**Introduction**

*RMA-SMQ51A* is a rosin-based, mildly activated, air reflow, solder paste ideally suited for high speed assembly processes. Due to *RMA-SMQ51A*’s high tack value and exceptional tack endurance, placement machines can run at full speed. In addition, its wide processing window allows it to be used with standard eutectic Sn/Pb, Sn/Pb/Ag, and high-temperature alloys including Au/Sn, Pb/Sn, and Pb/Sn/Ag.

*RMA-SMQ51A* prints ultrafine-pitch with full and consistent deposition. Excellent wetting is observed with OSP, Au/Ni, and HASL metallizations.

**Features**

- Wide reflow process window
- Consistent fine-pitch print deposition
- Extended open time
- Superior tack strength
- Ideally suited for high speed assembly processes
- Exceptional wetting in air reflow

**Alloys**

Indium Corporation manufactures low-oxide spherical powder composed of Sn/Pb and Sn/Pb/Ag in a standard Type 3 mesh size. Other non-standard mesh sizes are available upon request. The weight ratio of the flux/vehicle to the solder powder is referred to as the metal load and is typically in the range of 83–92% for standard alloy compositions.

**Bellcore and J-STD Tests and Results**

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flux Type Classification</td>
<td>ROL1</td>
<td>Typical Solder Paste Viscosity</td>
<td></td>
</tr>
<tr>
<td>Flux-Induced Corrosion (Copper Mirror)</td>
<td>Pass</td>
<td>(Sn62, 90%, -325/+500)</td>
<td>950kpcs</td>
</tr>
<tr>
<td>Presence of Halide</td>
<td></td>
<td>Brookfield (5rpm)</td>
<td>2,800 poise</td>
</tr>
<tr>
<td>Silver Chromate</td>
<td>Pass</td>
<td>Solder Ball Test</td>
<td>Pass</td>
</tr>
<tr>
<td>Fluoride Spot Test</td>
<td>Pass</td>
<td>Wetting Test</td>
<td>Pass</td>
</tr>
<tr>
<td>C1 Equivalent</td>
<td>≤0.019%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrosion</td>
<td>Pass</td>
<td>All information is for reference only.</td>
<td></td>
</tr>
<tr>
<td>SIR</td>
<td>Pass</td>
<td>Not to be used as incoming product</td>
<td></td>
</tr>
<tr>
<td>Bellcore Electromigration</td>
<td>Pass</td>
<td>specifications.</td>
<td></td>
</tr>
</tbody>
</table>

**Packaging**

Standard packaging for stencil printing applications includes 4oz jars and 6 or 12oz cartridges. Packaging for enclosed print head systems is also readily available. For dispensing applications, 10 and 30cc syringes are standard. Other packaging options may be available upon request.

**Storage and Handling Procedures**

Refrigerated storage will prolong the shelf life of solder paste. The shelf life of *RMA-SMQ51A* is 6 months when stored at <10°C. Storage temperatures should not exceed 25°C. When storing solder paste contained in syringes and cartridges, they should be stored tip down.

Solder paste should be allowed to reach ambient working temperature prior to use. Generally, paste should be removed from refrigeration at least 2 hours before use. Actual time to reach thermal equilibrium will vary with container size. Paste temperature should be verified before use. Jars and cartridges should be labeled with date and time of opening.

**Technical Support**

Indium Corporation’s internationally experienced engineers provide in-depth technical assistance to our customers. Thoroughly knowledgeable in all facets of Material Science as it applies to the electronics and semiconductor sectors, Technical Support Engineers provide expert advice in solder preforms, wire, ribbon, and paste. Indium Corporation’s Technical Support Engineers provide rapid response to all technical inquiries.

**Safety Data Sheets**

The SDS for this product can be found online at http://www.indium.com/sds
**PRODUCT DATA SHEET**

**RMA-SMQ51A Solder Paste**

**Printing**

**Stencil Design:**

Electroformed and laser cut/electropolished stencils produce the best printing characteristics among stencil types. Stencil aperture design is a crucial step in optimizing the print process. The following are a few general recommendations:

- **Discrete components**—A 10–20% reduction in stencil aperture area may significantly reduce or eliminate the occurrence of mid-chip solder beads. The “home plate” design is a common method for achieving this reduction.
- **Fine-pitch components**—A surface area reduction is recommended for apertures of 20mil pitch and finer. This reduction will help minimize solder balling and bridging that can lead to electrical shorts. The amount of reduction necessary is process-dependent (5–15% is common).
- **A minimum aspect ratio of 1:5** is suggested for adequate release of solder paste from stencil apertures. The aspect ratio is defined as the width of the aperture divided by the thickness of the stencil.

**Printer Operation:**

The following are general recommendations for stencil printer optimization. Adjustments may be necessary based on specific process requirements:

<table>
<thead>
<tr>
<th>Solder Paste Bead Size</th>
<th>20–25mm diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print Speed</td>
<td>25–50mm/second</td>
</tr>
<tr>
<td>Squeegee Pressure</td>
<td>0.018–0.027kg/mm of blade length</td>
</tr>
<tr>
<td>Underside Stencil Wipe</td>
<td>Once every 10–25 prints</td>
</tr>
<tr>
<td>Solder Paste Stencil Life</td>
<td>&gt;8 hours (at 30–60% RH and 22–28°C)</td>
</tr>
</tbody>
</table>

**Cleaning**

**RMA-SMQ51A** meets no-clean requirements. The flux can be removed, if necessary, by using a commercially available flux residue remover.

**Stencil Cleaning:** This is best performed using an automated stencil cleaning system for both stencil and misprint cleaning to prevent extraneous solder balls. Most commercially available stencil cleaning formulations including isopropyl alcohol (IPA) work well.

**Compatible Products**

- **Rework Flux**: TACFlux® 007

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