

Technical Data Sheet



Product Type: No Clean Solder Paste
Product Name: Microbond® SMT650
Product ID: F650 IL-89M40

Description

Automotive applications, supporting infrastructures, and high reliability applications in general, are more prone to moisture-related failure modes. Continued product miniaturization drives the need for smaller case-size components and fine pitch devices with reduced stand-off heights which trap post-process residues under components. Residual PCB moisture; in addition to elevated humidity and temperature exposure, promotes moisture absorption into these residues resulting in electromigration, which leads to premature device failure.

With the new F650-Series, Heraeus has developed a flux which eliminates electromigration caused by moisture-induced residues, especially in fine feature applications. The flux system is available for SAC-based; as well as Innolot® alloys, and is compatible with conformal coatings, solder resist, active and passive components, various PWB materials and combinations. F650 IL-89M40 solder paste contains the Innolot® alloy system, which adds Bismuth (Bi), Antimony (Sb) and Nickel (Ni) to a SAC system.

Key Benefits

- Halogen Zero
- Good wetting under Nitrogen atmosphere
- Preventing electromigration in fine feature applications

Applications

- Printing

Product Code and Alloy

Product Code				Powder Properties			
Paste	Alloy	Metal Content	*Viscosity	Powder Type	Particle Size	Alloy	Melting Point
F650	IL	89%	M	4	20 – 38 µm	Sn/Ag3.8/Cu0.7/ Ni0.15/Sb1.5/Bi3	206 - 218 °C

*D = Dispense grade M = Print grade H = Print grade, high L = Dipping/Jetting grade, Low

Flux Activity

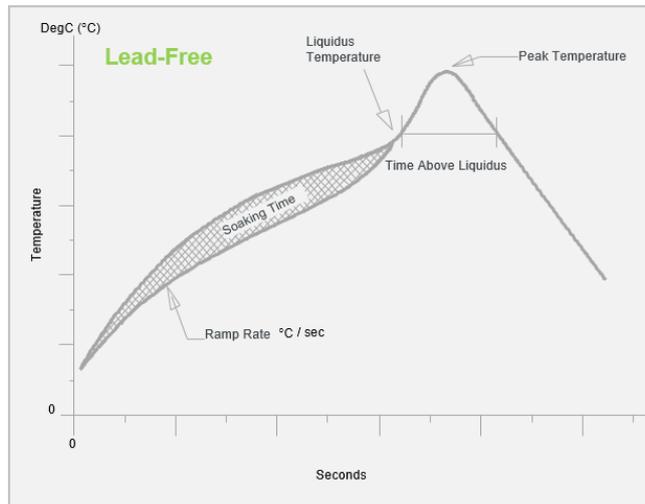
Activity Level (J-STD 004)	ISO 9454-1 {DIN EN 29454-1}	Classification
RELO	1.2.3.C	No Clean/ Solvent Clean

Halogen Content

Halogen-Zero (No halogen added in the flux)
Tolerances: Halogen < 50 ppm; measured according to BS EN 14582

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Recommended Reflow Profile



* Graph not drawn to scale

Recommended Profile	
Average Ramp Rate	1 – 3 °C/s
Peak Temperature	15 °C (min) – 40 °C (max) above Melting Temperature
Time above liquidus	45 – 90 s
Reflow Atmosphere Type 3 – 5	Reflow under N ₂

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Cleaning Instructions

After reflow flux residues may remain on the circuit and do not need to be washed. For cleaning of wet paste or if desired for cleaning of flux residues Zestron and Vigon cleaners can be used – see separate cleaning recommendations.

Storage

- Store the solder paste in tightly-sealed containers and avoid exposure to sunlight and high humidity
- Max expiration date: please refer to the expiry date on the label of the packaged product
- Storage condition in the refrigerator at 2 - 10 °C
- Store cartridges with tip pointing downwards

Paste Preparation

- Remove paste from fridge: Before opening the package, leave paste for at least 4 hours (depending on jar/ cartridge size) at room temperature, so that paste warms up
- Do not open jar/cartridge while paste is cold to prevent condensation
- Do not heat the paste beyond room temperature
- Before using paste jar: To obtain uniform, stable viscosity stir paste for 1 – 2 min, using stainless steel or chemically resistive plastic spatula

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