

# 331

## Organic Cored Wire

### For Lead-bearing and Lead-free alloys

#### Product Description

Kester 331 Organic Flux is a water soluble formula for use in flux-cored solder wire. This cored solder version of the popular 2331-ZX Neutral Organic Water Soluble Liquid Flux is more effective than rosin fluxes in soldering difficult metals. The same fast action and mild properties are exhibited with 331 Organic Flux as with the liquid 2331-ZX. The flux is more heat stable than most organic fluxes, resulting in minimal smoke and odor. The residue can be completely removed with a simple water rinse.

#### Performance Characteristics:

- Excellent solderability to a wide variety of metallizations
- Easy residue removal in DI water
- Compatible with leaded and lead-free alloys
- 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

##### Corrosion Test: High

Tested to J-STD-004, IPC-TM-650, Method 2.6.15

##### Silver Chromate: Fail

Tested to J-STD-004, IPC-TM-650, Method 2.3.33

##### Chloride and Bromides: 1.2%

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>331</b>
Day 1	$1.9 \times 10^{10} \Omega$	$2.0 \times 10^9 \Omega$
Day 4	$2.2 \times 10^{10} \Omega$	$7.8 \times 10^9 \Omega$
Day 7	$1.7 \times 10^{10} \Omega$	$4.1 \times 10^9 \Omega$

## Application Notes

### Availability:

Kester 331 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 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 58 and 66 (2.2% and 3.3% flux by weight, respectively) are recommended. Core size 50 (1.1% flux by weight) is also available. Kester 331 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 Kester 331 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. Kester 2331-ZX is also available in Flux-Pens® for optimum board cleanliness.

### Cleaning:

The 331 flux residue is conductive and may cause corrosion of metal parts over time. Soldered samples left up to 48 hours in a simulated production environment, without removing the flux, showed no evidence of the flux residue having any corrosive properties. Kester 331 Organic Flux has the advantage over many competitive water-soluble flux formulations in that the residue is easily and completely removed with plain water. No neutralizers, saponifiers or detergents are necessary to completely solubilize the residue. Softened tap water or deionized water is recommended for high reliability. Use of hard or high mineral content tap water will lower ionic cleanliness measurements.

### Storage, Handling, and Shelf Life:

Storage must be in a dry, non-corrosive environment. The surface may lose its shine and appear a dull shade of grey. This is a surface phenomena and is not detrimental to product functionality. Flux cored solder wire has a limited shelf life determined by the alloy used in the wire. For alloys containing > 70% lead, the shelf life is two years from date of manufacture. Other alloys have a shelf life of three years from date of manufacture.

### 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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