

# PRODUCT DATA SHEET

# PoP Paste Indium9.88

## Package-on-Package Paste

### Introduction

**PoP Paste Indium9.88** is a no-clean solder paste designed for use in package-on-package (0.4mm and larger) applications. **PoP Paste Indium9.88** has a rheology designed to provide a long-lasting dipping process.

### Features

- Eliminates defects due to package-warping
- Air reflow
- Rheology optimized for both dipping and package retention
- Designed for use with SAC305
- Excellent solderability
- Long pot life
- Suitable for use down to 0.4mm pitch

### Properties

	Value	Test Method
Flux Type Classification	ROL1	J-STD-004 (IPC-TM-650: 2.3.32 and 2.3.33)
Typical Viscosity	350kcps	ANSI/IPC-TM650
SIR (Ohms, after reflow)	Pass (>10 <sup>8</sup> after 7 days @ 85°C and 85% RH)	ANSI/IPC-TM650
Typical Tack Strength	88g	ANSI/IPC-TM650
Shelf Life (Sealed)	6 months at ≤10°C	≤10°C
Working Life	8 hours at room temperature (<30°C, <70%RH)	Internal test method

All information is for reference only.

Not to be used as incoming product specifications.

### Alloys

**PoP Paste Indium9.88** is available with Pb-free alloys, such as SAC305 (96.5Sn/3.0Ag/0.5Cu). The table below shows common alloys and alloy properties.

Indalloy® Number	Common Name	Alloy Composition	Melting Point		Melting Point		Density	Tensile Strength	Young's Modulus	Elongation
			Liquidus (°C)	Solidus (°C)	Liquidus (°F)	Solidus (°F)				
256	SAC305	96.5Sn/3.0Ag/0.5Cu	220	217	428	423	7.40	7,200	2.41	19.3
241	SAC387	95.5Sn/3.8Ag/0.7Cu	220	217	428	423	7.40	6,962		36.5
246	SAC405	95.5Sn/4.0Ag/0.5Cu	225	217	437	423	7.40	7,470	2.6	17.3

### Application

Solder paste is applied to the spheres in a doctor-bladed dipping process (Figure 1).

- Typical package-on-package applications only need dipping to 25–45% of the sphere height

Care must be taken to avoid contaminating the bottom of the package itself with PoP paste, as this may cause bridging defects.

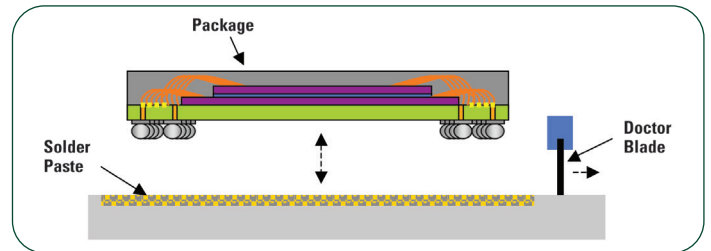


Figure 1: Dipping process.

Consistent solder paste volumes are reproducibly attained from dipping 0.4mm or higher pitch packages in the **PoP Paste Indium9.88**. Figure 2 is an example of a PoP process where a 0.5mm pitch BGA package has been dipped in 8mil thickness (~50% of ball height) **PoP Paste Indium9.88**.

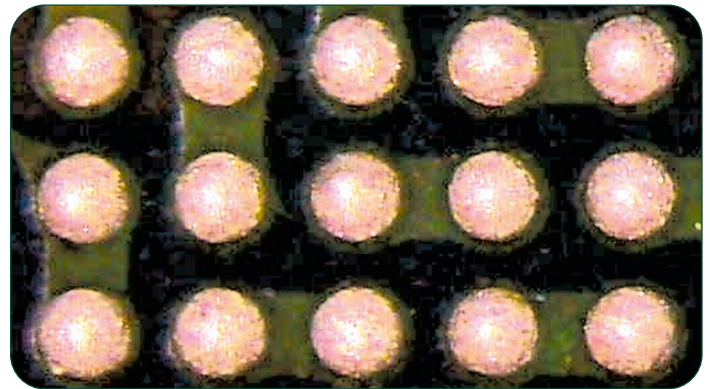


Figure 2: Bottom view of 0.5mm pitch BGA package after dipping in PoP Paste Indium9.88.

From One Engineer To Another®



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### Cleaning

Although designed as a no-clean material, the residue from the **PoP Paste Indium9.88** may be cleaned using appropriate cleaning solutions. Please consult with Indium Corporation Technical Support Engineers for details.

### Packaging

**PoP Paste Indium9.88** is available in airless (bubble-free) packaging. For automated dispense applications:

- 100g (30cc) syringes with an air-pressure plunger
- Other packaging may be available to meet specific requirements. Consult with Indium Corporation Sales or Technical Support staff for details.

### Storage and Handling

**PoP Paste Indium9.88** syringes and cartridges should be stored tip down at  $<10^{\circ}\text{C}$  for a maximum of 6 months. Storage temperatures should not exceed  $30^{\circ}\text{C}$  for more than 4 days. **PoP Paste Indium9.88** should be allowed to stand for at least 4 hours at room temperature before using.

Once removed from cold storage, the solder paste in a sealed syringe may remain at room temperature for up to 7 days before usage and during usage. However, once outside the syringe, its working life is estimated to be 8 hours, and may be less under high-temperature ( $>25^{\circ}\text{C}$ ) and -humidity ( $>70\%RH$ ) conditions.

The paste should not be subjected to multiple cold/heat cycles or viscosity changes and/or flux separation may occur.

### Technical Support

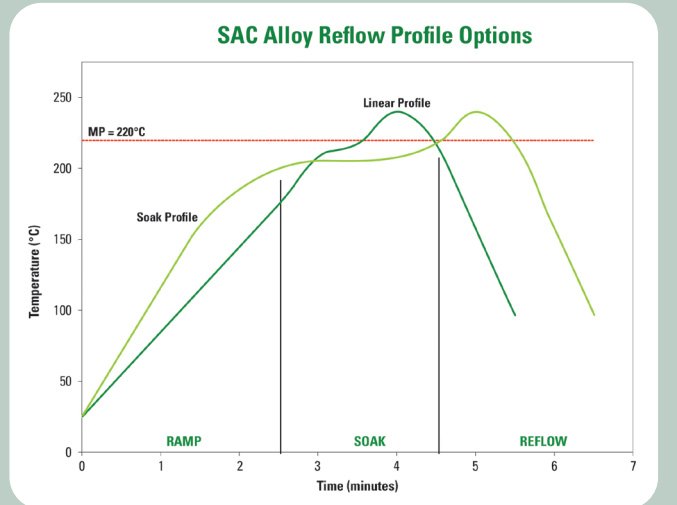
Indium Corporation sets the industry standard in providing rapid response, onsite technical support for our customers worldwide. Indium Corporation's team of Technical Support Engineers can provide expertise in all aspects of materials science.

### Safety Data Sheets

Please refer to the SDS document within the product shipment, or contact our local team to receive a copy.

### Reflow

#### Recommended Profile:



A short preheat ( $150\text{--}160^{\circ}\text{C}$ ) for less than 45 seconds may be used to reduce solder balling caused by excess paste. The profile should ideally be a linear ramp at  $1\text{--}2^{\circ}\text{C}/\text{second}$  up to  $20\text{--}30^{\circ}\text{C}$  above solidus temperature, with a rapid cool down afterwards, and a minimum time above liquidus of 20 seconds.

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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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