

Developmental Data Sheet

Lead free Solder Paste F 640HT1



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 until max. 175°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 up to 175°C
- Exceptional print to print consistency
- Excellent wetting
- Min. 8 hour tack and work life
- SIR 85/85 > 10E10 Ohm
- Work conditions between 20 and 32°C

2. Product Indication

Product Code: F640HT1 - 89M30

Alloy: Sn96,5/Ag3/Cu0,5/In2/KM

3. Physical Properties

Metal powder:

Particle size: Type 5 = 15 –25 microns

Shape: Spherical

Melting Range: 210°C – 216°C

Solder Paste:

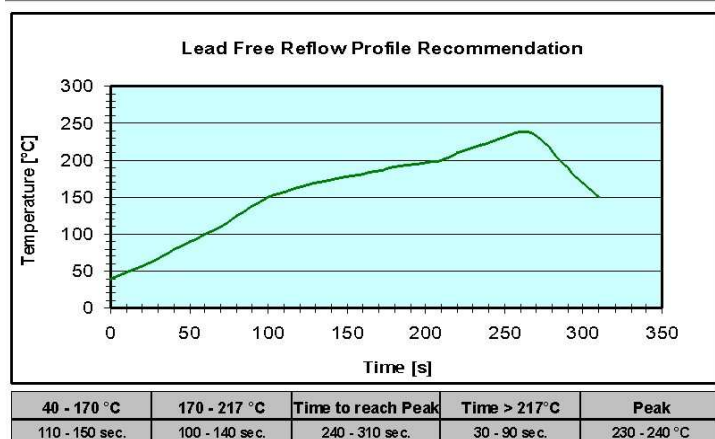
Metal Content: Standard 89% ± 1%

Viscosity Range: 130 ± 60Pas
Physica CSS 10 s-1

Density: 3,9 ± 0,2 g/ml

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 N₂ is preferred



5. Residue Properties

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

J.T./Ra. 20.1008

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.

Production Locations Europe	America	Asia
W. C. Heraeus GmbH Contact Materials Division Hanau, Germany Phone: +49 6181 35 5265 cmdinfo@heraeus.com	Heraeus Incorporated Contact Materials Division West Conshohocken, PA, USA Phone: +1 610 825 6050 customerservice.hcd@heraeus.com	Heraeus Ltd. Contact Materials Division On Lok Tsuen, Fanling, Hong Kong Phone: +852 2675 1200 cm.hlh@heraeus.com
W. C. Heraeus GmbH Contact Materials Division Potsdam, Germany Phone: +49 331 74616 00 juergen.schulze@heraeus.com	www.heraeus-cmd.com	Heraeus Materials Technology Shanghai Contact Materials Division Shanghai, P.R.C. Phone: +86 21 3357 5688 hmts@heraeus.com