should be allowed to stand for at least 4 hours at room temperature before using.

### Technical Support

Indium Corporation sets the industry standard in providing rapid response, onsite technical support for our customers worldwide. Indium Corporation's team of Technical Support Engineers can provide expertise in all aspects of Materials Science and Semiconductor Packaging process applications.

### 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®**



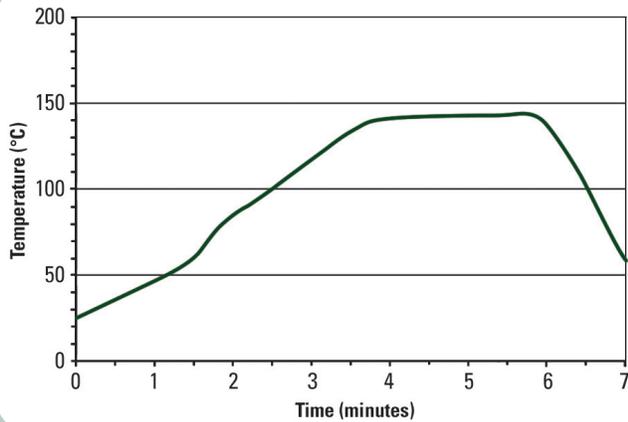
Form No. 99931 R1

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### Reflow

#### Recommended Profile:



Peak reflow temperature should be close to 150°C in a nitrogen atmosphere (<100ppm O<sub>2</sub>), with a linear ramp up to 30°C above liquidus temperature. These profiles are recommended to the user as starting points, and should be optimized by the user to meet their individual process needs.

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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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