

## Solder Pastes

### F367 Series

#### No Clean

**Description:**

F367 Series solder pastes are ready to use homogenous mixtures, consisting of fully alloyed metal powders, binders, solvents and thixotropic agents for surface mount assembly applications. These pastes provide excellent wetting. F367 Series pastes are available for every application. They can be reflowed in air or N<sub>2</sub> and feature a low odor level. The printing capabilities of these pastes are unsurpassed. The residues may be left on the board.

**● Key Benefits:**

- Exceptional print to print consistency
- Excellent wetting on OSP
- Low odor
- Passes Bellcore requirements for no clean solder pastes per TR-NWT-000078 issue 3
- Passes IPC requirements for class 3 no clean pastes per IPC-SF-818
- 8 hour tack and work life

**● Physical Properties****Metal Powder:**

Type 2 = -200/+325 mesh  
Type 3 = -325/+500 mesh  
Type 4 = -400/+500 mesh

**Shape:**

Spherical

**Melting Point:**

Varies depending on alloy  
(See back for alloy guide)

**% Metal:**

Stencil Printable - 90 %  
Dispensable – 86% (Other percentages available)

**Viscosity range:**

H=800-1000 Kcps  
M=600-800 Kcps  
D=300-400 Kcps  
Brookfield RVT, TF spindle, 5 rpm at 25°C

**● Performance Properties:****Typical print thickness:**

20 - 25 mil pitch: 0.006" - 0.008" (150 - 200 microns)  
<20 mil pitch: 0.004" (100 microns)

**Minimum pitch:**

12 mil (300 microns) with type 4 powder

**Minimum pad width:**

6 mil (150 microns)

**Slump**

Per J-STD-005  
10 min @ 25°C  
10 min @ 150°C  
No bridging at 0.075mm spacing

**Solder Balling:**

Per J-STD-005  
preferred (no solder balls)

**● Residue Properties:****Flux activity:**

According to IPC-SF-818, J-STD-004  
Class L0

**SIR:**

Per IPC SF - 818, J-STD-004  
> 1 x 10<sup>8</sup>, Class 3

The descriptions and engineering data shown here have been compiled by Heraeus using commonly-accepted procedures, in conjunction with modern testing equipment, and have been compiled as according to the latest factual knowledge in our possession. The information was up-to date on the date this document was printed (latest versions can always be supplied upon request). Although the data is considered accurate, we cannot guarantee accuracy, the results obtained from its use, or any patent infringement resulting from its use (unless this is contractually and explicitly agreed in writing, in advance). The data is supplied on the condition that the user shall conduct tests to determine materials suitability for a particular application.

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Per Bellcore TR-NWT-000078 issue 3;  
>  $2 \times 10^4$  megohms

#### Electro migration:

Per Bellcore TR-NWT-000078 issue 3  
Pass

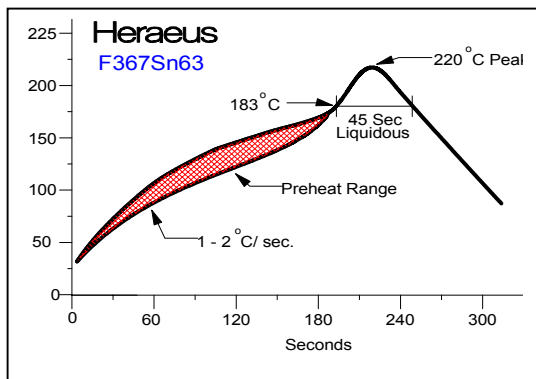
#### Copper Mirror:

Per IPC-SF-818, J-STD-004  
Pass

#### Silver Chromate test paper:

Per IPC-SF-818, J-STD-004  
Pass

#### Typical Sn63/Pb37Reflow Profile



#### ● Recommended Processing Guidelines:

##### Cleaning:

The flux residues may remain on the circuit. They do not need to be cleaned.

Clean wet paste with isopropanol or similar solvents.

If the printing interval exceeds 1 hour, remove the paste from the stencil.

The printed solder paste remains tacky for up to 8 hours to allow device insertion. The exact time depends on environmental conditions.

If the printed circuit boards will be stored for more than 6 hours after populating and prior to reflow, it is advisable to store the boards in a tightly closed area. This is especially important if the humidity exceeds 65%. Humidity should ideally be controlled between 45-65%.

#### Reflow Parameters:

For optimum results, the paste should be reflowed at a peak temperature of 30-50°C above the liquidous temperature of the alloy. Time above liquidous should be maintained for 30-60 seconds. Heating should be uniform across the substrate and components. Reflow can be accomplished with any industry accepted process.

#### Packaging:

Available in 250, 500 and 1000 gram jars  
5, 10 and 30cc syringes  
6 ounce, 12 ounce and ProFlow™ cartridges

#### Storage:

Store at room temperature (20-30°C).  
If paste is to be stored more than 2 months before use, refrigeration at 5-12°C is recommended. Avoid direct sunlight and temperatures exceeding 35°C. Allow paste to come to room temperature for a minimum of 2 hours prior to opening. Store syringes vertically with tips down.

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**Safety:**

When using do not eat, drink or smoke.  
Avoid contact with skin and eyes.  
Wear suitable gloves and eye protection.  
Contains lead!

**Warranty:**

Material guaranteed to meet specifications for 6 months from date of shipment.  
Come to room temperature for a minimum of 2 hours prior to opening. Store syringes and cartridges vertically with the tips down.

Heraeus F367 Series solder pastes can be ordered using the following part numbering system:

(Flux Series) (Alloy) - (Metal Content) (Viscosity) (Powder Mesh Size)

For example: (F367) (SN63) - (90) (M) (3) - F367SN63-90M3

Where F367 = Flux Series  
SN63 = Alloy  
90 = Metal Content  
M = Viscosity Range  
3 = Powder Mesh Size

Alloy: Alloy codes (melting points):

Sn62 (179)	=	Sn62/Pb36/Ag2	Ag35 (221)	=	Sn96.5/Ag 3.5
Sn63 (183)	=	Sn63/Pb37	Ag5 (220-240)	=	Sn95/Ag5
Pb88 (268-300)	=	Sn10/Pb88/Ag2			
Sn10 (268-300)	=	Sn10/Pb90			

Metal Content: Stencil Printable at 90% / Dispensable at 86%

Viscosity Range:

H=800-1000 Kcps      M = 600-800 Kcps      D = 300-400 Kcps

Powder Mesh Size Symbols:

2 = -200/+325  
3 = -325/+500    4 = -400/+500

Type 2 & 3 available in all standard alloys. Contact your Heraeus representative for other alloy requirements.  
FH0600.10

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