SUPERIOR No. 312

NO-CLEAN SOLDERING FLUX

- Excellent surface wetting.
- Eliminates the need for cleaning soldered boards.
- May be conformal coated without post-solder cleaning.
- Can be used with lead free solder.
- Conforms to ANSI-J-STD-004, Type ORL0.

DESCRIPTION

Superior No. 312 No-Clean flux is a specially formulated low-solids flux free of any halides, resin, or rosin. This flux was designed for soldering high quality electronic printed circuit boards (PCBs), such as, through-hole, mixed technology, and surface mount assemblies while eliminating the need for a post cleaning operation. ***Superior No. 312 No-Clean*** is formulated for foam or spray applications as supplied.

APPLICATION

WAVE SOLDERING:

Superior No. 312 No-Residue, No-Clean Flux may be applied by foam, spray, or wave application. The optimum topside PCB preheat temperature recommendation is 200-240°F/93-115°C. Too low a preheat setting is indicated by post-solder residues on PCBs that look like water stains. A solder-bath temperature of 480°F ± 20°F is recommended for optimum result.

For optimum soldering results, use the following guidelines:

1. Make certain that the PCB surfaces are free of any oil, grease, or other impurities.
2. Maintain a consistent foam head by narrowing the flux chimney, or using dual flux stones.
3. Add fresh flux to maintain proper flux level in flux tank.
4. Replace the flux daily unless a sealed, self-contained system is used; such as in a spray fluxing system.
5. Regularly clean the fluxing equipment. Never leave foaming stone in flux when pressure is not applied.
6. Clean fluxing stone in ***Superior No. 367T*** flux thinner.
7. When foam fluxing, flux properties can be maintained by monitoring the specific gravity. However, control by checking the acid value is recommended as the most accurate measure. Titration kits are available from Superior Flux.
8. Add ***Superior No. 367T*** flux thinner when needed.

Superior No. 312 is also formulated for use in manual soldering applications for electronic assemblies. A soldering iron temperature between 315-400°C / 600-750°F is recommended for optimum results. Apply flux to area that is being soldered. Post-soldering residues are water-soluble and should be removed with DI, distilled, or RO water.

SAFETY PRECAUTIONS

Superior No. 312 No-Clean flux is a flammable product and should be handled with care and the normal precautions taken when working with chemical products.

When soldering with ***Superior No. 312,*** adequate exhaust ventilation should be provided. Avoid contact with eyes, skin, and mucous membranes. Always wear NIOSH approved safety equipment when working with chemicals. Store in plastic containers away from heat.

Refer to Material Safety Data Sheet (MSDS) for additional safety information.

Store flux in an area with controlled temperature between 18°C/64°F – 25°C/77°F.

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PHYSICAL PROPERTIES

Specific Gravity	0.815 ± 0.01@ 20-25°C/68-77°F
Pounds/Gallon	6.81
Color	Water white & clear
Halide Content	None
Acid Value	17.0 ± 2.5
Fluoride Test	Passed, No Fluoride Content
Silver Chromate Paper Test	Passed, No Chloride Content
Percent Solids	2.0 ± 0.1
Copper Mirror Corrosion Test	Passed
Flash Point (TCC)	15°C/59°F

IPC J-STD-004 SPECIFICATION TESTS, SUMMARY RESULTS NO. 312

Flux Materials of Composition: Organic
Classification: ORL0

I. Solids Content

This test method is designed to determine the residual solids content of the liquid flux after evaporation of the volatile chemicals. (IPC-TM-650, 2.3.34)

Result: 1.96%

II. Copper Mirror

The test method is designed to determine the removal effect the flux has on a copper mirror. (IPC-TM-650, 2.3.32)

Result: No Breakthrough **Rating Category: L**

III. Silver Chromate

The test method is designed to determine the presence of chlorides and bromides in solder flux. (IPC-TM650, 2.3.33)

Result: No Color Change **Rating Category: Pass**

IV. Fluoride Spot

This test method is designed to determine the presence of fluorides in soldering flux. (IPC-TM650, 2.3.35.1)

Result: No Color Change **Rating Category: Pass**

V. Halide Concentration (part I)

This test method is designed to determine the halide content of fluxes attributable to chlorides and bromides The halide content is reported as the weight percentage of halide to the solid portion of the flux. (IPC-TM-650, 2.3.35 or 2.3.28)

Result: 0.0% **Rating Category: 0**

VI. Halide Concentration (part II)

This test method is used to determine the concentration of fluoride in soldering flux. The halide content is reported as the weight percentage of halide to the solid portion of the flux. (IPC-TM-650, 2.3.35.2 or 2.3.28)

Result: 0.0% **Rating Category: 0**

VII. Corrosion Test

This test method is designed to subjectively determine the corrosive properties of the flux residue under extreme environmental condition. (IPC-TM-650, 2.6.15)

Result: No Evidence of Corrosion **Rating Category: L**

VIII. Surface Insulation Resistance (SIR)

This test method is to characterize fluxes by determining the degradation of electrical insulation resistance of a rigid printed wiring board specimens after exposure to the flux under high humidity and heat conditions. (IPC-TM-650, 2.6.3.3)

Results: **Rating Category: L**

Control Value:	**1.72E+12 Ohms**
Pattern Side Up:	**8.06E+10 Ohms**
Pattern Side Down Cleaned:	**7.11E+11 Ohms**
Pattern Side Down Uncleaned:	**2.61E+11 Ohms**

The information contained herein is based on data considered to be accurate and is intended for use by persons having technical skills at their own discretion and risk. Since conditions of use are outside of Superior Flux & Mfg. Co.'s control, we cannot assume liability for results obtained or damage incurred due to misuse, nor can we assume customer liability.

Superior manufactures quality fluxes. Our business is solving problems.

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