

Product Data Sheet

# OnSpec® SR-7 Solar-Grade Solder Paste

## Introduction

**SR-7 Solder Paste** is a halogen-free, no-clean solder paste formulated for ultra low residue. It will also yield accurate, repeatable dispensing performance on both pneumatic and positive displacement dispensing equipment. It is a nitrogen reflow product with exceptional wetting capabilities when used in an inert atmosphere.

## Alloys

Indium Corporation manufactures low-oxide spherical powder composed of Sn/Pb and Sn/Ag/Cu in the industry standard type 3 mesh size (J-STD-006). Other non-standard mesh sizes and alloys are available upon request. The weight ratio of the solder powder to solder paste is referred to as the metal load and is typically lower for dispense applications.

## Standard Product Specifications

Alloy	Metal Load		Mesh Size	Particle Size
Sn63/Pb37	Printing	Dispensing	Type 3	25-45 µ
Sn62/Pb36/Ag2	91.5%	87%	-325/+500	0.001-0.0018"
SAC305	90.5%	86%	Type 3	25-45 µ
SAC387			-325/+500	0.001-0.0018"

## Packaging

Standard packaging for dispensing applications is 10cc or 30cc Semco syringes with a yellow (flatwall) or red (wiper) piston, or a thumb plunger. Standard packaging for printing applications is 500g jars or 600g cartridges. Other packaging options are available upon request.

## Storage and Handling Procedures

Refrigerated storage will prolong the shelf life of solder paste by slowing down the flux/powder reaction. Solder paste packaged in syringes and cartridges should be stored with the tip down to prevent flux separation and piston backoff.

Solder paste should be allowed to reach ambient working temperature prior to use. Generally, paste should be removed from refrigeration at least two hours before use. Actual time to reach thermal equilibrium will vary with container size. Removing paste from storage one day before use is recommended. Jars and cartridges should be labeled with date and time of opening.

## Material Safety Data Sheets

The MSDS for this product can be found online at <http://www.indium.com/techlibrary/msds.php>

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## BELLCORE AND J-STD TESTS & RESULTS

Test	Result	Test	Result
<b>J-STD-004 (IPC-TM-650)</b>		<b>J-STD-005 (IPC-TM-650)</b>	
• Flux Type Classification	ORLO	• Typical Solder Paste Viscosity (Sn63, 91.5%, -325/+500)	
• Flux Induced Corrosion (Copper Mirror)	Pass	• Brookfield (5 rpm)	925 kcps
• Presence of Halide		• Malcom (10 rpm)	2175 poise
• Fluoride Spot Test	Pass	• Typical Thixotropic Index; SSF	-0.43
• Elemental Analysis (Br, Cl, F)	0%	• Slump Test	Pass
• Post Reflow Flux Residue (ICA Test)	<5%	• Solder Ball Test	Pass
• Corrosion	Pass	• Tackiness	40g
• SIR	Pass	• Wetting Test	Pass
• Acid Value	31.5		
• Bellcore SIR	Pass		
• Bellcore Electromigration	Pass		

All information is for reference only. Not to be used as incoming product specifications.

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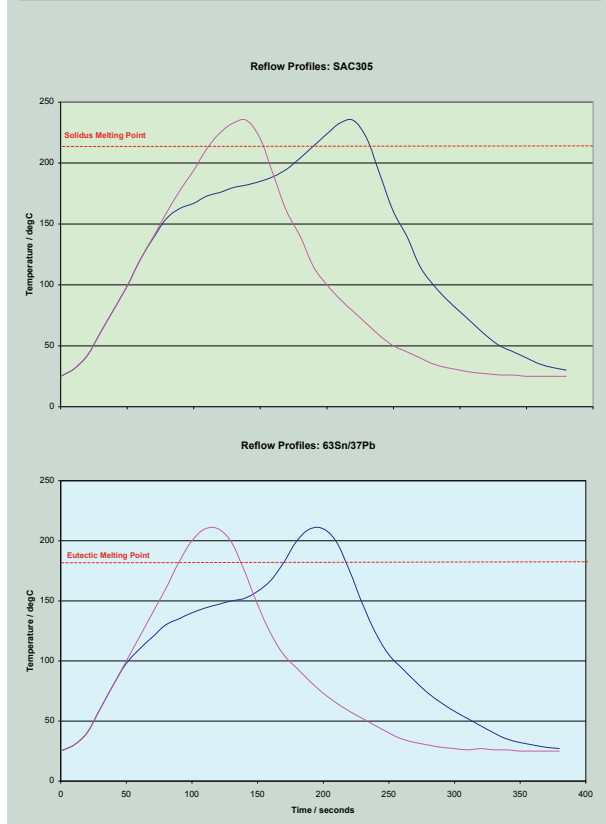


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## OnSpec® SR-7 Solar-Grade Solder Paste

### Reflow

#### Recommended Profile:



#### Liquidus Stage:

A peak temperature of 12°-43°C above the melting point of the solder alloy is recommended to achieve acceptable wetting to form a quality solder joint. The time-above-liquidus (TAL) should be 30-90 seconds. A peak temperature and TAL above these recommendations can result in excessive intermetallic formation that can decrease solder joint reliability.

#### Cooling Stage:

A rapid cool down of greater than 2°C/second is desired to form a fine grain structure which helps solder joint fatigue resistance.

#### Cleaning

**SR-7 Solder Paste** is designed for no-clean applications, however the flux can be removed, if necessary, by using a commercially available flux residue remover.

#### Heating Stage:

A linear ramp rate of 0.5°-2.0°C/second allows gradual evaporation of volatile flux constituents and helps minimize defects, such as solder balling and/or beading, and bridging resulting from hot slump. It also prevents unnecessary depletion of fluxing capacity when a high peak temperature and extended time-above-liquidus is used.

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.

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