

PRODUCT DATA SHEET

# Solder Wire

## Introduction

**Solder wire** from Indium Corporation is manufactured to demanding quality standards. Our flexible manufacturing process allows us to fulfill orders from evaluation/research quantities to full-scale production volumes.

## Wire Diameters

Capabilities range from .001" (0.025mm) diameter to .250" (6.35mm) and larger. Actual dimensions achievable are subject to the properties of each metal.

We have developed standard tolerances but can work with you to accommodate any special requirements. Standard tolerances are:

Diameter	Standard Tolerance
Up to .002" (.050mm)	±.0005" (.0127mm)
>.002" (.050mm) to .010" (.254mm)	±.001" (.025mm)
>.010" (.254mm) to .060" (1.52mm)	±.002" (.050mm)
>.060" (1.52mm) to .250" (6.35mm)	±.003" (.076mm)
>.250" (6.35mm)	±2.5%



## Available Materials

Over 100 alloys can be made into wire, including pure indium and indium alloys, lead-free alloys, gold-tin, tin-lead, and bismuth alloys, as well as many other combinations. Melting temperatures range from 47°C (117°F) to over 364°C (687°F). We can also custom design alloys for your application. On the back of this data sheet is a table of properties for the more common alloys. For more information about our Solder Alloy Directory, please contact us at one of the locations listed below.

## Packaging

**Solder wire** is packaged on spools. We can create specialized packaging to meet specific needs, such as spool size, quantity per spool, or other requirements.

## Safety Data Sheets

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

OVER→

Form No. 97622 (A4) R8

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## Solder Wire

### Storage

The shelf life of **Solder wire** is determined by the alloy and its resistance to oxidation, as well as the storage container and the conditions in which it is stored.

To increase storage time, and to keep surface oxidation to a minimum, store wire tightly closed in the original container in 55% RH or less, and at temperatures below 22°C. Wire can also be stored in an inert atmosphere, such as a nitrogen dry box.

### Delivery

Short lead times enable you to get your order in time to meet your production schedule.

Each order can be shipped with a Certificate of Analysis, which includes information on metallic impurities. We can also provide a Certificate of Conformance when wire is made to customer specifications.

### Technical and Customer 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.

## Some Physical Properties of Common Solder Wire Alloys

Liquidus (°C/°F)	Solidus (°C/°F)	Indalloy® Number	Composition	Plastic Range (°C/°F)	Mass Density (gm/cm <sup>3</sup> )	Electrical Conductivity (% of Cu)	Thermal Conductivity W/cm <sup>2</sup> °C @ 85°C	Thermal Coefficient of Expansion μ in/in/°C @ 20°C	Tensile Strength (PSI)	Bond Holding Strength (Shear) (PSI)
118/244	118/244	1E	52In/48Sn	Eutectic	7.30	11.70	0.34	20.0	1720	1630
138/281	138/281	281	58Bi/42Sn	Eutectic	8.56	4.50	0.19	15.0	8000	500
143/290	143/290	290	97In/3Ag	Eutectic	7.38	23.00	0.73	22.0	800	—
154/309	149/300	2	80In/15Pb/5Ag	5/9	7.85	13.00	0.43	28.0	2550	2150
157/315	157/315	4	100In	Melting Point	7.31	24.00	0.86	29.0	273	890
167/333	154/309	9	70Sn/18Pb/12In	13/24	7.79	12.20	0.45	24.0	5320	4190
175/347	165/329	204	70In/30Pb	10/18	8.19	8.80	0.38	28.0	3450	—
179/354	179/354	Sn62	62Sn/36Pb/2Ag	Eutectic	8.41	11.90	0.50	27.0	7000	7540
181/358	173/343	205	60In/40Pb	8/15	8.52	7.00	0.29	27.0	4150	—
183/361	183/361	Sn63	63Sn/37Pb	Eutectic	8.40	11.50	0.50	25.0	7500	6200
210/410	184/363	7	50In/50Pb	26/47	8.86	6.00	0.22	27.0	4670	2680
221/430	221/430	121	96.5Sn/3.5Ag	Eutectic	7.36	16.00	0.33	30.2	5620	—
232/450	232/450	128	100Sn	Melting Point	7.28	15.60	0.73	24.0	1900	—
260/500	240/464	10	75Pb/25In	20/36	9.97	4.60	0.18	26.0	5450	3520
280/536	280/536	182	80Au/20Sn	Eutectic	14.51	—	0.57	16.0	40000	40000

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