

## Developmental Data Sheet

# Lead free Solder Paste F640IL89M30



No Clean Solder Pastes for high temperature application

### 1. Description

F 640 Solder Paste series is a state-of-the-art lead free no clean solder paste that promotes wetting and minimizes soldering defects. The F 640 flux system is specifically optimized for Sn/Ag/Cu-based alloys. In combination with additional elements the HT alloy is applicable for electrical devices which has to be reliable for working temperatures of 125°C. Extensive testing at customer locations gave high yields in the production environment. This formula provides superior performance on a variety of surfaces finishes and leaves after reflow a clear residue. Reflow can be accomplished in air or nitrogen.

### Key Benefits

- Superior reliability at high operating temperatures , e.g.125°C
- Exceptional print to print consistency
- Excellent wetting
- Min. 8 hour tack and work life
- SIR 85/85 > 5 x 10<sup>8</sup> Ohm

### 2. Product Indication

<b>Product Code:</b>	F640IL – 89M30
<b>Alloy:</b>	Sn91,175/Ag3,5/Cu0,7/Ni0,125/Sb1,5/BI3

### 3. Physical Properties

#### Metal powder:

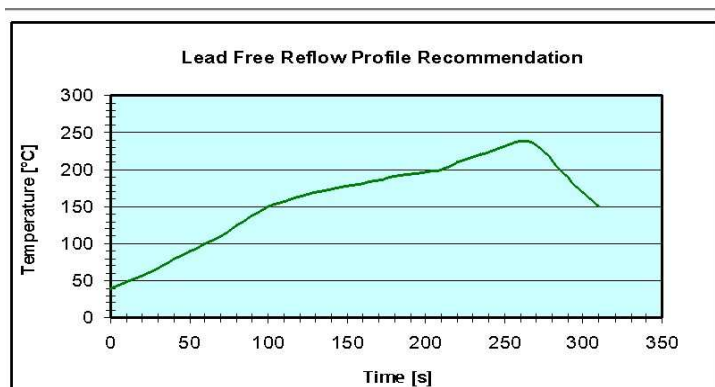
<b>Particle size:</b>	Type 3 DIN EN 61190
<b>Melting Range:</b>	210°C – 215°C

#### Solder Paste:

<b>Metal Content:</b>	89% ± 1%
<b>Viscosity Range:</b>	120 ± 40 Pas Physica CSS 10 s-1
<b>Density:</b>	In process

### 4. Reflow Parameters (recommendation)

- For optimum results, the paste should be reflowed at a peak temperature of 15-25°C above the melting temperature of the alloy.
- Time above melting temperature should be maintained for 30-90 seconds.
- Heating should be uniform across the substrate and components.
- Reflow in N<sub>2</sub> is preferred



40 - 170 °C	170 - 217 °C	Time to reach Peak	Time > 217°C	Peak
110 - 150 sec.	100 - 140 sec.	240 - 310 sec.	30 - 90 sec.	230 - 240 °C

## 5. Residue Properties

<b>Flux Activity:</b>	According to J-STD-004	L 0
	DIN EN 29454-1	1.1.3.C
	Bellcore GR-78-Core	L 0
<b>SIR:</b>	J-STD-004 > 1 x 10 <sup>8</sup>	pass
	Bellcore 2 E + 10 Ohm	pass
<b>Copper Mirror:</b>	J-STD-004	pass
	Bellcore 2 E + 10 Ohm	pass
<b>Silver Chromate Test Paper:</b>	J-STD-004	pass
	Bellcore 2 E + 10 Ohm	

## 6. Recommended Processing Guidelines

After reflow the flux residues may remain on the circuit. They do not need to be cleaned. If desired, the residues can be washed with various Zestron and Vigon cleaning materials.

For cleaning wet with different Zestron and Vigon cleaning materials see separate recommendations.

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

The printed solder paste remains tacky for more than 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 80%.

## 7. Storage

Store the solder paste in tightly-sealed jars and avoid exposure to sunlight and high humidity.

In jars:  
Min. 3 months in a refrigerator at 2-10°C (35-50°F)

In syringes:  
Min. 3 months in a refrigerator at 2-10°C (35-50°F)  
Store syringes with tip down!

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