



## OR-421 Organic-Cored Wire for Lead-free and Leaded Alloys

### Product Description

Kester OR-421 is a high activity, water-soluble, cored wire flux. The OR-421 is more heat stable, exhibits better wetting capabilities and has less odor than competitive products. The residues left by OR-421 are near neutral pH and therefore also less corrosive. The OR-421 is classified as ORH1 per J-STD-004. Kester OR-421 cored wire solder can be utilized with an open torch or a soldering iron. OR-421 will solder copper as well as more difficult to solder materials such as brass and nickel. OR-421 can be used on pipes or tubing for applications such as refrigeration coils and heat exchangers. The heat stability of Kester OR-421 makes it ideal for high temperature alloys such as 95Sn/5Sb, 10Sn88Pb2Ag and 10Sn90Pb.

### Performance Characteristics:

- Highest activity available
- Compatible with high temperature alloys
- Easy to clean
- Classified as ORH1 per J-STD-004

### 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. (Applies only if this core flux is combined with a lead-free alloy)

### Reliability Properties

**Copper Mirror Corrosion:** High  
Tested to J-STD-004, IPC-TM-650, Method 2.3.32

**Silver Chromate:** Fail  
Tested to J-STD-004, IPC-TM-650, Method 2.3.33

**Fluorides by Spot Test:** Pass  
Tested to J-STD-004, IPC-TM-650, Method 2.3.35.1

**Corrosion Test:** High  
Tested to J-STD-004, IPC-TM-650, Method 2.6.15

**Chloride and Bromides:** 6.95%  
Tested to J-STD-004, IPC-TM-650, Method 2.3.35

## Availability

OR-421 is available in a wide variety of alloys, wire diameters and flux percentages. For most applications, Sn63Pb37 or Sn96.5Ag3.0Cu0.5 is used. Consult the alloy temperature chart in Kester's product catalog for a comprehensive alloy list. The standard wire diameter for most applications is 1.00mm (0.031in). Wire diameters range from 0.25 - 6.00mm (0.010 to 0.250in). A "Standard Wire Diameters" chart also is included in Kester's product catalog. The amount of flux in the wire dictates the ease of soldering for an application. For most applications, core 66 (3.3% flux by weight) is recommended. Other core sizes, 50 and 58, (1.1% and 2.2% respectively) are available. OR-421 is packaged on spools of different sizes to accommodate a variety of applications.

## Process Considerations

Solder iron tip temperatures are most commonly between 315-371°C (600-700°F) for Sn63Pb37 and Sn62Pb36Ag02 alloys and 371-427°C (700-800°F) for lead-free alloys. Heat both the land area and component lead to be soldered with the iron prior to adding OR-421 cored wire. Apply the solder wire to the land area or component lead. Do not apply the wire directly to the soldering iron tip. If needed, Kester 2331-ZX organic flux may be used as a compatible liquid flux to aid in reworking soldered joints.

## Cleaning

OR-421 Flux leaves a residue after soldering that is hygroscopic and ionizable. Removal of ionizable salts can best be accomplished by washing the assembly with a 2-5% solution of Kester 5760 Neutralizer in water, followed by a thorough warm water rinse. The recommended water temperature is  $54 \pm 6^\circ\text{C}$  ( $130 \pm 10^\circ\text{F}$ ). If the residue is charred due to excessive heating during soldering, mechanical scrubbing can be used to remove the decomposed char.

## Storage and Shelf Life

OR-421 has no limited shelf life when handled properly. Storage must be in a dry, non-corrosive environment. Over time, the surface of wire may lose its shine and appear a dull shade of gray. This is a surface phenomenon and is not detrimental to product functionality.

The expiration date determined by the date of manufacture printed on the product and Certificate of Analysis will represent the manufacturer's warranty period which is the time frame wherein Kester will replace defective product. Flux-cored solder wires with alloys containing more than 70% lead have a 2 year warranty from the date of manufacture. All other alloys have a 3 year warranty from the date of manufacture.

## Health and Safety

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