

## EM919G Solder Paste

### Lead-Free No-Clean

### Product Description

Kester EM919G is a lead-free, halide-free, available in type 3 or 4 powder, can be reflowed in air or nitrogen, no-clean solder paste 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 (0.4mm/16 mils) and is able to print at high speeds up to 6 in/sec (150mm/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 0.4mm (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
- Compliant to Bellcore GR-78-CORE

#### 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"  
IPC J-STD-004B, IPC-TM-650, Method 2.3.32

**Corrosion Test:**  
No Corrosion "L"  
IPC J-STD-004, IPC-TM-650, Method 2.6.15B

**Minor Corrosion "M"**  
IPC J-STD-004B, IPC-TM-650, Method 2.6.15C

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

	Blank	EM919G
Day 1	1.1*10 <sup>10</sup> Ω	7.7*10 <sup>8</sup> Ω
Day 4	1.5*10 <sup>10</sup> Ω	1.2*10 <sup>9</sup> Ω
Day 7	1.4*10 <sup>10</sup> Ω	1.4*10 <sup>9</sup> Ω

**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

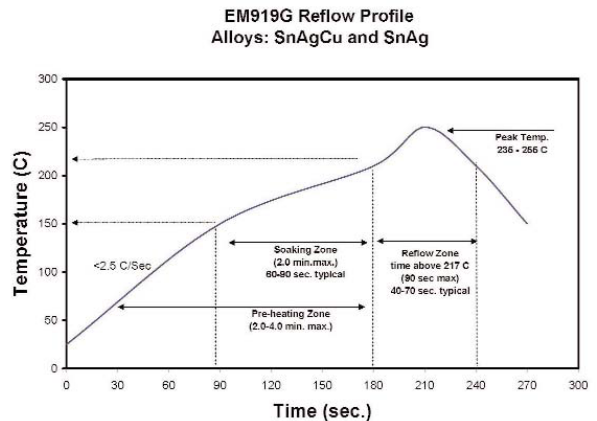
EM919G is available in the SAC305 alloy with type 3 and 4 powder mesh. Type 3 mesh size is recommended for standard applications and type 4 for fine pitch applications. EM919G is also compatible with other SAC alloys in similar melting range to the listed alloys. For specific packaging information refer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

## 🔄 Printing Parameters

Squeegee Blade	80-90 durometer stainless steel or polyurethane
Squeegee Speed	Capable to a maximum speed of 150 mm/sec (6 in/sec)
Stencil Material	Stainless Steel, Molybdenum, Nickel Plated or Brass
Temperature/Humidity	Optimal ranges are 21-25°C (70-77°F) and 35-65% 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 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, 0-10°C (32-50°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 0-10°C (32-50°F).

## ⚠️ Health and Safety

This product, during handling or use, may be hazardous to your health or the environment. Read the Safety Data Sheet (SDS) and warning label before using this product.