PRODUCT DATA SHEET

Durafuse® LT 195

Low-Temperature Drop Shock Solution

Introduction

Durafuse® LT 195 is part of the novel mixed alloy solder paste system for low-temperature reflow processes. **Durafuse® LT 195** improved drop shock reliability over BiSn-based alloys by more than two orders of magnitude. The solder paste is made up of a low-melting In-containing alloy and a higher-melting SAC alloy. The low-melting alloy initiates joint fusion while the SAC alloy provides enhanced strength and durability. **Durafuse® LT 195** is ideal for applications requiring peak reflow temperatures below 200°C.

Features

- Excellent drop shock reliability
- Reflow below 200°C
- Good mechanical shear strength
- Good thermal and electrical conductivity

Flux Vehicle

Durafuse® LT 195 is compatible with the halogen-free, no-clean flux Indium10.8HF. This paste has excellent wetting properties on fresh and aged surface finishes including, but not limited to: OSP, ImAg, ImS, and ENIG. Indium10.8HF features exceptional HIP and NWO performance. This paste has a wide reflow profile window under both air and nitrogen enabling a fully optimized reflow process. Although Indium10.8HF is not designed for standard low-temperature reflow profiles, it may be used for select processes with **Durafuse® LT 195**. Please contact Technical Support for assistance.

Storage and Handling Procedures

Refrigerated storage will prolong the shelf life of solder paste. Solder paste packaged in syringes and cartridges should be stored tip down.

Packaging	Storage Conditions (unopened containers)	Shelf Life
Syringe	<-10°C	6 months
Jar/Cartridge	<10°C	6 months

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. Paste temperature should be verified before use. Jars and cartridges should be labeled with date and time of opening.

Key Applications

Low-temperature solders reduce warpage of thermally sensitive components by reducing peak reflow temperature; however, standard Bi-based low-temperature alloys are unable to withstand even moderate drop shock. **Durafuse® LT 195** is a low-temperature Pb-free solder capable of reducing peak reflow temperature by 50°C relative to SAC305, with drop shock reliability two orders of magnitude greater than standard low-temperature alloys.

Standard Product Specifications

Flux	Mesh Size	Printing Metal Load
Indium10.8HF Indium10.2HFA Indium12.9HF	Type 4	88–90%
	Type 5-MC	88–89%

Indium Corporation manufactures mixed low-oxide spherical powders in the industry standard Type 4 and Type 5-MC mesh sizes. Other non-standard mesh sizes are available upon request. The weight ratio of the flux/vehicle to the solder powder is referred to as the metal load and is typically in the range of 83–92% for standard compositions.

Indium10.8HF Industry Standard Test Results and Classification			
Based on the testing required by IPC J-STD-004B (IPC-TM-650)		Typical Solder Paste Viscosity for Type 4/4.5 Solder	1,400kcps
Halogen-free per IEC 61249-2-21, Test Method EN14582	<900ppm Cl <900ppm Br <1,500ppm Total	Conforms with all requirements from J-STD-005 (IPC-TM-650)	

Packaging

Standard packaging for **Durafuse® LT 195** is 500g jars and 600g cartridges. Other packaging options may be available upon request.

Complementary Products

- **Rework Flux**: TACFlux® 571HF, TACFlux® 020B-RC
- **Liquid Rework Flux**: FP-500

Note: Other products may be applicable. Please consult one of Indium Corporation's Technical Support Engineers.

From One Engineer To Another®

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Printing

Stencil Design:

Electroformed and laser cut/electropolished stencils produce the best printing characteristics among stencil types. Stencil aperture design is a crucial step in optimizing the print process. The following are a few general recommendations:

- Discrete components—A 10–20% reduction of stencil aperture has significantly reduced or eliminated the occurrence of mid-chip solder beads. The "home plate" design is a common method for achieving this reduction.
- Fine-pitch components—A surface area reduction is recommended for apertures of 20mil pitch and finer. This reduction will help minimize solder balling and bridging that can lead to electrical shorts. The amount of reduction necessary is process-dependent (5–15% is common).
- A minimum aspect ratio of 1:5 is suggested for adequate release of solder paste from stencil apertures. The aspect ratio is defined as the width of the aperture divided by the thickness of the stencil.

Printer Operation:

The following are general recommendations for stencil printer optimization. Adjustments may be necessary based on specific process requirements:

Solder Paste Bead Size	20–25mm in diameter
Print Speed	25–150mm/second
Squeegee Pressure	0.018–0.027kg/mm of blade length
Underside Stencil Wipe	Start at once per every 5 prints and decrease frequency until optimum value is reached
Solder Paste Stencil Life	Up to 12 hours at 30–60% RH and 22–28°C

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 preforms, wire, ribbon, and paste. Indium Corporation's Technical Support Engineers provide rapid response to all technical inquiries.

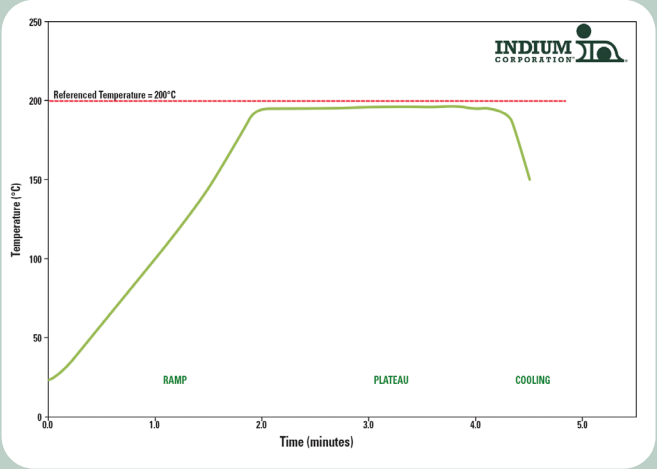
Cleaning

Indium10.8HF is designed for no-clean applications; however, the flux can be removed, if necessary, by using a commercially available flux residue remover.

Stencil Cleaning is best performed using an automated stencil cleaning system for both stencil and misprint cleaning to prevent extraneous solder balls. Most commercially available stencil cleaning formulations including isopropyl alcohol (IPA) work well.

Reflow

Recommended Profile:



This profile is designed for use with **Durafuse® LT 195**. This can be used as a general guideline in establishing a reflow profile for **Durafuse® LT 195** Solder Paste. Deviations from these recommendations are acceptable, and may be necessary, based on specific process requirements.

Safety Data Sheets

Please refer to the SDS document within the product shipment or contact our local team to receive a copy.

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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