

2169 Organic Water-Soluble Liquid Flux Halide Free

Product Description

Kester 2169 is a halide free organic flux that is designed for semiconductor component lead tinning and PCB soldering. This flux provides good activity on metals such as Nickel Iron (Alloy 42), nickel plate and copper alloy. Proper use of Kester 2169 results in a non-porous solder coating in which a continuous, uniform metallurgical bond is formed with the base metal. The unique activity and surface tension properties of the flux minimize soldering defects such as icicles, bridging, excessive solder or white residues in component dipping.

X-ray analysis of non-hermatic, plastic packages have shown that the trim and form operation creates internal hairline cracks in the package which might allow flux or other contamination to seep inside because of the thermal expansion stresses encountered during soldering. Further research has shown the halide residues from organic halide fluxes in the presence of moisture can migrate along the interface between the molding compound and the lead frame surface to corrode the wire bonding pads. Kester 2169 contains no chlorides or bromides or others additives, which can cause internal package corrosion that is detrimental to component reliability. Therefore, the use of Kester 2169 ensures components reliability.

Performance Characteristics:

- High activity
- Halide free
- Improves soldering performance

Physical Properties

Specific Gravity: 0.919 ± 0.005 Anton Paar DMA 35 @ 24°C

Percent Solids (typical): 27 Tested to J-STD-004, IPC-TM-650, Method 2.3.34

Acid Number (typical): 122 mg KOH/g of flux Tested by potentiometric titration

pH (10% solution, typical): 2.8 Mettler-Toledo MA235 pH/lons Analyzer

Surface tension (typical) : 23.9 dynes/cm Kruss Digital Tensometer @ 25°C

Halide Content: None detected

Thinner: Kester 4169

Application Notes

Flux Application:

Kester 2169 is designed for use in high throughput, automated wave or dip soldering operations as well as manual solder dipping. Both plastic and ceramic packages can be solder coated using this flux, especially when minimal splattering is desired.

Process Considerations:

The optimum preheating temperature is 95-105°C (203-221°F) as measured on the component leads. Sufficient preheating is needed after fluxing to evaporate the solvent vehicle, bring the flux to its optimum activation state and prevent thermal shock on components. Lead materials normally become heavily oxidized as a result of heat encountered during the wire bonding and molding operations for plastic packages. Proper precleaning of components prior to soldering is necessary to remove the oxide layer so that soldering defects are minimized and consistent soldering results are obtained. Care should be taken to minimize or prevent water drag-in from the precleaning station as excessive water can be detrimental to the activity and surface tension properties of the flux. Solder temperature of 245-255°C (473-491°F) is generally recommended for Sn63Pb37 alloy.

Above information is a guideline and it is advisable to note that the optimum process parameters depend on soldering equipment design, component fixture design and the type of components to be solder coated. A design of experiment is recommended to be done to optimize the soldering process.

Flux Control:

Measures should be taken to minimize or prevent water drag-in from the precleaning station as excessive water can be detrimental to the activity and surface tension properties of the flux. Checking of the specific gravity at regular intervals is essential and addition of the appropriate amount of Kester 4169 Thinner will assure consistent, controlled soldering results. The use of improper thinner may cause a separation of the constituents or affect other performance properties of the flux.

Cleaning:

No neutralizer, saponifiers or detergents are necessary in the water wash system for complete removal of flux residues. Deionized water may be used for cleaning. It is not recommended to use high mineral content tap water. The optimum water temperature is 49-60°C (120-140°F), although lower temperatures may be sufficient.

Storage and Shelf Life:

Kester 2169 flux is flammable. Store away from sources of ignition. Shelf life is 1 year from date of manufacture when handled properly and held at 10-25°C (50-77°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: 515 E. Touhy Avenue. Des Plaines, Illinois, 60018 USA Phone: (+1) 847-297-1600 • 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 Ganghoferstrasse 45 D-82216 Gernlinden Germany (+49) 8142-47850 customerservice@kester-eu.com Japanese Headquarters 20-11 Yokokawa 2-Chome Sumida-Ku Tokyo 130 Japan (+81) 3-3624-5351 jpsales@kester.com.sg

The data recommendations presented are based on tests, which we considered 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 are 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 specification as it is intended for reference only. For assistance in preparing specifications, please contact your local Kester office for details.