

## 2331-ZX Soldering Flux

Organic Water Soluble Flux

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### Product Description

Kester 2331-ZX Soldering Flux is an innovation in organic acid, water soluble flux chemistry for soldering circuit board assemblies. This unique, neutral pH chemistry flux provides the best ionic cleanliness of any organic water soluble flux available to the electronics industry. This popular flux has been used for soldering critical assemblies in the computer, telecommunications and other industries. No offensive odors will be emitted during soldering. 2331-ZX will not create excessive foaming in standard water cleaning systems. 2331-ZX has good soldering properties for improved productivity without sacrificing reliability of the assembly. This flux does not attack properly cured solder masks or FR-4 epoxy-glass laminate. 2331-ZX is not detrimental to the surface insulation resistance of the soldered assembly. Use of this flux minimizes cleaning costs while complying with environmental regulations.

### Performance Characteristics:

- High activity
- Minimizes icicling and bridging
- Chemically compatible with most solder masks and board laminates
- pH Neutral Chemistry
- Classified as ORH1 per J-STD-004B

### RoHS Compliance

This product meets the requirements of the Restriction of Hazardous Substances (RoHS) Directive, 2015/863 for the stated banned substances.

### Physical Properties

**Specific Gravity:** 0.899 ± 0.005

Anton Paar DMA 35 @ 25 °C

**Percent Solids (Theoretical):** 33%

Tested to J-STD-004, IPC-TM-650, Method 2.3.34

**Flash Point:** 16 °C (60 °F)

## 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 & Bromide: 2.2%

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

### Electro Chemical Migration (ECM): Pass

Tested to J-STD-004B, IPC-TM-650, Method 2.6.14.1

### Surface Insulation Resistance (SIR) (Typical): Pass

Tested to J-STD-004, IPC-TM-650, Method 2.6.3.3

	Blank	2331-ZX
Day 1	$1.2 \times 10^{10} \Omega$	$3.4 \times 10^8 \Omega$
Day 4	$8.7 \times 10^9 \Omega$	$1.4 \times 10^9 \Omega$
Day 7	$8.6 \times 10^9 \Omega$	$1.8 \times 10^9 \Omega$

## Flux Application

2331-ZX can be applied to circuit boards by a dip, foam or wave process. An air knife after the flux tank is recommended to remove excess flux from the circuit board and prevent dripping on the preheater surface.

## Process Considerations

The optimum preheat temperature for most circuit assemblies is 82 to 88 °C (180 to 190 °F) as measured on the top or component side of the printed circuit board. Dwell time in the wave is typically 2 to 4 seconds. The wave soldering speed should be adjusted to accomplish proper preheating and evaporate excess solvent, which could cause spattering. For best results, speeds of 1.1 to 1.8 m/min (3.5 to 6 ft/min) are used. The surface tension has been adjusted to help the flux form a thin film on the board surface allowing rapid solvent evaporation.

## Flux Control

Specific gravity is normally the most reliable method to control the flux concentration. To check concentration, a hydrometer should be used. Control of the flux in the foam flux tank during use is necessary for assurance of consistent flux distribution on the circuit boards. The complex nature of the solvent system for the flux makes it imperative that Kester 4662 Thinner be used to replace evaporative losses. When excessive debris from circuit boards, such as board fibers and from the airline build up in the flux tank, these particulates will redeposit on the circuit boards which may create a buildup of residues on probe test pins. It is, therefore, necessary to clean the tank and then replenish it with fresh flux when excessive debris accumulates in the flux tank.

## Cleaning

No neutralizer, saponifier or detergents are necessary in the water wash system for complete removal of flux residues. It is not recommended to use high mineral content tap water; however, tap, deionized or softened water may be used for cleaning. The optimum water temperature is 54 to 66 °C (130 to 150 °F), although lower temperatures may be sufficient. Residues can be left on the board up to 48 hours prior to removal. It is preferred that the residues are removed within 8 hours of the board being soldered for optimal clean ability.

## Recycling Services

We provide safe and efficient recycling services to help companies meet their environmental and legislative requirements and at the same time, maximize the value of their waste streams.

Our service collects solder dross, solder scrap, and various forms of solder paste waste. Please contact your local sales representative for recycling capabilities in your area or [link here](#).



## Storage, Handling and Shelf Life

2231-ZX is flammable. Store away from sources of ignition. Shelf life is 2 years from the date of manufacture when handled properly and held at 10 to 25 °C (50 to 77 °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 this [link](#).

## Contact Information

To confirm this document is the most recent version, please contact [Assembly@MacDermidAlpha.com](mailto:Assembly@MacDermidAlpha.com)

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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE. Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

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