MetaPaste™ RMA-100 Product Bulletin

An All Purpose RMA Paste

Metallic Resources' MetaPaste RMA-100 is a mildly activated resin/rosin-based solder paste manufactured as a homogeneous mixture of special, low-oxide-content spherical Sn63 and Sn62 solder powder, liquid flux, and gelling agents. The standard paste has a metal load of 90%, a particle size of 45 microns (-325 to +500 mesh), and a viscosity of 550 – 750 kcps. Other metal loads, particle sizes, and viscosities are available upon special request. This series of paste can be used in printing applications from 50 mil pitch to 15 mil. It is available in 10cc (35 gram) syringes, 250 and 500 gram jars, and 500, 700, and 1,000 cartridges.

Perfect for SMT Applications

MetaPaste RMA-100 mildly activated rosin solder paste is specially designed for SMT, hybrid, and dispensing soldering applications. It provides superior performance in continuous production run operations. Reflow methods include infrared, convection, or conduction.

A Superior RMA Paste

MetaPaste RMA-100 mildly activated rosin solder paste provides an 8 hour stencil life; it therefore takes longer time to dry out on the stencil and creates less clogging of the stencil aperture, which increases productivity. Improved open time allows the board to sit for longer periods prior to soldering. An extended 6 hour tack time provides additional time for component placement and time prior to re-flow.

Good slump resistance makes it less prone to cause shorting. The high tack helps assure that components are held properly in place prior to soldering, an important aspect of high speed SMT production lines. Its improved resistance to humidity offers many benefits not found in comparable products. It provides an extended post-process cleaning window. Post-process residues may remain on the PWB in RF designs up to 2 gigahertz without the need for cleaning. (Cleaning is recommended above 2 gigahertz.)

Application Directions

MetaPaste RMA-100 mildly activated rosin solder paste has a frozen shelf life of 12 months and a non-refrigerated shelf life of 6 months. Adequate time (8 hours) for the unopened frozen paste to equalize with ambient temperature must be allowed to prevent moisture condensation in the jar, which is detrimental to successful application. If moisture does infiltrate the paste, the viscosity may increase, the paste may dry out prematurely, and/or components may "pop" off the board.

Mix the product lightly and thoroughly for several minutes prior to application. Do not store new and used paste in the same container. Opened containers should be resealed when not in use.

Apply sufficient paste to the stencil to create a smooth, even roll during the print cycle. A bead diameter of 1/2" to 5/8" is sufficient. Apply small amounts of fresh MetaPaste RMA-100 to the stencil frequently, at controlled intervals, to maintain the paste chemistry and application properties. Cleaning of the stencil will vary depending upon the application.

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METALLIC RESOURCES, INC.

2368 East Enterprise Parkway • Twinsburg, Ohio 44087 • Phone: 330.425.3155 • Fax: 330.425.2180

MetaPaste RMA-100 can be easily cleaned with saponified tap water, although de-ionized water is preferred for the final rinse. A temperature of 100° to 150° F (38° to 65.5° C) is sufficient to remove any and all residues. An in-line or other spray cleaning system is recommended, but is not required.

Safety Precautions

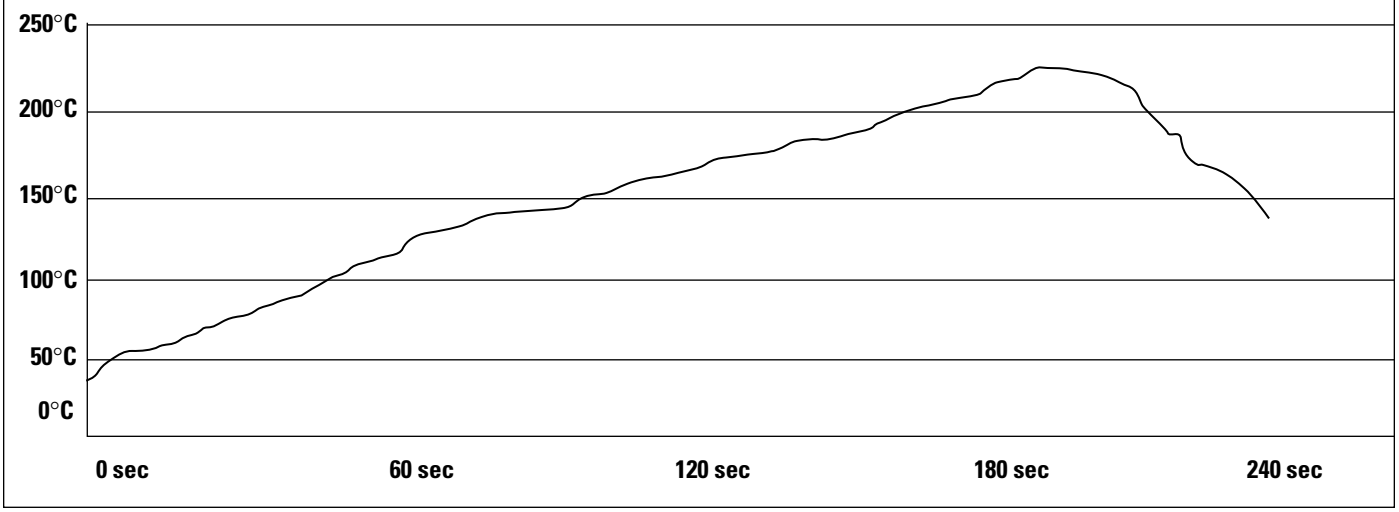
MetaPaste RMA-100 RMA solder paste should be used in a well ventilated area. If ventilation is inadequate, wear NIOSH approved respirator or equivalent. Wear suitable protective clothing, safety glasses, and disposable vinyl gloves to avoid contact with skin and eyes. Refer to the Material Safety Data Sheet (MSDS) for additional information. Do not dispose of any lead-containing products in non-approved containers.

Printer Set Up

The following are suggested starting parameters for screen printing.
Adjustments will vary, depending upon ambient environment, application, and specific equipment.

Snap Off Distance: On Contact (0.00")	Squeegee Pressure: 1.6 – 2.5 lbs./inch of blade
PCB Separation Distance: .030"-.050"	Squeegee Stroke Speed: .5"– 2"/sec.*
PCB Separation Speed: Medium	*Dependent upon PCB and Pad Designs

Reflow Data



Reflow Profile

- A **short soak profile** is preferred. From ambient, the temperature should be raised to 160° - 170°C at a rate from 0.7 to 1°C per second, allowing thermal equilibrium to be established among the various size parts on the board. Soak at 160 – 170 for 60 to 80 seconds.
- A **ramp profile** is also satisfactory. From ambient, the temperature should be raised to 150 - 160°C, normally at a rate of 1/2 to 1°C per second over 2 to 4 minutes, allowing thermal equilibrium to be established among the various size parts on the board.
- With **either type of profile** the temperature should then be spiked over liquidus to a top temperature of 210 to 220°C for the largest, most thermally dense part. Time above liquidus should normally be 45 – 90 seconds, again depending on the size and thermal density of the board.

Solder should wet and wick up leads slightly and wet out the corners of the pads bearing the largest part. Otherwise a slower ramp and longer time above liquidus is indicated.

Excessive wicking up leads indicates a faster ramp and shorter time above liquidus is necessary. Temperatures above 230°C on chip capacitors should be avoided, as damage will usually result.

NOTE: Soak is optimized to remove the temperature difference between components and PCB. Proceed to spike once the PCB has reached thermal stability. **RMA100-1-801**