

# PRODUCT DATA SHEET

# Sn992

## Pb-Free Soldering Alloy

### Introduction

**Sn992 Pb-Free Soldering Alloy** is a low-cost alternative to traditional SAC305. In addition to the lower cost, this cobalt- and bismuth-doped Sn/Cu alloy produces smoother, shinier joints and lower dross (in wave soldering) than SAC305 and other Sn/Cu based alloys.

### Features

- Produces shiny, smooth solder joints under most soldering conditions
- Low cost—does not contain Ag
- Lower dross formation than other SAC and Sn/Cu-based alloys
- Less copper erosion than SAC305
- Compatible with other Sn/Cu-based alloys—no need to dump your pot
- Optimized for use in solder paste form through the addition of Bi

### Why Cobalt and Bismuth?

The addition of cobalt (Co) works to improve the solder joint appearance due to its grain-refining properties. The addition of nickel (Ni) is also popular for the same reasons. However, Ni has a lower operating limit of 0.035%. Below that percentage, the benefits of Ni are lost. Co has a much lower operating limit of 0.003%.

Small amounts of bismuth (Bi) have been shown to help the mechanical reliability of Pb-free alloys. At percentages well below 1% of Bi, there is no concern for fillet lifting or reaction with Pb, which are common concerns with Bi-containing alloys.

### Physical Properties and Process Set-Up

Other than a slight modification to the reflow profile, solder pastes manufactured with the **Sn992** alloy can be run in the same set-up conditions as pastes manufactured with SAC305.

	Melting Point (°C)	Density	Tensile Strength (MPa)	Peak Temperature (°C)	Time Above Liquidus (sec)
Sn992	227	7.3	28	237–255	30–90
SAC305	217–220	7.4	52	229–255	30–90
Sn63/Pb37	183	8.4	44	205–220	30–90

### 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.

### Safety Data Sheets

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

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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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Form No. 98639 (A4) R1



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