kester® Technical Data Sheet

R500 Solder Paste

Dispensable Water-Soluble Solder Paste

Product Description

Kester R500 is a water-soluble solder paste formula specifically designed as a consistent dot dispensing paste for automated dispense equipment. This solder paste exhibits excellent wetting characteristics in a wide range of profiles. The activator package in this formula is extremely aggressive. It is active enough to remove tenacious oxide layers or to solder to OSP coated boards. R500 maintains its activity and tackiness characteristics for up to 8 hours.

Performance Characteristics:

- Excellent dispensing characteristics using 21 gauge needles and Type 3 powder
- Capable of dispensing rate of 4 dots per second
- Leaves bright/shiny solder joints after reflow
- Scrap is reduced due to minimal paste clogging and separation
- Residues easily removed with DI water
- Classified as ORM0 per J-STD-004

Standard Applications:
86% Metal – Syringe Dispensing

Physical Properties

(Data given for Sn63Pb37 86% metal, -325+500 mesh)

Viscosity (typical): 1000 poise
Malcom viscometer @ 10rpm and 25°C

Initial Tackiness (typical): 45 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: Low
Tested to J-STD-004, IPC-TM-650, Method 2.3.32

Corrosion Test: Low
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

SIR, IPC (typical): Pass
Tested to J-STD-004, IPC-TM-650, Method 2.6.3.3

	Blank	R500
Day 1	$1.9 \times 10^{10}\ \Omega$	$1.4 \times 10^{8}\ \Omega$
Day 4	$1.1 \times 10^{10}\ \Omega$	$2.0 \times 10^{8}\ \Omega$
Day 7	$8.3 \times 10^{9}\ \Omega$	$8.3 \times 10^{9}\ \Omega$

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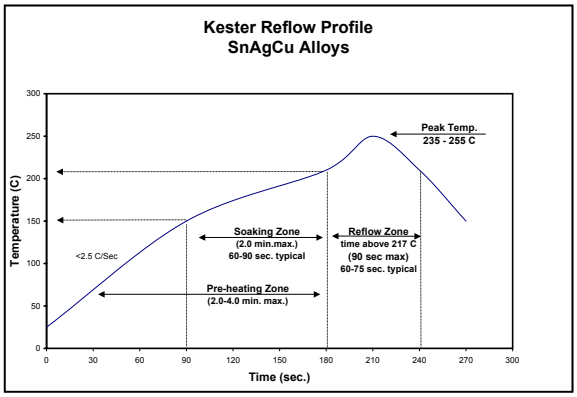
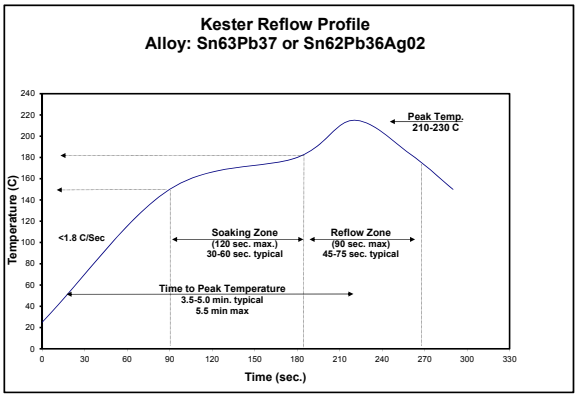
Availability

Kester R500 is available in SAC305 and Sn63Pb37 alloys with Type 3 powder. Please visit https://www.kester.com for additional informatoin.

Recommended Reflow Profile

The recommended reflow profiles for R500 made with the SAC305 and Sn63Pb37 alloys are shown here. This profile is simply a guideline. Since R500 is a highly active, water-soluble 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 Kester Technical Support if you need additional profiling advice.





Cleaning

R500 residues are best removed using automated cleaning equipment (in-line or batch). De-ionized water is recommended for the final rinse. Water temperatures should be 49-60°C (120-140°F).Kester's 5768 Bio-Kleen® saponifier can also be used in a 1-2% 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. R500 should be stabilized at room temperature prior to dispensing. R500 should be kept at standard refrigeration temperatures, 0-10°C (32-50°F). Please contact Kester if you require additional advice with regard to storage and handling of this material. Shelf life for both SAC305 and Sn63Pb37 alloys is 6 months from date of manufacture and held at 0-10°C (32-50°F).

Health and Safety

This product, during handling or use, may be hazardous to your health or the environment. Read the Safety Data Sheet and warning label before using this product. Safety Data Sheets are available at https://www.kester.com/downloads/sds.

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