

Engineering Change to MicroSS Re-termination Process

27/7/11 - E-MECH-EC0001

Details Of Change:

Flux change from Kester 1429 to Superior 30DS

Date of Implementation of Change:

1st August 2011 for all manual dipping process

8th August 2011 for all Automated dipping process

Reason for Change:

**Kester 1429 flux is no longer available in the UK / USA
and has been withdrawn from manufacture world wide
from July 2011**

Engineering Signatory _____ *Mike Parker* _____ Date ___ 27/7/11 ___

Production Signatory _____ *Mike Walker* _____ Date ___ 27/7/11 ___

Quality Signatory _____ *Rob Crawford* _____ Date ___ 27/7/11 ___

Engineering Evaluation:

Pb Conversion from Matt Sn

Physical wetting properties:



Consistent with Kester

Flux Life: 5 second dip

220°C



Consistent with Kester

250°C



Consistent with Kester

260°C



Consistent with Kester

Solder ability Test:

QFP 7x7 32pin



Improvement on Kester

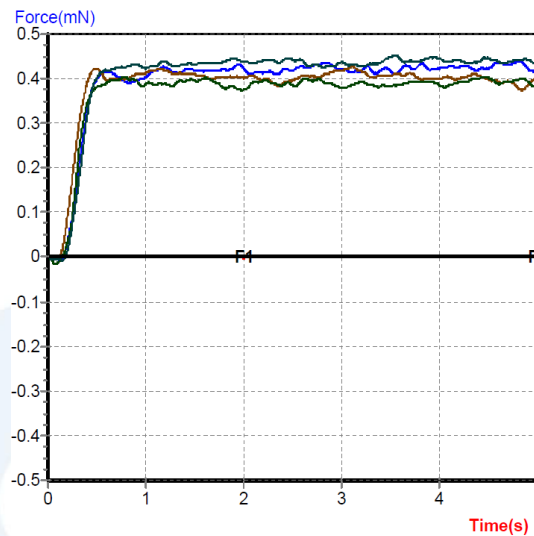
Wash:



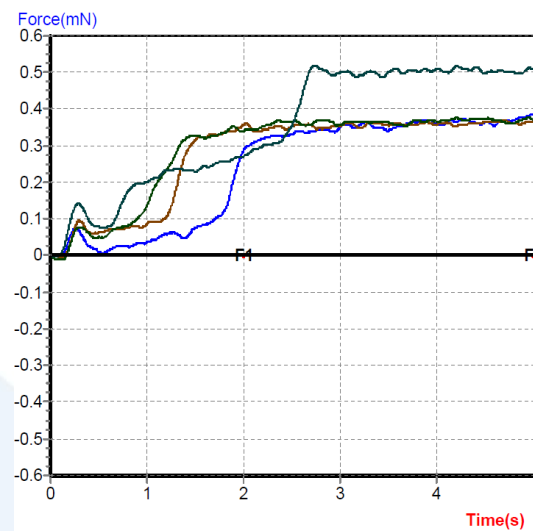
Improvement on Kester

Solder ability Test Detail:

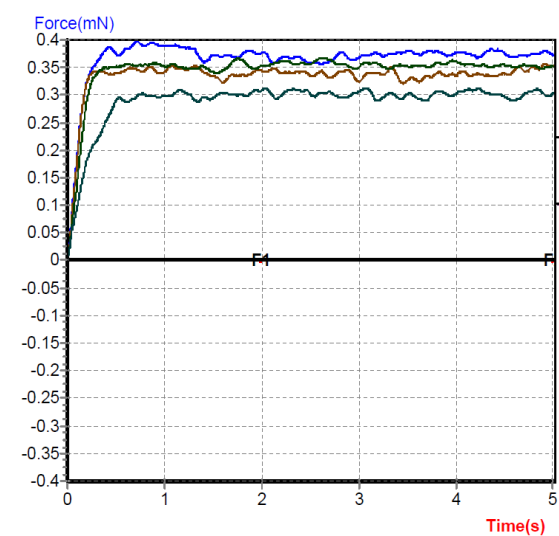
Superior Dipped Device:



Virgin Device:



Kester Dipped Device:



Note:

Both Superior and Kester flux performed well with dip test

Kester Flux datasheet



1429 VOC-Free Organic Water-Soluble Liquid Flux

Product Description

Kester 1429 VOC-Free Organic Water-Soluble Flux is a self-neutralizing type of flux formulation based on research work originally performed at the Battelle Memorial Institute. The unique chemistry of 1429 flux provides for self-neutralization through a time/temperature relationship which results in a residue which is neutral and non-corrosive when properly heated. As with any organic flux, excessive heating can cause the flux to char and decrease both fluxing ability and removability. The surface tension of 1429 flux has been adjusted to promote solder flow, prevent icicling and bridging and obtain a bright soldered surface. As with any Kester flux formulation, 1429 Organic Flux is manufactured under strict quality control requirements for consistent performance and assured reliability.

Performance Characteristics:

- High activity
- Minimizes icicling and bridging
- High ionic cleanliness and no surface insulation resistance degradation
- Classified as ORH1 per J-STD-004

Physical Properties

Specific Gravity: 1.061 ± 0.010
Antoine Paar DMA 35 @ 25°C

Percent Solids (typical): 18
Tested to J-STD-004, IPC-TM-650, Method 2.3.34

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: 2.3%
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

Application Notes

1429

Flux Application:

Kester 1429 can be applied by a spray, dip, or wave process.

Process Considerations:

Kester 1429 Organic Flux is designed for tinning and dipping operations where a more active flux than rosin is required, inorganic acid fluxes are too corrosive and the ease of removing the residue with water is desired. For some applications the flux can be diluted to half strength with distilled, deionized or softened tap water. This further decreases tinning costs. Kester 1429 flux can be used effectively without preheating.

Insulated Wires: This is not recommended for tinning of insulated wire because raw flux will wick up under the insulation and become trapped. This can lead to corrosion of the wire over time.

Bellows: Avoid using this flux for soldering of bellows and other closed assemblies where residues which have not been completely neutralized can be trapped and lead to deterioration of soldered joints over time.

Flux Control:

Specific gravity is normally the most reliable method to control the flux concentration. To check concentration, a hydrometer should be used. DI water can be used to replace evaporative losses.

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 45-65°C (113-140°F), although lower temperatures may be sufficient.

Storage and Shelf Life:

Because this formulation is water based, it is subject to freezing. A minimum storage temperature of 4°C (40°F) is recommended. If frozen, the Kester 1429 is easily reconstituted by stirring at room temperature. Shelf life is 2 years from date of manufacture when handled properly and held at 4-25°C (40-77°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.

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


Rev: 05Oct07

Superior Flux (alternate) data sheet

Superior Flux & Mfg. Co.



SUPERIOR SUPERSAFE® No. 30DS



DOUBLE STRENGTH, VOC-FREE ORGANIC ACID FLUX

Formulated for electronic, electrical, industrial, artisan, and aerospace applications, including:

- ◆ Printed Circuit Boards (PCBs)
- ◆ Wire, Cable, and Terminal Lead Tinning and Soldering
- ◆ Flat and Round Wire Fabrication
- ◆ Semiconductor and Component Lead Tinning
- ◆ Stained Glass

Used for Copper, Beryllium-Copper, Nickel, Alloy 42, Alloy 51, Brass, and some steels.
 VOC-Free formulation is non-hazardous and environmentally friendly.
 Conforms to IPC ANSI J-STD-004, Type ORM1.
 Broad activity range an excellent choice for Tin/Lead, Tin/Silver, Tin/Bismuth, and Indium solder alloys.

DESCRIPTION

Superior Supersafe® No. 30DS contains an amino acid-halide activator which starts to clean metals at room temperature, reaching peak fluxing activity at 260°C/500°F, where it promotes excellent solderability. The broad range of activity makes *Superior Supersafe® No. 30DS* an ideal choice for high production rates or difficult metal surface conditions where an active, but safe, flux is required.


APPLICATIONS

Superior Supersafe® No. 30DS can be used in dipping, spraying, brushing, swabbing, and many other fluxing operations. Soldering processes should include the following steps:

- ❶ Remove any oil, grease, mold release, or other contaminants from the surface to be soldered.
- ❷ Apply flux to joint by dipping, spraying, dragging, swabbing or brushing to area being soldered.
- ❸ Preheat or air-dry area to be soldered after flux has been applied to activate the flux and yield optimum soldering characteristics.
- ❹ Apply solder, dip part, or place iron to area being soldered.
- ❺ Clean flux residues from soldered area using de-ionized, distilled, RO, and in some cases tap water heated to a temperature of 60°C±5°C /140°F±10°F for best results. Room temperature water may also be used.

Post-solder residues from *Superior Supersafe® No. 30DS* are self-neutralizing at soldering temperatures, owing to the unique flux chemistry. However, removal of the residues is imperative for electronic applications to prevent corrosion to sensitive joints and components and promote long-term reliability of assemblies. The residues and raw flux are completely water soluble and should be washed in an aqueous cleaning system using de-ionized or distilled water heated to a recommended temperature of at least 60°C±5°C /140°F±10°F. The addition of one gram of non-ionic surfactant to four (4) liters of water is recommended to reduce the wash water surface tension and make it a more effective cleaner. Each user must determine the best cleaning procedure to meet required specifications.

Superior manufactures quality fluxes. Our business is solving problems.


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 www.superiorflux.com • e-mail: info@superiorflux.com

It is recommended that flux be changed in soldering processes using a flux pot at least once a week to maintain consistent flux performance and provide maintenance and cleaning of the flux pot. However, different environmental conditions may necessitate more frequent or less frequent flux changes to be determined by the end-user.

Superior Supersafe® No. 30DS can be diluted in a 1:1 ratio of water to flux to yield the standard strength formulation of Superior No. 30. It is recommended that De-Ionized, Distilled, or Reverse Osmosis (RO) water be used to dilute the flux, however tap water may be used.

PHYSICAL PROPERTIES

Form	Clear Blue Liquid
Specific Gravity	1.090 ± 0.005 @ 20-25°C/68-77°F
Density	9.1 Lbs./Gallon
pH	0.925 ± 0.30
Chloride Content	25 - 55 g chlorine/liter
Spread Factor	80 minimum
Surface Tension	35 dynes/cm maximum
Flash Point	None
Freezing Effect	None
Inorganic Cation Content	None
Recommended Soldering Range	95-315°C/200-600°F
Residues	Completely Water Soluble

DISPOSAL

Superior No. 30DS is a VOC-Free flux containing organic activators. It has a water base that contains no alcohols, solvents, petroleum derivatives, or inorganic material additives

The following steps should be taken to effect proper disposal:

- ❶ Measure out the amount of flux for disposal.
- ❷ As a general rule, add soda ash in a 1 to 25 ratio of neutralizer to spent flux. This ratio may differ depending upon pre-neutralization solids content and/or pH.
- ❸ When the neutralization bubbling subsides, the solution may be flushed down a drain. The neutralized solution has a pH of 6 to 8. Use a pH meter or paper to determine the pH.

Consult local, state, or federal EPA to determine local guidelines regarding disposal.

SAFETY PRECAUTIONS

Superior Supersafe® No. 30DS is a non-hazardous product, but should be treated as an industrial chemical. Store in plastic containers away from heat, sparks, or open flame. Do not store or place flux in contact with metals.


Adequate ventilation is necessary to remove flux fumes along with vapors and fumes from hot solder. Avoid breathing vapors and contact with skin, eyes and mucous membranes.

Refer to the MSDS for additional safety information.

Superior Supersafe® No. 30DS has a two (2) year shelf life.

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.

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