



kester®

Technical Data Sheet

NF1060-VF Soldering Flux

No-Clean, VOC-Free, Zero-Halogen Liquid Flux

Product Description

NF1060-VF is a new addition to Kester's No-Clean, VOC-Free product line. NF1060-VF is zero-halogen (none intentionally added) wave soldering flux that maintains its soldering performance achieving excellent through-hole fill and low-defect soldering of lead-free electronic circuit board assemblies.



Performance Characteristics:

- ORM0 per J-STD-004B
- VOC-Free for lower VOC emissions
- Zero-Halogen (none intentionally added)
- Low solids content prevents clogging or buildup around flux spray nozzles
- No offensive odor
- Minuscule, non-visible residue is non-conductive, non-corrosive, and does not need to be removed
- No surface insulation degradation
- Chemically compatible with most solder masks & board laminates

RoHS Compliance

This product meets the requirements of the Restriction of Hazardous Substances (RoHS) Directive. Additional RoHS information is located at <https://www.kester.com/downloads/environmental>.

Physical Properties

(Typical values listed)

Specific Gravity @ 25°C: 1.014

Acid Number: 41.7 mgKOH/gm

Solids Content (theoretical): 4.9%

pH (5% solution @ 25°C): 2.7

Reliability Properties

Copper Mirror: Low
Per IPC-TM-650 Method 2.3.32

Copper Corrosion: Medium
Per IPC-TM-650 Method 2.6.15

Surface Insulation Resistance (SIR): Pass
Per IPC-TM-650 Method 2.6.3.7 [40°C, 90% RH, 12.5V, 7days]

Electrochemical Migration (ECM): Pass
Per IPC-TM-650 Method 2.6.14.1 [65°C, 90% RH, 100V, 25days]

Halogen Content: None Detected
Per IPC-TM-650 Method 2.3.38.1

Process Considerations

The preheat board temperature should be less than 120°C (248°F). Dwell time in the wave is typically 3-5 seconds for Sn63Pb37 and 4-8 seconds for lead-free alloys. The wave soldering conveyor speed should be adjusted to accomplish proper contact time for the alloy in the solder pot then the heaters in the preheat section adjusted to meet the requirements for the top side circuit board temperature.

| Process Parameter | Recommendations |
|---|---|
| Flux Application | 155-233 $\mu\text{g}/\text{cm}^2$ of solids (1000-1500 $\mu\text{g}/\text{in}^2$ of solids) |
| Top-Side Preheat Temperature ¹ | 110-115°C (230-239°F) |
| Bottom-Side Preheat Temperature | 110-115°C (230-239°F) |
| Recommended Preheat Profile | Straight ramp to top side board temperature |
| Solder Contact Time | 4.5-6.5 seconds for Pb-free alloys |
| Solder Pot Temperature | 260-270°C (500-518°F) for Pb-free alloys |

¹ Maximum top side temperature 115°C (239°F)

Flux Control

NF1060-VF is designed to be sprayed. Incoming solderability inspection of circuit boards and components is advisable as part of process control to maintain consistent soldering results. This VOC flux is not designed for use in a foam application. It will require a process with a preheat stage. It is not designed for hand soldering.

Cleaning

NF1060-VF residues are non-conductive, non-corrosive, and do not require removal in most applications. If it is desired to remove the residues, DI water in in-line or batch cleaner at 43-54°C (110-130°F) may be used. Contact Kester Technical Support for additional assistance.

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, NF1060-VF is easily reconstituted by stirring at room temperature. Shelf-life 1 year from date of manufacture when handled properly and held at 4-25°C (40-77°F).

Health and Safety

This product, during handling or use, may be hazardous to your health or the environment. Read the Safety Data Sheet and warning label before using this product. Safety Data Sheets are available at <https://www.kester.com/downloads/sds>.