kester® Technical Data Sheet

2222-CL Soldering Flux
Organic Water-Soluble Liquid Flux

Product Description

Kester 2222-CL is a high activity, organic acid flux designed for automated wave solder applications where a more aggressive flux is required to solder difficult assemblies. The flux will provide maximum capillary wetting action up plated through-holes, making it ideal for use on multilayer boards. Along with this enhanced activity, 2222-CL flux produces bright, shiny solder joints and the residue after soldering is effectively removed in standard water cleaning systems. Polyglycols, which can be detrimental to board surface insulation resistance, are not present in the flux formula. This flux is also suitable for some dip tinning applications where a high activity flux is required.

Performance Characteristics:

- High activity
- Minimizes icicling and bridging
- Chemically compatible with most solder masks and board laminates
- Ideal for multilayer boards
- Classified as ORH1 per J-STD-004

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: 0.951 ± 0.005
Antoine Paar DMA 35 @ 25°C

Percent Solids (typical): 17
Tested to J-STD-004, IPC-TM-650, Method 2.3.34

Flash Point: 29°C (84°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 and Bromides: 3.0%
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

	Blank	2222-CL
Day 1	$1.2*10^{10}$ Ω	$2.2*10^{8}$ Ω
Day 4	$1.5*10^{10}$ Ω	$1.3*10^{9}$ Ω
Day 7	$1.9*10^{10}$ Ω	$2.9*10^{9}$ Ω

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Application Notes

Application

2222-CL can be applied to circuit boards by a spray, 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 pre- heater surface.

Process Considerations

The optimum preheat temperature for most circuit assemblies is 82-96°C (180-205°F) as measured on the top or component side of the printed circuit board. Dwell time in the wave is typically 2-4 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 1.1-1.8 m/min (3½-6 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 air line buildup 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, saponifiers 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. Otherwise, tap, deionized or softened water may be used for cleaning. The optimum water temperature is 54-66°C (130-150°F), although lower temperatures may be sufficient.

Storage and Shelf Life

Store away from sources of ignition. Shelf life is 2 years from date of manufacture when handled properly and held at 10-25°C (50-77°F).

Health and Safety

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

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