

2169

Halide Organic Water-Soluble Liquid Flux For Semiconductor Lead Tinning

Product Description

Advances in organic flux technology alongside with continuing research by Kester has resulted in the development of an improved alcohol based flux for semiconductor component lead tinning and printed circuit board soldering. Kester 2169 is a halide free organic flux which is designed for solder dipping component leads made of metals such as Nickel Iron (Alloy 42), nickel plate and copper alloy. Proper use of Kester 2169 results in a non-porous solders 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. Kester 2169 also found wide applications in printed circuit boards soldering.

X-ray analysis of non-hermetic, 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 present 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.

Physical Properties

Specific Gravity (typical): 0.919 ± 0.005
@25°C

Pounds Per Gallon (typical): 7.65

pH (10%) solution (typical): 2.3 - 3.3

Non-volatile-matter, Wt %: 27 ± 2

Surface tension: 23.9 ± 1.0
@ 25°C, dynes/cm

Acid Number (typical): 122 ± 10 mg KOH/gm

Free Halide Content: Not detected by silver chromate paper

Flash point: 18°C (65°F)

Thinner: Kester 4169

Application Notes

Flux Application:

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

Kester 2169 is normally applied to components by dipping or wave fluxing method. Sufficient preheating is needed after fluxing to evaporate away the solvent vehicle, bring the flux to its optimum activation state and prevent thermal shock on components. After soldering, the flux residues can be completely removed with thorough hot water rinse providing components free of ionic contamination. No neutralizers, saponifiers or detergents are normally required to completely solubilize the residues.

Lead materials normally become heavily as a result of heat encountered during wire bonding and epoxy curing processes for plastic packages. Proper and precleaning is necessary to remove the oxide layer and minimize soldering defects during the solder dipping operation.

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 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.

Health, Safety & Storage:

Kester 2169 is flammable. Store away from sources of ignition. Wear safety glasses during handling to avoid eye contact. Avoid prolonged and/or repeated skin contact. As with any soldering operation, adequate exhaust ventilation should be employed to remove fumes generated during soldering from work area.

Kester 2169 is stable under a variety of storage conditions. The flux may be stored at temperature above 15°C (63.8°F) to prevent possible separation of ingredients. It is not recommended to store the flux at temperature above 35°C (95°F) for extended periods. Containers should be sealed when not in use to prevent solvent evaporation and introduction of contamination into flux.

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