

## PRODUCT DATA SHEET

# Bar Solder Chips



### Introduction

**Bar Solder Chips** are small pieces of Indium Corporation's electronic-grade bar solder, typically used to fill smaller solder pots or to quicken the melting of solder in a new solder pot. The greater surface area of the chips allows for better heat transfer between the solder pot and the metal and quickens the melting process.

Chips are made by cutting bar solder into smaller pieces and they have the same properties as Indium Corporation's electronic-grade bar solder. The tin used to produce the chips has a minimum purity of 99.93%.

By extruding the bar from continually cast, closed chamber billets, oxides that would normally form during a cast solder bar solidification process are greatly reduced, yielding lower dross and better joint formation.

Indium Corporation's selection of SnPb, Pb-free SAC, and Pb-free SAC alternative alloys meets the needs of virtually every customer.

### Available Alloys

Indium Corporation produces electronic-grade bar solder and chips in virtually any soft solder alloy containing the major components of tin (Sn), lead (Pb), silver (Ag), copper (Cu), antimony (Sb), and bismuth (bi). Indium Corporation also produces alloys that contain minor components used to reduce dross formation and refine grain structure. These alloys are also used for high temperature applications that increase drop shock resistance or have increased thermal fatigue resistance. The most commonly used alloys and the maximum Indium's impurity specifications are shown in the following table.

### Bar Solders Elemental Specification and Impurity Limits (%)

Element	63/37	63/37 Low Dross	SAC305	SAC0105	Sn995	J-Std-006B	JIS Z 3282
Sn	62.5-63.5	62.7-63.3	96.2-96.8	98.2-98.8	99.3-99.7	n/a	n/a
Ag	0.0020	0.0020	2.8-3.2	0.8-1.2	0.0010	0.1000	0.0500
Cu	0.0150	0.0150	0.4-0.6	0.4-0.6	0.4-0.6	0.0800	0.0500
Pb	balance	balance	0.0500	0.0500	0.0500	0.1000	0.0500
Al	0.0010	0.0010	0.0010	0.0010	0.0010	0.0050	0.0010
As	0.0200	0.0200	0.0200	0.0200	0.0035	0.0300	0.0300
Bi	0.0200	0.0200	0.0200	0.0200	0.0100	0.1000	0.0500
Cd	0.0020	0.0020	0.0020	0.0020	0.0010	0.0020	0.0020
Fe	0.0100	0.0100	0.0100	0.0100	0.0050	0.0200	0.0200
In	0.0070	0.0070	0.0070	0.0070	0.0100	0.1000	n/a
Ni	0.0020	0.0020	0.0020	0.0020	0.0060	0.0100	n/a
Sb	0.0500	0.0500	0.0500	0.0500	0.0250	0.0500	0.0500
Zn	0.0010	0.0010	0.0010	0.0010	0.0010	0.0030	0.0010
Co	n/a	n/a	n/a	n/a	<0.1	n/a	n/a
Au	0.0020	0.0020	0.0020	0.0020	0.0002	0.0500	n/a

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## Physical Properties

<b>Length</b>	<b>1.5" maximum</b>
<b>Cross-section:</b>	
<ul style="list-style-type: none"> <li>• <b>Lead-Containing Alloys</b></li> <li>• <b>Pb-Free Alloys</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regular Trapezoid</b></li> <li>• <b>Triangle with Rounded Corners</b></li> </ul>
<b>Packaging</b>	<b>25 lbs. per box</b>

## Quality and Process Control

Each batch of solder alloy used to manufacture Indium Corporation's bar solder and chips is analyzed for metallic composition and impurities. Indium Corporation will certify its bar solder to meet customer specifications with a Certificate of Compliance or provide a Certificate of Analysis upon request.

## Solder Analysis

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, 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's Customer Service Center at 1-315-853-4900 or 1-800-4INDIUM.

## Solder Reclaim

A normal part of a wave soldering process is the creation of solder drosses and the occasional dumping of metal-contaminated solder pots. Indium Corporation provides customers with a way to recycle dross and scrap solder, reclaiming some of its original value and making it more pure than virgin material. To get started with Indium Corporation's solder reclaim program, contact our Customer Service Center and we will ship black (Pb-containing) and/or green (Pb-free) dross collection buckets free of charge. Recycling instructions will let you know 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 Material 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.

## 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.

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