

APPLICATION NOTE

Indalloy®291



Introduction

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

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

Key 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®291** has a slower copper dissolution rate as compared to SAC305; **Indalloy®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®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®291	25.00	1,357.6	54.30g dross/hour
SAC305	19.92	1,303.5	65.44g dross/hour

Indalloy®291 Limitations Compared to SAC305

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

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®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®291** alloy is possible.

Introducing Indalloy®291 to the Wave Solder Process After Using a SAC Alloy

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

Indalloy®291 and Cored Wire Soldering

Just as **Indalloy®291** will show reduced icicles in the wave soldering process, the same benefit is applied to hand and automated soldering.

*Trademark owned by Nihon Superior Co., Ltd.

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.

From One Engineer To Another®

Contact our engineers: askus@indium.com

Learn more: www.indium.com

Form No. 99719 R2

ASIA +65 6268 8678 • CHINA +86 (0) 512 628 34900 • EUROPE +44 (0) 1908 580400 • USA +1 315 853 4900



©2022 Indium Corporation