

## PRODUCT DATA SHEET

# AuLTRA™ ThInFORMS™ for Die-Attach Applications

### Introduction

Indalloy®182 (80Au/20Sn) is a great choice to ensure good performance and reliability for applications requiring a high-melting die-attach solder. Indalloy®182 is generally chosen due to its good thermal conductivity; high shear, yield, and tensile strength; excellent wettability; and resistance to corrosion. One of the most highly demanded applications for Indalloy®182 is in semiconductor laser die-attach, due to recent advancements that have made lasers an economical option for a multitude of new products. However, lasers generate a significant amount of heat, and over time this limits the longevity and potential of the die. Indium Corporation's solution to increasing thermal transfer from die to substrate is reducing the bondline thickness (BLT) by developing our AuLTRA™ ThInFORMS™. These are square, rectangular, and disc Indalloy®182 preforms with a thickness of 0.00035". These preforms improve operational efficiency of high-output lasers by reducing voiding, solder volume, and wicking up the die.

### Features

- Reduces solder volume and wicking up the die
- Reduces BLT and reduces voiding
- Improves thermal transfer and overall operational efficiency of the device

### Alloy Chemistry

AuSn has a sensitive eutectic phase, which can be altered by Au-rich metallizations. This can result in areas that do not wet or flow properly. Adjustments can be made to accommodate these metallizations, resulting in joint characteristics optimized for high-reliability and performance.

### Geometry

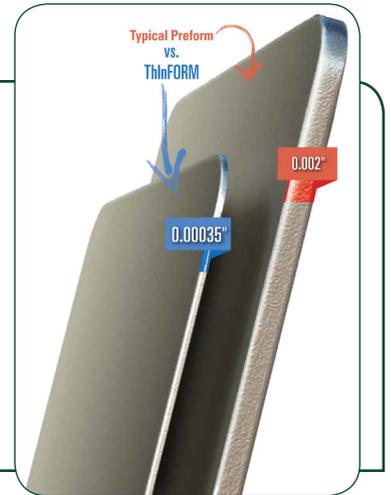
Guidelines for preform geometry can be derived from the die size. Generally, 90–100% of the die size will indicate the preform x and y dimensions. As for thickness, AuLTRA™ ThInFORMS™ provide a thinner bondline, improving thermal transfer from die to substrate. The most critical attribute for die bonding application is flatness. Due to process constraints, fixturing can be difficult and time consuming. Allowing the die to float freely on the preform can be advantageous. If the preform is not flat, it can skew the die at reflow and fail. Processing is the key to preserving flatness.



### Packaging

Packaging in waffle trays is the pack method for many die-attach applications. Tape & reel is another similar pack method that can be used. Both of these methods are used for automated assembly

and offer excellent protection for transit and storage. Die-attach preforms can come in many sizes, so flexibility in design is important. We have an extensive library of trays and tape available.



### Industry Partnerships

Without this, we would not be able to engineer preforms that cater to the die-attach process. Indium Corporation partners with die bonding equipment manufacturers to ensure our preforms are engineered to work with their equipment from assembly through reflow.

### Summary

Indium Corporation's AuLTRA™ ThInFORMS™ are an excellent choice for die-attach applications. By using a preform with a thickness of 0.00035", the BLT is reduced and thermal transfer from the die to the substrate is improved, increasing the operational performance and efficiency of high-output lasers. Packaging designed for automated assembly of these preforms ensures repeatable success in a production process.

### 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 preforms, wire, ribbon, and paste. Indium Corporation's Technical Support Engineers provide rapid response to all technical inquiries.

### Safety Data Sheets

The SDS for this product can be found online at <http://www.indium.com/sds>

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®

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