

KESTER® R520A SOLDER PASTE

Lead-Free, Water Soluble

DESCRIPTION

Kester R520A Solder Paste is a lead-free, organic acid, water soluble solder paste formula specifically designed for use with the higher temperature lead-free alternative soldering alloys such as Sn96.5Ag3.0Cu0.5 (SAC Alloys). The solder paste exhibits long stencil life and tack time, while still delivering exceptional solderability to a wide variety of metallic substrates. R520A was formulated to release consistently from the stencil for those critical fine pitch applications (0.5 mm/20 mils) with anti-slump characteristics and preferred solder deposit definition. The activator package in this formula is extremely aggressive, providing superior wetting to OSP coated and Immersion Gold over Electroless Nickel (ENIG) boards. R520A is an extremely stable water soluble formula.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- Lead-free and water soluble
- Print speed up to 150 mm/sec (6 in/sec)
- Stable tack life to long stencil life
- Consistent printing over a range of temperatures and humidities
- Excellent wetting onto Ag/Pd leaded components
- Reduces scrap due to less paste dry out
- Residues easily removed with hot DI water
- Classified as ORH0 per J-STD-004

STANDARD APPLICATIONS

89.5% Metal – Stencil Printing

89.9% Metal – Enclosed Head Printing

ROHS COMPLIANCE

This product meets the requirements of the RoHS (Restriction of Hazardous Substances) Directive, 2002/95/EC Article 4 for the stated banned substances.

TECHNICAL DATA

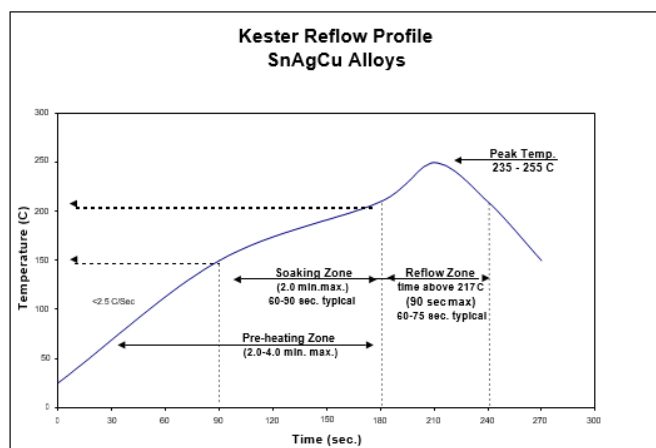
Category	Results	Procedure/Remarks								
Physical Properties (Data given for Sn96.5 Ag3.0 Cu0.5, 89.5% metal, -325+500 mesh)										
Viscosity (typical)	2150 poise	Malcom Viscometer @ 10 rpm and 25 °C								
Initial Tackiness (typical)	30 grams	Tested to J-STD-005, IPC-TM-650, Method 2.4.44								
Slump Test	Pass	Tested to J-STD-005, IPC-TM-650, Method 2.4.35								
Solder Ball Test	Preferred	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	High	Tested to J-STD-004, IPC-TM-650, Method 2.3.32								
Copper Corrosion Test	High	Uncleaned, 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								
Surface Insulation Resistivity (SIR), IPC (Typical)	Pass	Tested to J-STD-004, IPC-TM-650, Method 2.6.3.3								
		<table><tr><th>Blank</th><th>R520A</th></tr><tr><td>Day 1</td><td>1.66 x 10⁸ Ω</td></tr><tr><td>Day 4</td><td>6.60 x 10⁸ Ω</td></tr><tr><td>Day 7</td><td>1.27 x 10⁹ Ω</td></tr></table>	Blank	R520A	Day 1	1.66 x 10 ⁸ Ω	Day 4	6.60 x 10 ⁸ Ω	Day 7	1.27 x 10 ⁹ Ω
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PROCESSING GUIDELINES

Printing Parameters

Squeegee Blade	80 to 90 durometer polyurethane or stainless steel
Squeegee Speed	Capable to a maximum speed of 150 mm/sec (6 in/sec)
Stencil Material	Stainless Steel, Molybdenum, Nickel Plated, Brass
Temperature/Humidity	Optimal ranges are 21 to 25 °C (70 to 77 °F) and 35 to 65% RH

Recommended Reflow Profile



The recommended reflow profile for R520A made with SAC alloys is shown here. This profile is simply a guideline. Since R520A is a highly active solder paste, it can solder effectively over a wide range of profiles. Your optimal profile may be different from the one shown based on your oven, board, and mix of defects. Please contact MacDermid Alpha if you need additional profiling advice.

Cleaning

R520A residues are best removed using automated cleaning equipment (in-line or batch) within 24 hours of soldering. De-ionized water is recommended for the final rinse. Water temperatures should be 49 to 60 °C (120 to 140 °F). Kester's 5768 Bio-Kleen® saponifier can also be used in a 1 to 2% ratio for aqueous cleaning systems.

Storage, Handling and Shelf Life

Refrigeration is the recommended optimum storage condition for solder paste to maintain consistent viscosity, reflow characteristics, and overall performance. R520A should be stabilized at room temperature prior to printing. R520A should be kept at standard refrigeration temperatures, 0 to 10 °C (32 to 50 °F). Please contact MacDermid Alpha if you require additional advice with regard to storage and handling of this material. Shelf life is 4 months from date of manufacture and held at 0 to 10 °C (32 to 50 °F).

AVAILABILITY

Kester R520A is available in the Sn96.5Ag3.0Cu0.5 alloy with Type 3 powder. Type 3 powder mesh is recommended, but different powder particle size distributions are available for standard and fine pitch applications. For specific packaging information see Kester's Solder Paste Packaging Chart for available sizes. The appropriate combination depends on process variables and the specific application.

RECYCLING SERVICES

We provide safe and efficient recycling services to help companies meet their environmental and legislative requirements and at the same time, maximize the value of their waste streams.

Our service collects solder dross, solder scrap, and various forms of solder paste waste. Please contact your local sales representative for recycling capabilities in your area.



SAFETY & WARNING

It is recommended that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use. **Safety Data Sheets are available.**

CONTACT INFORMATION

www.macdermidalpha.com

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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE. Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

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