PoP Paste Indium5.79

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
- High metal load (>85%w/w) reduces slump/ spread

Introduction

PoP Paste Indium5.79 is a no-clean solder paste designed for use in package-on-package and finer-pitch (0.4mm and larger) BGA rework applications. **PoP Paste Indium5.79** has a rheology designed to provide a long-lasting dipping process.

Solder Paste Properties

Variable	Value	Test Method
Flux Type Classification	ROL1	J-STD-004 (IPC-TM-650: 2.3.32 and 2.3.33)
Typical Viscosity:	270kcps	ANSI/IPC-TM650
Typical Tack Strength:	90g	ANSI/IPC-TM650
SIR (ohms):	$>10^9$ after 7 days @ 85°C & 85% RH)	ANSI/IPC-TM650
Shelf Life (Sealed): Working Life	3 months at -20°C +5°C 8 hours at room temperature (<30°C, <70%RH)	-20°C to +5°C ICA test method

All information is for reference only. Not to be used as incoming product specifications.

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
- A BGA rework process typically calls for 35-65% 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. Note that BGA rework usually requires more paste, since some of the volume of the solder sphere is lost during the removal and pad-cleaning process.

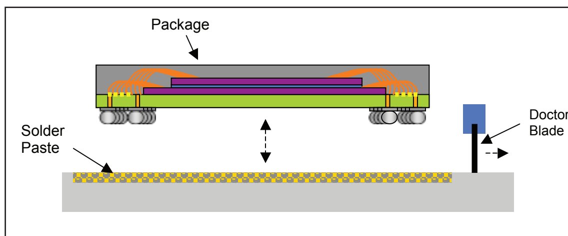

Figure 1: Dipping Process

Consistent solder paste volumes are reproducibly attained from dipping 0.4mm or higher pitch packages in the PoP Paste Indium 5.79. Figure 2 shows one example from a customer PoP process, where a 0.5mm Pitch BGA Package has been dipped in 8mil thickness (~50% of ball height) PoP Paste Indium5.79

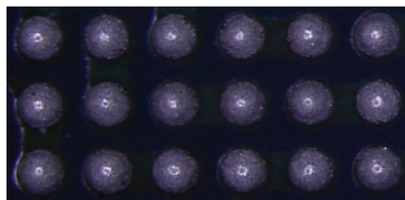

Figure 2: Bottom View of 0.5mm Pitch BGA Package After Dipping in PoP Paste Indium5.79

Alloys

PoP Paste Indium5.79 is available only with SAC305 (96.5Sn/3.0Ag/0.5Cu). The following table shows the alloy properties.

Indalloy Number	Alloy Composition	Melting Point Liquidus °C	Melting Point Solidus °C	Melting Point Liquidus °F	Melting Point Solidus °F	Density g/cm³	Tensile Strength psi	Young's Modulus psi˙10^6	Elongation %
256	96.5Sn/3.0Ag/0.5Cu	220	217	428	423	7.40	7200	2.41	19.3

OVER→

Form No. 98478 (A4) R5

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Cleaning

Although designed as a no-clean material, the residue from the **PoP Paste Indium5.79** may be cleaned using appropriate cleaning solutions. Please consult with Indium Corporation Technical Service personnel for details.

Packaging

PoP Paste Indium5.79 is available in two forms of airless (bubble-free) packaging:

For manual rework:
- 25gram (10cc) syringes, with an integral thumb plunger

For automated dispense applications:
- 100gram (30cc) syringes with an air-pressure plunger

Other packaging may be available to meet specific requirements. Consult with Indium Corporation Sales or Technical Service staff for details.

Storage and Handling

PoP Paste Indium5.79 syringes and cartridges should be stored tip down at <10°C for a maximum of 4 months. Storage temperatures should not exceed 30°C for more than 4 days. **PoP Paste Indium5.79** 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°C) and humidity (>70%RH) conditions.

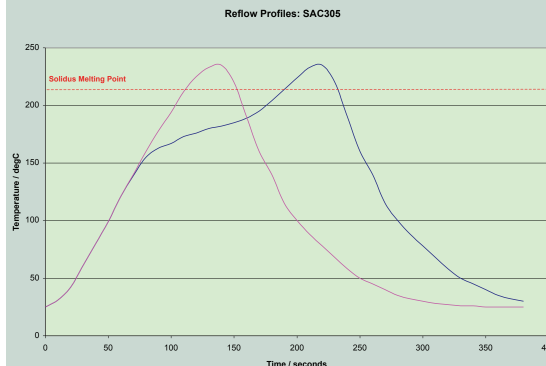
The paste should not be subjected to multiple cold/heat cycles or viscosity changes and/or flux separation may occur.

Technical Support

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

Reflow

Recommended Profile:



A short preheat (150-160°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 1-2°C/second up to 20-30°C above solidus temperature, with a rapid cool down afterwards, and a minimum time above liquidus of 20 seconds.

This Application Note 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.

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