TECHNICAL DATA SHEET

CATEGORY: **RMA SOLDER PASTE**

NAME: **212**

ALLOY: **SAC (Tin-Silver-Copper)**

FEATURES

- EXTENDED STENCIL LIFE
- EXTENSIVE TACK TIME- UP TO 72 HOURS
- LARGE PROCESS WINDOW
- SLUMP RESISTANT
- VERY GOOD ACTIVITY
- AQUEOUS CLEAN WITH SAPONIFIER

Passes IPC SIR; Testing results available upon request.

DESCRIPTION

212 is a highly active resin/rosin-based formulation designed specifically to have excellent tack time and very good soldering characteristics. 212 has a wide process window uncommon to most solder pastes, in addition to a good activity level, which allows the product to accommodate a variety of environments and process applications. 212 performs well in continuous production, offering good slump resistance, high tack, excellent wetting, and low post-process residues. 212 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	88.5%
Fine Pitch Stencil Printing	5	88%
Ultra-Fine Pitch Stencil Printing	5	87.5%
Dispensing syringes	3	84%

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

HANDLING

- 212 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	**.75-1.5 LBS/IN. OF BLADE**
PCB SEPARATION DISTANCE	**.030-.050"**	SQUEEGEE STROKE SPEED	**.5 - 6 IN/SEC ***
PCB SEPARATION SPEED	**SLOW-MEDIUM**	* **DEPENDENT ON PCB AND PAD DESIGNS**	

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 stencil.

PLACEMENT INFORMATION

212 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.

SMT REFLOW – RAMP to SPIKE

Please see the attached reflow profile supplement.

PASTE TECH-TIPS

	PROBLEM	POTENTIAL CAUSE
•	**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

Residues can be cleaned, if necessary, with saponified tap water or a cleaning solvent. Please refer to the AIM No-Clean-Cleaner Matrix for a list of suitable cleaning materials.

SAFETY

- Use with adequate ventilation and proper personal protective equipment.
- Refer to the accompanying **M**aterial **S**afety **D**ata **S**heet for any specific emergency information.
- Do not dispose of any lead-containing materials in non-approved containers.

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

PRODUCT TESTING RESULTS

CATEGORY: **RMA SOLDER PASTE**

NAME: **212**

SURFACE INSULATION RESISTANCE

PASS-FAIL CRITERIA AND DATA EVALUATION

#	Reference	Property	Pass-Fail Criteria	Result
1	IPC-TM-650 §5.5.1	Quality of control coupons	>1E9 O at 96 and 168 h	PASS
2	J-STD-004 §3.2.4.5.1	SIR of test coupons	>1E8 O at 96 and 168 h	PASS
3	IPC-TM-650 §5.5.2	Post-test visual inspection	No dendrite growth or corrosion	PASS

CONCLUSIONS

The results of the qualification tests indicate that the AIM 212 solder paste complies with the requirements of IPC TM-650, Method 2.6.3.3 for Surface Insulation Resistance (SIR).

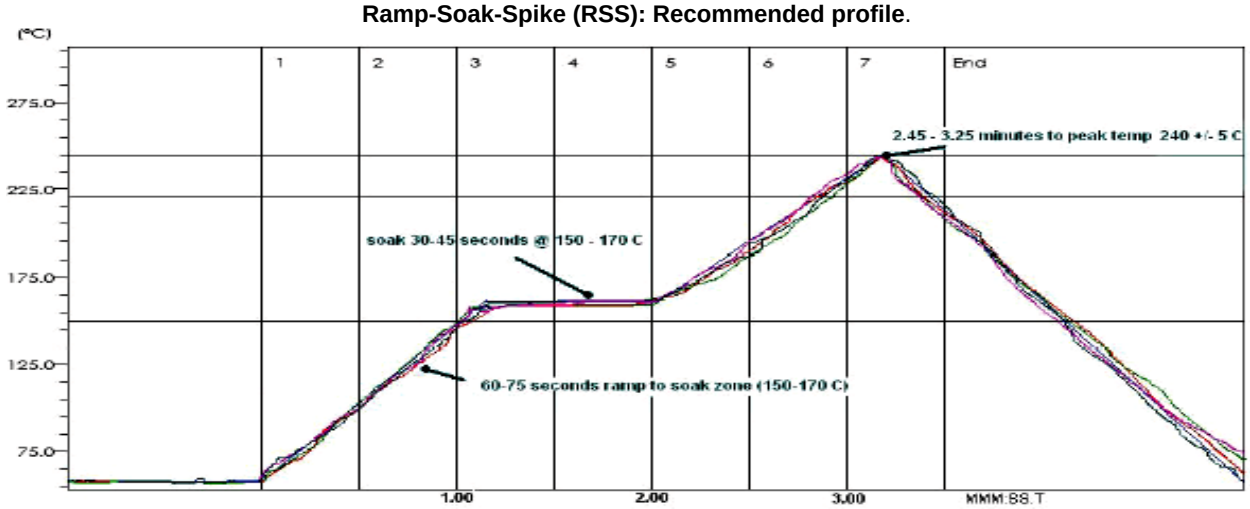
SIR TEST DATA

Control		Initial	24 hours	96 hours	168 hours
#1	A	1.00E+14	6.49E+09	5.77E+09	5.45E+09
	B	5.03E+13	6.67E+09	6.07E+09	5.87E+09
	C	1.00E+14	5.92E+09	5.27E+09	5.17E+09
	D	8.38E+12	6.20E+09	5.46E+09	5.26E+09
#2	A	1.00E+14	7.40E+10	6.27E+09	5.98E+09
	B	5.03E+13	7.25E+10	6.33E+09	6.02E+09
	C	1.10E+14	6.85E+10	5.83E+09	5.52E+09
	D	1.65E+12	7.24E+10	6.17E+09	5.73E+09
#3	A	1.10E+14	1.10E+10	6.31E+09	6.12E+09
	B	1.10E+14	8.74E+09	6.77E+09	6.52E+09
	C	1.00E+14	7.81E+09	6.13E+09	5.97E+09
	D	1.00E+14	7.64E+09	6.05E+09	5.86E+09
212					
#1	A	1.27E+12	2.59E+08	1.56E+08	2.45E+08
	B	3.47E+12	3.07E+08	4.62E+08	4.25E+08
	C	3.59E+12	3.04E+08	4.18E+08	3.86E+08
	D	1.05E+12	2.47E+08	2.44E+08	2.41E+08
#2	A	1.57E+12	2.62E+08	1.31E+08	2.27E+08
	B	2.58E+11	1.95E+08	1.30E+08	1.62E+08
	C	5.85E+11	2.20E+08	1.70E+08	1.88E+08
	D	4.19E+12	2.66E+08	2.50E+08	2.27E+08
#3	A	1.63E+11	1.91E+08	1.30E+08	1.59E+08
	B	4.24E+11	1.89E+08	1.21E+08	1.29E+08
	C	4.35E+11	2.17E+08	1.50E+08	1.97E+08
	D	1.65E+11	2.05E+08	1.40E+08	1.87E+08

REFLOW PROFILE SUPPLEMENT

ALLOY: **Sn/Ag/Cu**

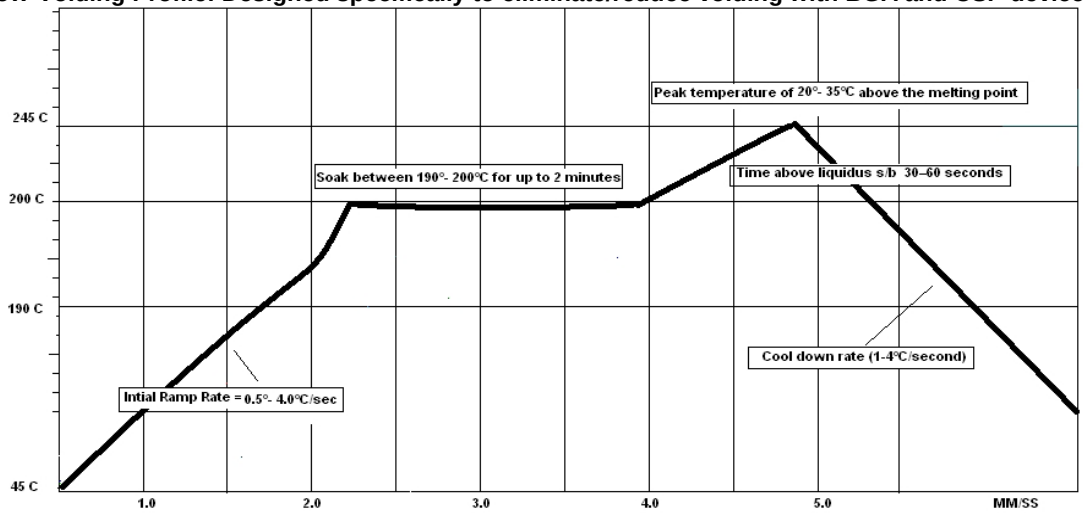
Ramp-Soak-Spike (RSS): Recommended profile.



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 45 seconds.
- The soak zone should be controlled between 150 -170°C.
- Proceed to spike immediately once the PCB has reached thermal stability.
- Peak temperature is 240ºC ± 5ºC.
- Time above liquidus is 45 ± 15 seconds.
- The total profile length should be between 2 ¾ - 3 ½ minutes from ambient to peak temperature.
- Cool down should be controlled within 4°C/second.

Low-Voiding Profile: Designed specifically to eliminate/reduce voiding with BGA and CSP devices



Profile Guidelines

- The initial rate of rise is 0.5 to 4°C/second.
- Ramp up to 190°C and then soak the assembly between 190 to 200°C for up to 120 seconds.
- Proceed to spike immediately after exiting the soak zone.
- Peak temperature is 238 to 253ºC.
- Time above liquidus is 30 to 60 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.