

## PRODUCT DATA SHEET

# Indium6.6HF-HD

## Microdispense Paste

### Introduction

**Indium6.6HF-HD** is a versatile, water-soluble solder paste flux, formulated for fine-pitch dispensing and jetting applications. It is capable of SnPb and Pb-free assembly processes with an exceptional reflow process window. **Indium6.6HF-HD** exhibits superior wetting to a variety of surface finishes and exhibits the best voiding performance, with fewest voids, reduced size of largest voids, and overall minimized voiding for many varieties of components. Due to the extra processing steps performed during flux manufacturing, **Indium6.6HF-HD** offers superior fine feature dispensing and jetting capabilities, making this paste the premier water-soluble paste for microdispensing applications.

### Features

- Low-voiding water-soluble flux for solder paste:
  - Reduced largest voids
  - Fewer voids
  - Minimized voiding overall
- Wide reflow process window
- Excellent dispensability on fine lines and dots
- Excellent wetting on a variety of surface finishes
- Maintains tack over time
- Outstanding cleanability

### Alloys

Indium Corporation manufactures low-oxide spherical powder composed of a variety of Pb-free alloys that cover a broad range of melting temperatures. Type 5, Type 6, and Type 7 powders are offered for complicated designs with small passive components such as 008004 and other components commonly used in System-in-Package (SiP) Assembly. The metal percent is the weight percent of the solder powder in the solder paste and is dependent upon the powder type and application.

### Standard Product Specifications

Industry Standard Test Results and Classification			
Flux Classification	ORH0	Typical Solder Paste Viscosity for (Malcom) SAC305 T7 (Poise)	500
Based on the testing required by IPC J-Standard-004B with Amendment 1		Typical Tackiness	120gF
Halogen-free per IEC 61249-2-21, Test Method EN14582	<900ppm Cl <900ppm Br <1,500ppm Total	Conforms with all requirements from IPC J-Standard-005A.	
Metal Load (T5)	82–85%		
Metal Load (T6)	78–83%		

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

### Packaging

**Indium6.6HF-HD** is currently available in 250 and 500g jars, and 10 and 30cc syringes. Alternate packaging options may be available upon request.

### Storage and Handling

Refrigerated storage will prolong the shelf life of solder paste. Solder paste packaged in syringes should be stored tip down. 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 and ambient conditions such as local air flow. Paste temperature should be verified before use.

Storage Conditions (unopened syringes)	Shelf Life
-20°C–0°C	6 months

### 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

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

**From One Engineer To Another®**



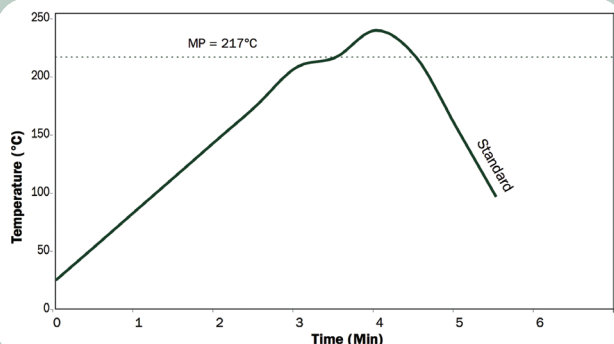
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### Reflow

#### Recommended Profile:



**Indium6.6HF-HD** should be reflowed using a linear profile in an air or nitrogen atmosphere. The stated profile recommendations can be used as a general guideline in establishing a reflow profile for **Indium6.6HF-HD** with SnAgCu, SnAg, and SnSb alloy systems.

#### 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.

#### Liquidus Stage:

**Indium6.6HF-HD** can accommodate a peak temperature range from 235–260°C. The actual peak temperature is determined by the board size, complexity, and component limitations. 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 is desired to form a fine-grain structure. Slow cooling will form a large-grain structure, which typically exhibits poor fatigue resistance. The acceptable cooling range is 0.5–6.0°C/second (2–6°C/second is ideal).

### Cleaning

#### Residue Removal

**Indium6.6HF-HD** flux residues are water-soluble and best removed by an inline or batch type cleaning process using spray pressure and heated DI water. A spray pressure of 60psi and a DI water temperature of 55°C can be used as a starting point. The optimal spray pressure and temperature are a function of board size, complexity, and the efficiency of the cleaning equipment and should be optimized accordingly. For gaps less than about 50µm (2mil), the addition of an appropriate surfactant in the water washing tank will lower the surface tension of the water to allow for faster penetration of the cleaning medium and improve cleaning effectiveness. We recommend cleaning the flux residue 12 hours (or sooner) after reflow for optimal test performance. Electrical testing should be completed after the flux residue is removed.

### Complementary Products

- **Rework Flux:** TACFlux® 66HF
- **Cored Wire:** CW-305
- **Wave Flux:** 1095-NF, WF-1082

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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.

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