

Technical Data Sheet

Lead free Solder Paste Series F 620



No Clean Solder Pastes with excellent wetting

1. Description

F 620 Solder Paste series is a state-of-the-art lead free no clean solder paste that promotes wetting and minimises soldering defects. The F 620 flux system is specifically optimised for Sn/Ag/Cu alloy soldering. Extensive testing at customer locations has proven this paste to be capable of defect-free performance in the production environment.

The F 620 Series exhibits minimal slump and has excellent print-after-wait performance.

This formula provides superior performance on a variety of surfaces finishes and leaves behind a clear residue. Reflow can be accomplished in air or nitrogen.

Key Benefits

- Exceptional print to print consistency
- Excellent wetting
- Min. 8 hour tack and work life
- Very good print after wait performance
- Fulfils Siemens Standard accord. DIN EN 29454 Part 1 (see Test certificate from April 18, 2003)

2. Product Indication

Indication:	F620Cu0,5-88M30 F620Ag4-88M30 F620SA35-89M30
Alloy:	Sn95.5/Ag4/Cu0.5 (Standard) Sn96Ag4 (upon request) Sn96.5/Ag3.5 (upon request)

3. Physical Properties

Metal powder:

Particle size:	Type 3 = 25 –45 microns (325/+500 mesh) Other powder sizes upon request.
Shape:	Spherical
Melting Point:	Sn95.5/Ag4/Cu0.5 = 217°C Sn96/Ag4 = 221°C Sn96.5/Ag3.5 = 221°C
Composition:	Sn95.5/Ag4/Cu0.5 = F620Cu0,5-88M30 Sn96/Ag4 = F620Ag4-88M30 Sn96.5/Ag3.5 = F620SA35-89M30
Density:	Sn95.5/Ag4/Cu0.5 = 7,4 g/cc Sn96/Ag4 = 7,4 g/cc Sn96.5/Ag3.5 = 7,4 g/cc
Ring & Plug (SAC)	Shear stress 42N/mm ²
Cu Dissolution (SAC)	< 96,5/3,5 at 288°C

Solder Paste:

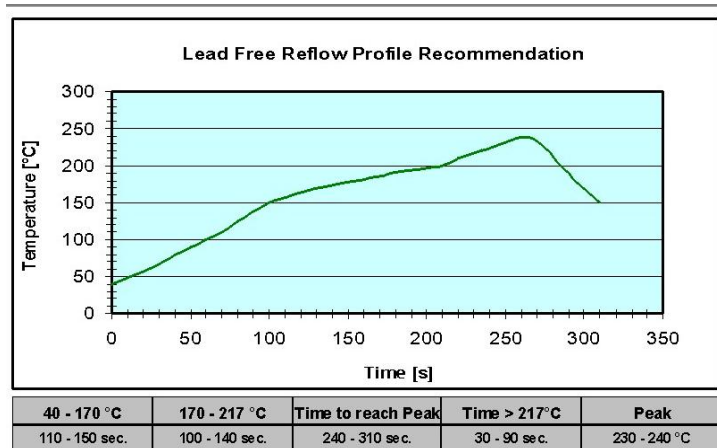
Metal Content:	Standard 88% ± 0,7% 89% ± 0,7%
Viscosity Range:	180 ± 40 Pas Physica CSS 10 s-1
Density:	4,0 ± 0,3 g/ml

4. Performance Properties

Typical Print Thickness:	0,5 – 0,65 mm pitch: 150 microns <0,5 mm pitch: 120 microns
Minimum Pitch:	20 mil (500 microns)
Minimum Pad Width:	8 mil (200 microns, stencil thickness 150microns)

5. Reflow Parameters (recommendation)

- For optimum results, the paste should be reflowed at a peak temperature of 15-30°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 can be accomplished with any industry accepted process in air or N₂.



For further information please see our separate Technical Information sheet!

6. Residue Properties

Flux Activity:	According to J-STD-004	REL1
	DIN EN 29454-1	1.2.2.C
SIR:	According IPC SF – 818	-
	J-STD-004 > 1 x 10 ⁸	Class 3
Copper Mirror:	According IPC-SF-818	-
	J-STD-004	pass
Silver Chromate Test Paper:	According IPC-SF-818	-
	J-STD-004	pass

7. 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 65%.

8. Storage

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

In jars:

Min. 6 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 tip down!

In ProFlow cassette:

Min. 3 months in a refrigerator at 2-10°C (35-50°F)
Store cassette horizontal.

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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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