



TECHNICAL DATA SHEET

CATEGORY: **RMA SOLDER PASTE**
 NAME: **RMA-291**
 ALLOY: **Sn63/Pb37 & Sn62/Pb36/Ag2**

FEATURES

- 8 HOUR STENCIL LIFE
 - HIGH HUMIDITY RESISTANCE
 - LARGE PROCESS WINDOW
 - SLUMP RESISTANT
 - 6 HOURS TACK TIME
 - AQUEOUS CLEAN WITH SAPONIFIER
- * Passes IPC, product testing results available upon request, meets QQS-571-E specification requirements

DESCRIPTION

RMA-291 is a mildly activated resin/rosin-based solder paste. RMA-291 has a wide process window uncommon to most RMA solder pastes, in addition to a good activity level, which allows the product to accommodate a variety of environments and process applications. RMA-291 performs well in continuous production, offering good slump resistance, high tack, excellent wetting, and low post-process residues. RMA-291 has been utilized on various assemblies with RF designs without cleaning; however, the compatibility of flux residues on RF assemblies is strongly dependent upon circuitry design.

STANDARD PASTE COMPOSITION

Application Method	IPC Powder Type	Metal Load
Standard Stencil Printing	3	89.5%
Fine Pitch Stencil Printing	5	89%
Ultra-Fine Pitch Stencil Printing	5	88.5%
Dispensing syringes	3	85%

Note: These are typical starting guidelines. To achieve optimal performance, actual metal load and particle size may vary per process, application, and environment.

HANDLING

- RMA-291 has a refrigerated shelf life of 1 year at 4°C or 40°F, and a non-refrigerated shelf life of 6 months at 22°C or 72°F. Do not freeze this product.
- Allow the solder paste to warm naturally and completely to ambient temperature (8 hours is recommended) prior to breaking seal for use.
- Mix the product lightly and thoroughly for 1 to 2 minutes to ensure even distribution of any separated material resulting from storage.
- Do not store new and used paste in the same container. Re-seal any opened containers while not in use. Replace the internal plug in conjunction with the cap of the 500 gram jar to ensure the best possible seal.

PRINTER SETUP

Below are the suggested starting parameters for screen-printing. Some assumptions were made as to the printer types used in modern applications. Adjustments will vary between equipment, application and facility environment.

SNAP-OFF DISTANCE	ON CONTACT (0.00")	SQUEEGEE PRESSURE	1-1.5 LBS/IN. OF BLADE
PCB SEPARATION DISTANCE	.030-.050"	SQUEEGEE STROKE SPEED	.5 - 6 IN/SEC *
PCB SEPARATION SPEED	MEDIUM	* DEPENDENT ON PCB AND PAD DESIGNS	

Manufacturing and Distribution Worldwide

Americas +1-401-463-5605 • Europe +44-1737-222-258 • Asia-Pacific +852-2649-7183 • info@aimsolder.com • www.aimsolder.com

PASTE APPLICATION

- Apply sufficient paste to the stencil to allow a smooth, even roll during the print cycle. A bead diameter of 1/2 to 5/8 inch is normally sufficient to begin.
- Apply small amounts of fresh solder paste to the stencil at frequent, controlled intervals to maintain paste chemistry and workable properties.
- Cleaning of your stencil will vary according to the application; however, it can be accomplished using AIM's 200AX-10 or DJAW-10 stencil cleaners. Use these in moderation and remove any excess cleaner from the stencil surface.

PLACEMENT INFORMATION

RMA-291 provides the necessary tack time/force for today's high-speed placement equipment. Ensuring proper support of PCB's during assembly and handling will enhance product performance and reliability.

REFLOW DATA

See attached Reflow Profile Supplement.

PASTE TECH-TIPS

<u>PROBLEM</u>	<u>POTENTIAL CAUSE</u>
• BRIDGING:	EXCESS SOLDER DEPOSITION, COMPONENT ALIGNMENT, PAD/COMPONENT SOLDERABILITY
• LEACHING:	EXCESSIVE REFLOW TIME OR TEMPERATURE
• SOLDER BALLS:	LOW PREHEAT TEMPERATURE, EXCESSIVE HEAT RAMP-UP, OXIDIZED PASTE, EXCESS PASTE
• TOMBSTONING:	EXCESSIVE HEAT RATE, COMPONENT TO PAD SIZE MISMATCH, PASTE REGISTRATION
• WHITE RESIDUE:	SOLDER PASTE OXIDATION, EXCESSIVE TIME AT TEMPERATURE
• DISCOLORED JOINT:	PASTE OXIDATION, BOARD/COMPONENT CONTAMINATION, EXCESSIVE SOAK TIME
• BEADING:	EXCESS SOLDER PASTE, COMPONENT PLACEMENT

CLEANING

RMA 291 can be cleaned, if necessary, with saponified tap water. AIMTERGE 520 is recommended for cleaning. Deionized water is recommended for the final rinse. A temperature of 100° - 150°F is sufficient for removing any residues. An in-line or other pressurized spray cleaning system is suggested, but is not required.

SAFETY

- Use with adequate ventilation and proper personal protective equipment.
- Refer to the accompanying **Material Safety Data Sheet** for any specific emergency information.
- Do not dispose of any lead-containing materials in non-approved containers.

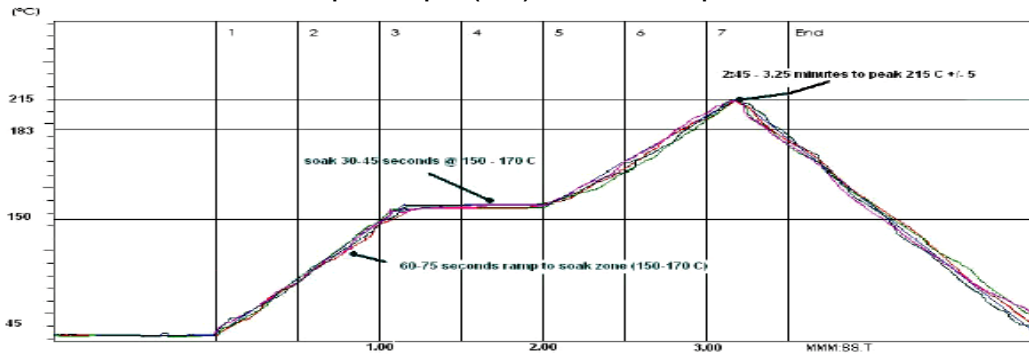


REFLOW PROFILE SUPPLEMENT

ALLOYS:

Sn63/Pb37 and Sn62/Pb36/Ag2

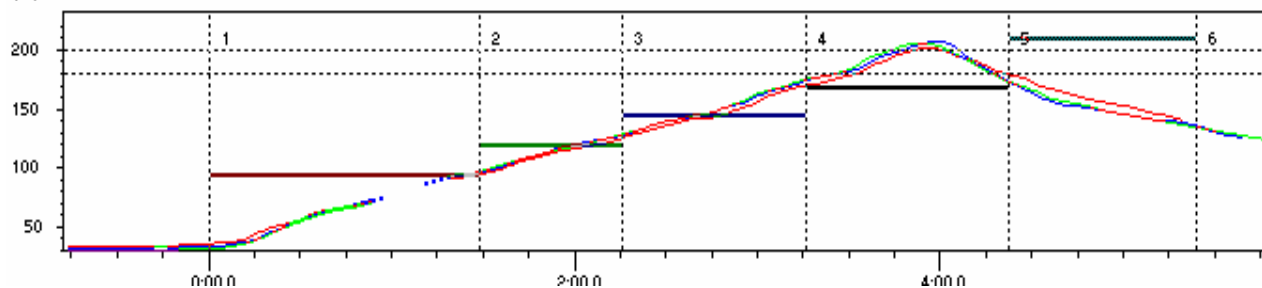
Ramp-Soak-Spike (RSS): Recommended profile



RSS Profile Guidelines

- The typical initial rate of rise for the RSS profile is 1.4 to 1.8°C/second.
- Ramp up to 150°C and then soak the assembly for 30 to 60 seconds.
- The soak zone should be controlled between 150 -170°C. Above this point the paste will lose its activator.
- Proceed to spike immediately once the PCB has reached thermal stability.
- Peak temperature is 215°C ± 5°C.
- Time above liquidus is 45 ± 15 seconds.
- The total profile length should be between 2 ¼ - 3 ½ minutes from ambient to peak temperature.
- Cool down should be controlled within 4°C/second.

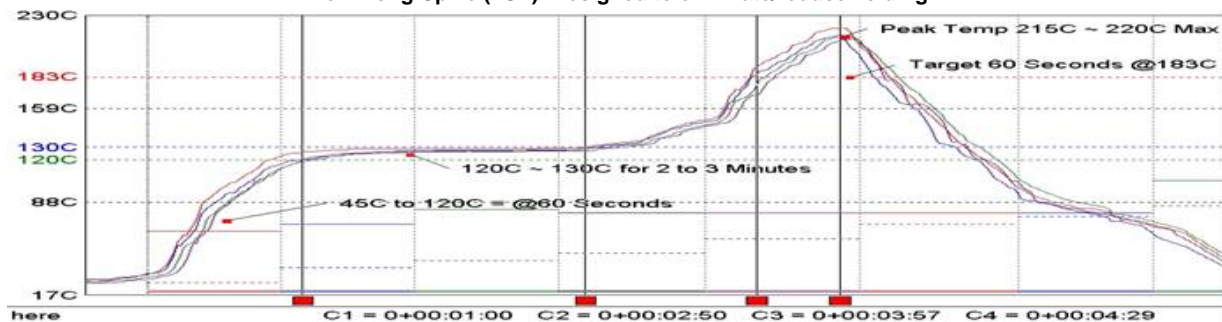
Ramp-to-Spike (RTS)



RTS Profile Guidelines

- The typical rate of rise for the RTS profile is 0.7 to 1.5°C/second.
- The profile should be a straight line or concave; it should not be convex.
- 2/3 of the profile should be below 150°C.
- Peak temperature is 215°C ± 5°C.
- Time above liquidus is 60 ± 15 seconds.
- The total profile length should be between 3 ½ - 4 minutes from ambient to peak temperature.
- Cool down should be controlled within 4°C/second.

Low-Long-Spike (LSP): Designed to eliminate/reduce voiding



LSP Guidelines

- The typical initial rate of rise for the LSP profile is 1.25°C/second.
- Ramp up to 120°C and then soak the assembly for 120 to 180 seconds.
- Proceed to spike immediately after exiting the soak zone.
- Peak temperature is 215°C ± 5°C.
- Time above liquidus is 60 ± 15 seconds.
- The total profile length should be between 4 ½ - 5 minutes from ambient to peak temperature.
- Cool down should be controlled within 4°C/second.