

# R560

## Water-Soluble Solder Paste

### Product Description

Kester R560 is an organic acid, water-soluble solder paste formula specifically designed to reduce voiding in Ball Grid Array (BGA) solder connections. The voiding in BGA's has been shown to be reduced from 25% to less than 5%. Kester R560 is also resistant to extremes in temperature and relative humidity. Kester R560 is designed to be slump resistant in high humidity conditions. The solder paste exhibits long stencil life and tack time, while still delivering exceptional solderability to a wide variety of metallic substrates. The activator package in this formula is very aggressive, providing superior wetting to OSP coated boards and Ag/Pd leaded components. R560 is an extremely stable water soluble formula.

- Reduces BGA voiding to under 5%
- 8 hour stencil life
- Consistent printing over a range of temperatures and humidities
- Wets excellently to 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
- Compatible with enclosed printing systems

### Standard Applications

90% Metal -- Stencil Printing  
90% Metal -- Enclosed Head Printing

### Physical Properties

(Data given for Sn63Pb37, 90% metal, -325+500 mesh)

**Viscosity (typical):** 1900 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:** High

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>R560</b>
Day 1	$2.76 \times 10^9 \Omega$	$4.60 \times 10^8 \Omega$
Day 4	$1.32 \times 10^9 \Omega$	$1.97 \times 10^9 \Omega$
Day 7	$1.22 \times 10^9 \Omega$	$3.04 \times 10^9 \Omega$

## Application Notes

### Availability:

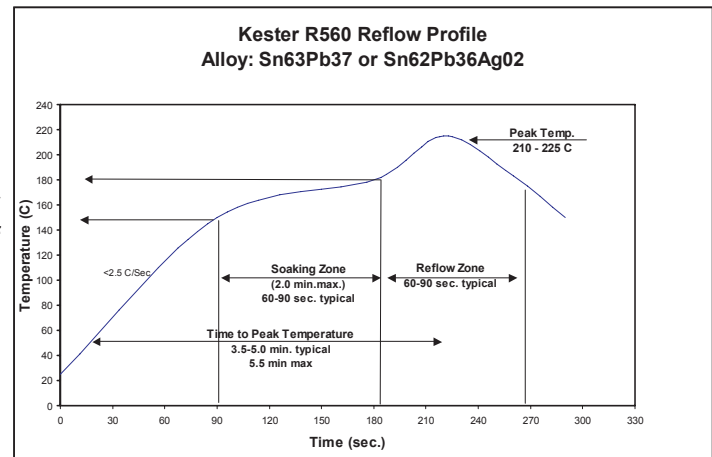
R560 is commonly available in the Sn63Pb37 and Sn62Pb36Ag02 alloys. Type 3 powder mesh is recommended, but different powder particle size distributions are available for standard and fine pitch applications. Kester R560 is compatible with enclosed print head systems. For specific packaging information see Kester's Solder Paste Packaging Chart for available sizes. The appropriate combination depends on process variables and the specific application.

### Printing Parameters:

Squeegee Blade	80 to 90 durometer polyurethane or stainless steel
Squeegee Speed	Capable to a maximum speed of 50 mm/sec (2 in/sec)
Stencil Material	Stainless Steel, Molybdenum, Nickel Plated, Brass
Temperature/Humidity	Optimal ranges are 21-25°C (70-77°F) and 35-65% RH

### Recommended Reflow Profile:

The recommended reflow profile for R560 made with either the Sn63Pb37 or Sn62Pb36Ag02 is shown here. This profile is simply a guideline. Since R560 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 if you need additional profiling advice.



### Cleaning:

R560 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 49-60°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 solderpaste to maintain consistent viscosity, reflow characteristics and overall performance. R560 should be stabilized at room temperature prior to printing. R560 should be kept at standard refrigeration conditions, 0-10°C (32-50°F). Please contact Kester if you require additional advice with regard storage and handling of this material. Shelf life is 6 months from date of manufacture when handled properly 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.

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