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 SnPb and SnAgCu 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
	Printing	Dispensing		
Sn63/Pb37 Sn62/Pb36/Ag2	91.5%	87%	Type 3 -325/+500	25–45µm 0.001–0.0018"
SAC305 SAC387	90.5%	86%	Type 3 -325/+500	25–45µm 0.001–0.0018"

Packaging

Standard packaging for dispensing applications is 10 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 2 hours before use. Actual time to reach thermal equilibrium will vary with container size. Removing paste from storage 1 day before use is recommended. Jars and cartridges should be labeled with date and time of opening.

Technical Support

Indium Corporation sets the industry standard in providing rapid response, onsite technical support for our customers worldwide. Indium Corporation's team of Technical Support Engineers can provide expertise in all aspects of Materials Science.

Safety Data Sheets

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

Bellcore and J-STD Tests and Results

Test	Result
J-STD-004 (IPC-TM-650)	
Flux Type Classification	ORL0
Flux-Induced Corrosion (Copper Mirror)	Pass
Presence of Halide Fluoride Spot Test Elemental Analysis (Br, Cl, F)	 Pass 0%
Post-Reflow Flux Residue (ICA Test)	<5%
Corrosion	Pass
SIR	Pass
Acid Value	31.5
Bellcore SIR	Pass
Bellcore Electromigration	Pass

Test	Result
J-STD-005 (IPC-TM-650)	
Typical Solder Paste Viscosity (Sn63, 91.5%, -325/+500) Brookfield (5rpm) Malcolm (10rpm)	 925kcps 2,175 poise
Typical Thixotropic Index; SSF	-0.43
Slump Test	Pass
Solder Ball Test	Pass
Tackiness	40g
Wetting Test	Pass

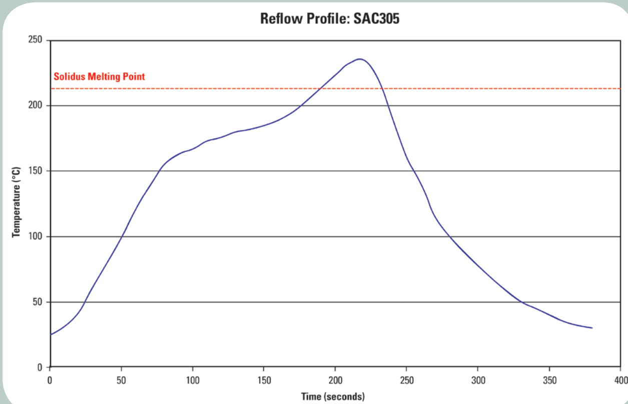
All information is for reference only.
Not to be used as incoming product specifications.

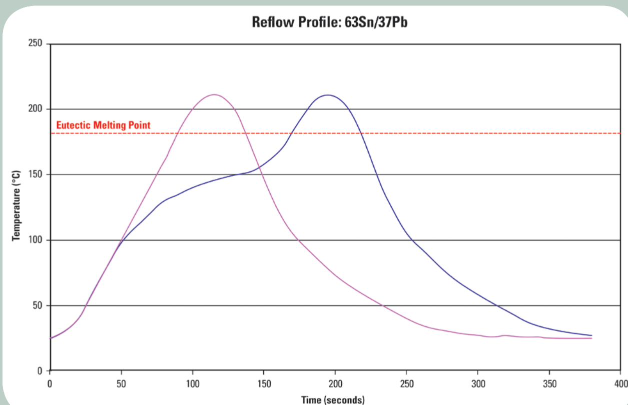
From One Engineer To Another®

OnSpec® SR-7 Solar-Grade Solder Paste

Reflow

Recommended Profile:





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 (TAL) is used.

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 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.

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.

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