

# PRODUCT DATA SHEET

# Indalloy<sup>®</sup>291 Solder Bar

## Introduction

**Indalloy<sup>®</sup>291** is a direct replacement to the previously patent-protected Sn100C<sup>®</sup>\* alloy. **Indalloy<sup>®</sup>291** is commonly used in wave soldering and reworking processes as a no-silver, lead-free alternative to SAC305. **Indalloy<sup>®</sup>291** is available in bar, solder paste, and solid and cored wire.

Product Name	Melting Point	Tin	Copper	Nickel	Germanium
Indalloy <sup>®</sup> 291	227°C	99.25%	0.70%	0.05%	≤0.01%

## Features

- Lower overall cost resulting from the lower silver content compared to other Pb-free alloy families
  - No silver or bismuth
- Eutectic alloy that acts like a SnPb alloy
- **Indalloy<sup>®</sup>291** has a slower copper dissolution rate as compared to SAC305; **Indalloy<sup>®</sup>291** erodes copper from holes and pads on the PCB more slowly than SAC solders
- Shiny, aesthetically pleasing solder joints
- Reduced bridging and icicles
- Works well in selective and dip soldering processes

## Indalloy<sup>®</sup>291 Advantages Compared to SAC305

- Lower cost of ownership
- More aesthetically pleasing solder joint
- Slower dross rate

260°C	Run Time (hours)	Dross (g)	Dross Rate
Indalloy <sup>®</sup> 291	25.00	1,357.6	54.30g dross/hour
SAC305	19.92	1,303.5	65.44g dross/hour

## Indalloy<sup>®</sup>291 Limitations Compared to SAC305

- **Indalloy<sup>®</sup>291** will require that the solder pot be 10°C hotter
- SAC305 has shown better thermocycling reliability performance

\*Trademark owned by Nihon Superior Co., Ltd.

## Effect on the Solder Pot

High-tin, lead-free solders containing higher levels of silver have been shown to be more aggressive toward a key solder pot material—stainless steel. However, the **Indalloy<sup>®</sup>291** alloy has been shown to be less aggressive toward that same material. If a solder pot made of stainless sheet does not show early signs of degradation, then the introduction of the **Indalloy<sup>®</sup>291** alloy is possible.

## Introducing Indalloy<sup>®</sup>291 to the Wave Solder Process After Using a SAC Alloy

When introducing **Indalloy<sup>®</sup>291** into the wave soldering process after previously using a SAC alloy, the solder pot must be emptied and refilled with the new alloy.

## Packaging

Indalloy <sup>®</sup> 291 Solder Shape	Weight and Packaging	IPN
Triangular Bar	25lbs per box	BAROT-051424
Hanging Bar	Approx. 50lbs per box	BAROT-051505

## Shelf Life

**Indalloy<sup>®</sup>291** has an indefinite shelf life when stored in a dry, non-corrosive location. It is possible that the surface may lose its shiny appearance, resulting in a dull shade of gray. This is the result of a surface phenomenon and will not impact the product's performance.

Product Name	Shelf Life
Indalloy <sup>®</sup> 291	Indefinite

From One Engineer To Another<sup>®</sup>



Form No. 99834 R2

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# Indalloy® 291 Solder Bar

### Quality and Process Control

**Indalloy® 291** bar and wire will comply with the requirements of ASTM B-32, J-STD-006 (formerly QQS-571F) and JIS-Z-3282. Each batch of solder alloy used to manufacture Indium Corporation's bar solder, bar solder chips, and cored wire is analyzed for metallic composition and impurities. Indium Corporation will certify its bar solder and cored wire to meet customer specifications with a Certificate of Compliance or provide a Certificate of Analysis upon request.

### Solder Analysis

Frequent analysis of **Indalloy® 291** wave soldering solder pots is recommended. Solder pot analysis is important for maintaining solder joint quality and optimal first-pass soldering yield. By allowing a solder pot to collect too high a level of contaminants from circuit boards and components or too low a level of important compositional elements, the solder can get sluggish, causing overly large fillets, poor wetting, bridging, and expensive rework and repair. Indium Corporation's solder analysis service allows customers to purchase an individual analysis or pre-paid solder analysis mailers in bulk. Contact Indium Corporation at 1-315-853-4900 or 1-800-4INDIUM.

### Solder Reclaim

A normal part of a wave soldering process is the creation of solder dross and the occasional dumping of metal-contaminated solder pots. Indium Corporation provides customers with a way to recycle dross and scrap solder by receiving the materials and returning the metal value to the customer as a check, credit, or by converting the usable bar for a fee. To get started with Indium Corporation's solder reclaim program, contact Indium Corporation and we will ship black (Pb-containing) and/or green (Pb-free) dross collection buckets free of charge. Recycling instructions will explain what to do and who to call when you have collected enough dross and scrap solder.

### 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.

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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