

EnviroMark™ 909

Lead-Free No-Clean Solder Paste

Product Description

EnviroMark™ 909 is a lead-free, air and nitrogen reflowable ICT pin probeable no-clean solder paste specifically designed for the thermal requirements of lead free alloys, including the Sn96.5Ag3.0Cu0.5 alloy. The paste flux system allows joint appearances that closely resemble that achieved with SnPb alloys. EM909 is capable of stencil printing downtimes up to 60 minutes with an effective first print down to 20 mils without any kneading. EM909 also exhibits excellent continual printability for fine pitch (0.4mm / 16 mils) and is able to print at high speeds up to 6"/s (150 mm/s). This solder paste also exceeds the reliability standards required by J-STD-004.

- Lead free joints that closely resemble those achieved with SnPb solder paste
- Soft ICT pin probeable residues
- Excellent solderability to a wide variety of surface metallizations, including Ni/Au, Im Sn, and Im Ag
- High print speeds up to 150 mm/s
- Capable of 90 minute break times in printing
- Stencil life: 12+ hours (process dependent)
- Excellent printing characteristics to 16 and 20 mils pitch
- Excellent print and reflow characteristics for 0201 applications
- Tack life: 8+ hours (process dependent)
- Processable by air or nitrogen reflow
- Classified as ROL0 per J-STD-004

Standard Applications

88% Metal – Stencil Printing

Physical Properties

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

Viscosity (typical): 1600 poise

Malcom viscometer @ 10rpm 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: Pass

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: Low

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

Corrosion Test: Low

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

Silver Chromate: Pass

Tested to J-STD-004, IPC-TM-650, Method 2.3.33

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

SIR, IPC (typical): Pass

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

	Blank	EM909
Day 1	$6.3 \times 10^9 \Omega$	$1.0 \times 10^9 \Omega$
Day 4	$4.0 \times 10^9 \Omega$	$4.6 \times 10^9 \Omega$
Day 7	$4.6 \times 10^9 \Omega$	$1.5 \times 10^9 \Omega$

Application Notes

Availability:

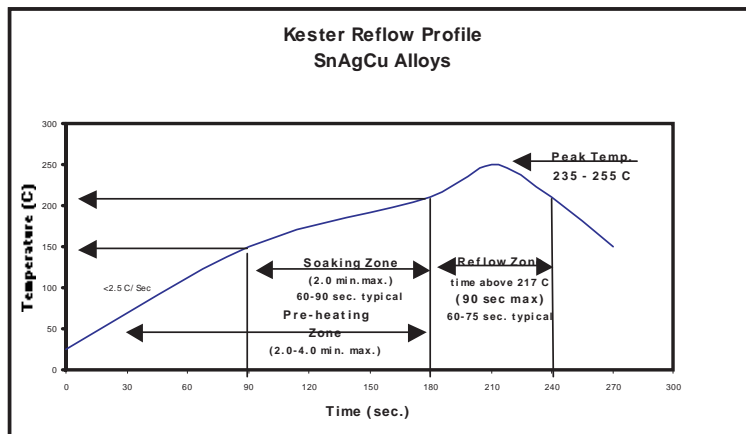
EM909 is available in Sn96.5Ag3.0Cu0.5 and Sn96.5Ag3.5 alloys and -325+500 mesh as standard. EM909 is also compatible with other SnAgCu alloys in a similar melting range to the listed alloys. For specific packaging information, see Kester's Paste Packaging Chart for available sizes. The appropriate combination 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 150mm/sec (6 in/sec)
Stencil Material	Stainless Steel, Molybdenum, Nickel Plated, Brass
Temperature/Humidity	Optimal ranges are 21-25°C (70-77°F) and 35-65% RH

Recommended Reflow Profile:

Full Convection reflow method is most commonly used to reflow the EM909 formula. The recommended convection reflow profile for EM909 made with either the Sn96.5Ag3.5 or SnAgCu alloys is shown here.



Cleaning:

EM909 is a no-clean formula. The residues do not need to be removed for typical applications. Although EM909 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. Call Kester Technical Support for details.

Storage, Handling, and Shelf Life:

Refrigeration is the recommended optimum storage condition for solderpaste to maintain consistent viscosity, reflow characteristics and overall performance. EM909 should be stabilized at room temperature prior to printing. EM909 should be kept at standard refrigeration conditions, 0-10°C (32-50°F). Please contact Kester if you require additional advice with regard storage and handling of this material. Shelf life is 4 months from date of manufacture when handled properly and held at 0-10°C (32-50°F).

Health & Safety:

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

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