



# R500

## Dispensable Water-soluble Solder Paste for Lead Alloys

### 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. Kester R500 is a water soluble formula that maintains its activity and tackiness characteristics for up to 8 hours.

- 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
- Packaged Void-Free
- 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

	<b>Blank</b>	<b>R500</b>
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	$8.3 \times 10^9 \Omega$	$8.3 \times 10^9 \Omega$

## Application Notes

### Availability:

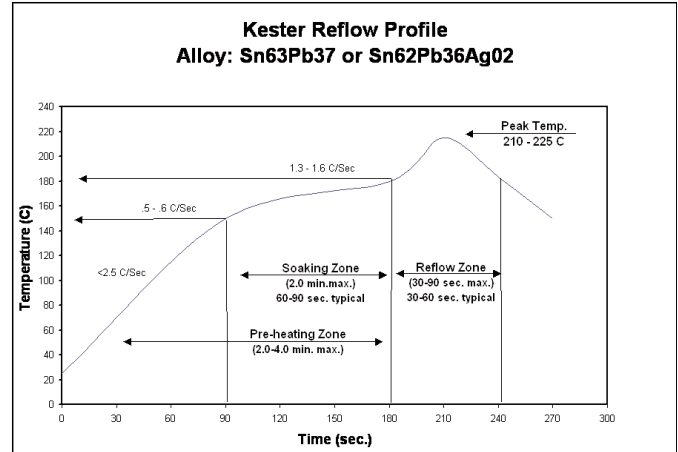
Kester R500 is available in the Sn63Pb37 alloy with Type 3 powder. Type 3 powder mesh is recommended for all typical dispensing applications. For specific packaging information see Kester's Solder Paste Packaging Chart for available sizes. The appropriate combination depends on process variables and the specific application.

### Dispensing Parameters:

Needle size 15 to 21 gauge (with Type 3 powder)  
 Dispense Rate Capable of 4 dots/second  
 Temperature/Humidity Optimal ranges are 21-25°C (70-77°F) and 35-65% RH

### Recommended Reflow Profile:

The recommended reflow profile for R500 made with the Sn63Pb37 alloy is shown here. This profile is simply a guideline. Since R500 is a highly active, water soluble solderpaste, 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 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 is 6 months from date of manufacture and held at 0-10°C (32-50°F).

### Health & Safety:

This product, during handling or use, may be hazardous to health or the environment. Read the Material Safety Data Sheet and warning label before using this product.

**World Headquarters:** 800 West Thorndale Avenue, Itasca, Illinois, 60143-1341 USA  
**Phone:** (+1) 630-616-4000 • **Email:** customerservice@kester.com • **Website:** www.kester.com

**Asia Pacific Headquarters**  
 500 Chai Chee Lane  
 Singapore 469024  
 (+65) 6449-1133  
 customerservice@kester.com.sg

**European Headquarters**  
 Zum Plom 5  
 08541 Neuensalz  
 Germany  
 (+49) 3741 4233-0  
 customerservice@kester-eu.com

**Japanese Headquarters**  
 20-11 Yokokawa 2-Chome  
 Sumida-Ku  
 Tokyo 130-0003 Japan  
 (+81) 3-3624-5351  
 jpsales@kester.com.sg

The data recommendations presented are based on tests, which we consider reliable. Because Kester has no control over the conditions of use, we disclaim any responsibility connected with the use of any of our products or the information presented. We advise that all chemical products be used only by or under the direction of technically qualified personnel who are aware of the potential hazards involved and the necessity for reasonable care in their handling. The technical information contained herein is consistent with the properties of this material but should not be used in the preparation of specifications as it is intended for reference only. For assistance in preparing specifications, please contact your local Kester office for details.