

## EM828 Solder Paste

Low-Voiding, Lead-Free, Water Soluble, Solder Paste

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### Product Description

Kester EM828 Solder Paste is a lead-free, water soluble solder paste formulated specifically to reduce voiding behavior that is common with lead-free solder paste products. EM828 represents a break-through in water soluble solder paste technology with the combination of low voiding, excellent wetting behavior and ease of cleaning. Additionally, EM828 is extremely stable in the stencil printing process, regardless of print speed, idle time and throughput. EM828 provides tremendous wetting to a wide variety of board and component finishes in order to simplify your transition to lead-free processes.

### Performance Characteristics:

- Low-voiding underneath area array components
- Excellent wetting on a variety of metalizations
- Residues are easily removed in hot DI water
- Long stencil life and tack time (process dependent)
- Tremendous brick definition and slump resistance for reduction of bridging defects
- Print speed up to 150 mm/second (6 inch/second)
- Capable of breaks in printing of up to 60 minutes without any kneading
- Classified as ORH1 per J-STD-004A

### Standard Applications:

Stencil Printing: 89.5% Metal

Enclosed Head Printing: 89.5% Metal

### RoHS Compliance

This product meets the requirements of the Restriction of Hazardous Substances (RoHS), 2002/95/EC Article 4 for the stated banned substances.

### Physical Properties

(Data given for Sn96.5Ag3.0Cu0.5, 89.5% metal, -325+500 mesh)

**Viscosity (typical):** 1700 poise

Malcom Viscometer @ 10 rpm and 25 °C

**Initial Tackiness (typical):** 40 grams

Tested to J-STD-005, IPC-TM-650, Method 2.4.44

**Slump Test:** Pass

Tested to J-STD-005, IPC-TM-650, Method 2.4.35

**Solder Ball Test:** Preferred

Tested to J-STD-005, IPC-TM-650, Method 2.4.43

**Wetting Test:** Pass

Tested to J-STD-005, IPC-TM-650, Method 2.4.45

## Reliability Properties

**Copper Mirror Corrosion:** High

Tested to J-STD-004, IPC-TM-650, Method 2.3.32

**Corrosion Test:** Medium

Tested to J-STD-004B, IPC-TM-650, Method 2.6.15C

**Surface Insulation Resistivity (SIR), (typical):** Pass

Tested to J-STD-004, IPC-TM-650, Method 2.6.3.3

	Blank	EM828
Day 1	$1.5 \times 10^9 \Omega$	$9.0 \times 10^8 \Omega$
Day 4	$1.3 \times 10^9 \Omega$	$9.8 \times 10^8 \Omega$
Day 7	$9.5 \times 10^8 \Omega$	$1.2 \times 10^9 \Omega$

## Availability

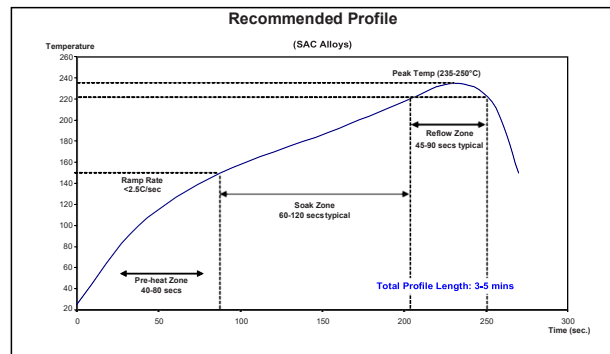
Kester EM828 is available in the Sn96.5Ag3.0Cu0.5 alloy with Type 3 and Type 4 powder. Type 3 powder mesh is recommended, however, Type 4 powder is available for finer pitch applications. For specific packaging information on available sizes visit Product Offerings page at [Kester.com](https://www.kester.com). The appropriate combination depends on process variables and the specific application.

## Printing Parameters

Squeegee Blade	80 to 90 durometer polyurethane or stainless steel
Squeegee Speed	Capable to a maximum speed of 150 mm/sec (6 in/sec)
Stencil Material	Stainless Steel, Molybdenum, Nickel Plated, Brass
Temperature/Humidity	Optimal ranges are 21 to 25 °C (70 to 77 °F) and 35 to 65% RH

## Recommended Reflow Profile

The recommended reflow profile for EM828 made with SAC alloys is shown here. This profile is simply a guideline. Since EM828 is a highly active solder paste, it can solder effectively over a wide range of profiles. Your optimal profile may be different from the one shown based on your oven, board and mix of defects. Please contact Technical Support if you need profiling advice.



## Cleaning

EM828 residues are best removed using automated cleaning equipment (in-line or batch) within 48 hours of soldering. De-ionized water is recommended for the final rinse. Water temperatures should be 49 to 60 °C (120 to 140 °F). Kester's 5768 Bio-Kleen® saponifier can also be used in a 1 to 2% ratio for aqueous cleaning systems.

## Recycling Services

We provide safe and efficient recycling services to help companies meet their environmental and legislative requirements and at the same time, maximize the value of their waste streams.

Our service collects solder dross, solder scrap, and various forms of solder paste waste. Please contact your local sales representative for recycling capabilities in your area or [link here](#).



## Storage, Handling and Shelf Life

Refrigeration is the recommended optimum storage condition for solder paste to maintain consistent viscosity, reflow characteristics and overall performance. EM828 should be stabilized at room temperature prior to printing; however, for optimal product performance, do not leave unopened at room temperature for more than one week. Shelf life is 6 months from date of manufacture and held at 0 to 10 °C (32 to 50 °F). Please contact sales support, if you require additional advice with regard to storage and handling of this material.

## Health and Safety

This product, during handling or use, may be hazardous to your health or the environment. Read the Safety Data Sheet and warning label before using this product. Safety Data Sheets are available at this [link](#).

## Contact Information

To confirm this document is the most recent version, please contact [Assembly@MacDermidAlpha.com](mailto:Assembly@MacDermidAlpha.com)

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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE. Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

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