

# EM919G Solder Paste

Lead-Free, No-Clean

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## Product Description

Kester EM919G Solder Paste is a lead-free, halide-free, no-clean solder paste that is available in Type 3 or 4 powder. EM919G can be reflowed in air or nitrogen and specifically designed for the thermal requirements of lead free alloys, including Sn95.8Ag3.5Cu0.7 and Sn96.5Ag3.0Cu0.5. EM919G exhibits continual printability for fine pitch components (0.4 mm/16 mils) and is able to print at high speeds up to 6 in/sec (150 mm/sec). EM919G offers an excellent cosmetic appearance in the reflowed solder joints with smooth surfaces and light colored residues that closely resemble tin-lead solder joints. In addition, EM919G produces test probe friendly post soldering residues. EM919G is classified as ROL0 under IPC JSTD-004 and ROM0 under IPC JSTD-004B.

## Performance Characteristics:

- Lead-free
- No-clean
- Halogen and halide-free chemistry
- Extended stencil life (process dependent)
- Excellent release from stencil
- 12+ hours stencil life
- Excellent printing characteristics on 0.4 mm (16 mil) pitch QFPs
- Capable of 60 minute break times in printing
- Low voiding characteristics (process dependent)
- Probe friendly residues
- Clean cosmetic aesthetics after reflow
- Resistant to slump
- Stable tack life
- Classified as ROL0 under IPC JSTD-004 and ROM0 under IPC JSTD-004B

## Standard Applications:

**Stencil Printing:** 88% Metal

## RoHS Compliance

This product meets the requirements of the Restriction of Hazardous Substances (RoHS) Directive, 2011/65/EU for the stated banned substances.

## Physical Properties

(Data given for Sn96.5Ag3.0Cu0.5, 88% metal, -325+500 mesh)  
Data representative for most AnAgCu compositions

**Viscosity (typical):** 1150 poise  
Malcom Viscometer @ 10rpm and 25 °C

**Initial Tackiness (typical):** 33 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:** No Breakthrough “L”  
Tested to J-STD-004B, IPC-TM-650, Method 2.3.32

**Corrosion Test:**  
No Corrosion “L”  
Tested to J-STD-004, IPC-TM-650, Method 2.6.15B

Minor Corrosion “M”  
Tested to J-STD-004B, IPC-TM-650, Method 2.6.15C

**Surface Insulation Resistance (SIR), IPC (typical):** Pass  
Tested to J-STD-004, IPC-TM-650, Method 2.6.3.3

	Blank	EM919G
Day 1	$1.1 \cdot 10^{10} \Omega$	$7.7 \cdot 10^8 \Omega$
Day 4	$1.5 \cdot 10^{10} \Omega$	$1.2 \cdot 10^9 \Omega$
Day 7	$1.4 \cdot 10^{10} \Omega$	$1.4 \cdot 10^9 \Omega$

**Chloride and Bromides: None Detected**

Tested to J-STD-004, IPC-TM-650, Method 2.3.35

**Fluorides by Spot Test: Pass**

Tested to J-STD-004, IPC-TM-650, Method 2.3.35.1

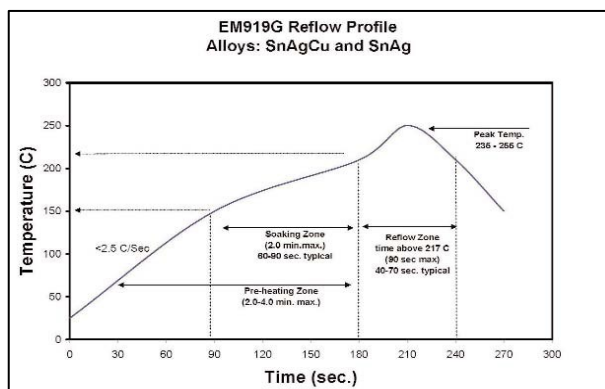
## Availability

EM919G is available in the SAC305 alloy with Type 3 and 4 powder mesh. Type 3 mesh size is recommended for standard applications and type 4 for fine pitch applications. EM919G is also compatible with other SAC alloys in similar melting range to the listed alloys. For specific packaging information refer to Kester's Solder Paste Packaging Chart for available sizes. The appropriate combination depends on process variables and the specific application.

## Printing Parameters

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

## Recommended Reflow Profile



The general recommended convection reflow profile for EM919G formula made with typical lead free alloys is shown here as a starting point. Your final profile will depend on your board mass and component combination. EM919G has excellent solder-ability and wetting capabilities in air or nitrogen reflow atmospheres reflow equipment. Your optimal profile may be different from the basic graph. Please contact Kester Technical Support if you need profiling advice.

## Cleaning

EM919G is a no-clean formula. The residues do not need to be removed for typical applications. Although EM919G is designed for no-clean applications, its residues can be easily removed using automated cleaning equipment (in-line or batch) with a variety of readily available cleaning agents. If cleaning is required please call Kester Technical support.

## Storage, Handling and Shelf Life

Refrigeration is the recommended optimum storage condition for solder paste to maintain consistent viscosity, reflow characteristics and overall performance. EM919G should be stabilized at room temperature prior to printing. EM919G should be kept at standard refrigeration temperatures, 0 to 10 °C (32 to 50 °F). Please contact Kester Technical Support if you require additional advice with regard to storage and handling of this material. Shelf life is 6 months from date of manufacture and held at 0 to 10 °C (32 to 50 °F).

## 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 <https://www.kester.com/downloads/sds>.

## Contact Information

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

<b>North America</b> 800 West Thorndale Avenue Itasca, IL USA 60143  Phone: +1 800.2.KESTER	<b>Asia Pacific</b> 8/F., Paul Y. Centre 51 Hung To Road Kwun Tong, Kowloon, Hong Kong  Phone: +852.3190.3100	<b>Europe</b> Ganghofer Strasse 45 82216 Gernlinden, Germany  Phone: +49 (0) 8142 4785 0
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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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