

Technical Datasheet

F 541 Solder Pastes

With water washable solder paste

1. Description

F 10 Series solder paste is a ready to use homogenous mixture, consisting of fully alloyed metal powders, binders, solvents and thixotropic agents for surface mount assembly applications. F541 is a state of the art formulation that features robust OA activity for unparalleled solderability. The sophisticated flux activation system provides excellent wetting and minimal void formation on a variety of substrates. The flux composition is completely water soluble so that all residues are removed after cleaning in deionised water.

For Cu0,5 :

This unique formula is specially designed to give excellent results in Pb-free applications. F 541 provides excellent wetting and void-free performance. This paste is capable of printing .012" pitch at speeds up to 6"/second. F 541 features long stencil life and exhibits excellent first print after wait performance.

Key benefits:

- Capable of printing .012" pitch
- 8 hour stencil life
- Long tack life
- Excellent wetting
- Resistant to hot and humid slump
- High-speed print capability

2. Product indication

Indication:	F541SN63-90M3 F541Cu0,5-90M3
Alloy:	Sn63/Pb37 Sn95,5/Ag4/Cu0,5 Other alloys available upon request

3. Physical Properties

Metal powder:

Particle size:	Type 3 = 25 – 45 µm (325/+500 mesh)
Shape:	Spherical
Melting point:	Sn63/Pb37 = 183°C Sn95,5/Ag4/Cu0,5 = 217-219°C
Composition:	Sn63/Pb37 = F541SN63-90M3 Sn95,5/Ag4/Cu0,5 = F541Cu0,5-90M3
Density:	Sn63/Pb37 = 8,4 g/cc Sn95,5/Ag4/Cu0,5 = 7,4 g/cc

Solder paste:

Metal content:	90%
Viscosity range:	M= 600-800 Kcps
Density:	N/a

4. Performance properties

Typical print Thickness	20-25 mil pitch: 0.006"-0.008" (150-200 microns) <20 mil pitch: 0.004" (100 microns)
Min. Pitch:	12 mil = 300 µm
Min. Pad width:	6 mil = 150 µm
Slump:	Per IPC-SP-819 4 hours @ 25°C <1% 10 min @ 100°C <2%

5. Residue Properties:

Flux activity:	n.a	
SIR:	n.a	

6. Recommended Processing Guidelines:

- Printing: For best performance, the temperature should be between 23-27°C and the relative humidity should be between 40-60%.
- Ensure that the paste has reached room temperature before opening, to prevent condensation
- For optimum results, the paste should be reflowed at a peak temperature of 20-30°C above the liquidous temperature of the alloy. Time above liquidous should be maintained for 30-60 seconds. No soak zone is necessary in the reflow profile. Heating should be uniform across the substrate and components. Reflow can be accomplished with any industry-accepted process.
- Cleaning: Clean wet paste with isopropanol or similar solvents.
- For optimal results, clean reflowed residues with hot deionised water at a minimum temperature of 40°C as soon after reflow as possible. For pressurized cleaners, a minimum of 40 PSI should be maintained. If cosolvents or saponifiers are used in ultrasonic cleaners, a minimum of 2 desionized rinse baths is recommended to completely remove flux residues and cleaning solvents.

7. Storage

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

In Jars:

- Min. 6 month in a refrigerator at 2-10°C.
- Max. 1 month at room temperature between 20-25°C in original closed jars.

Ra 091008

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