

# KESTER® 988 SOLDERING FLUX

Low-Solids, No-Clean, Liquid Flux

## DESCRIPTION

Kester 988 Soldering Flux is a low-solids, no-clean flux that is specially designed for excellent solderability and best-in-class through hole fill in lead-free wave soldering process. The residue left behind is evenly distributed and non-tacky so that boards are cosmetically clean as they exit the wave solder machine. The residue remaining after soldering is non-conductive and can be left on the boards without degrading the reliability of the assembly. 988 is classified as Type ROM0 flux under J-STD- 004A specifications.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

## FEATURES & BENEFITS

- Best-in-class through hole-fill
- Provides excellent solderability on surface mount circuit boards for defect-free soldering even after 2x SMT reflow cycles
- Evenly distributed, uniform and tack-free residues on solder mask
- No surface insulation degradation
- Suitable for leaded and lead-free (SnCu and SnAgCu) alloys
- Eliminates the needs and expense of cleaning
- Classified as ROM0 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.

**TECHNICAL DATA**

| Category                                      | Results               | Procedure/Remarks                                 |
|---|-----------------------|---|
| <b>Physical Properties</b>                    |                       |   |
| Specific Gravity                              | 0.808                 | Anton Paar DMA 35 @ 25 °C                         |
| Percent Solids (typical)                      | 6.0                   |   |
| Acid Number (typical)                         | 30.0 mg KOH/g of flux | Tested by potentiometric titration                |
| Thinner                                       | 4662                  |   |
| <b>Reliability Properties</b>                 |                       |   |
| Copper Mirror Corrosion                       | Moderate              | Tested to J-STD-004A, IPC-TM-650, Method 2.3.32   |
| Corrosion Test                                | Moderate              | Tested to J-STD-004A, IPC-TM-650, Method 2.6.15   |
| Silver Chromate                               | Pass                  | Tested to J-STD-004A, IPC-TM-650, Method 2.3.33   |
| Chloride and Bromides                         | None Detected         | Tested to J-STD-004A, IPC-TM-650, Method 2.3.35   |
| Fluorides by Spot Test                        | Pass                  | Tested to J-STD-004A, IPC-TM-650, Method 2.3.35.1 |
| Electromigration, Bellcore (typical)          | Pass                  | Tested to Bellcore GR-78-CORE                     |
|   |                       |   |
|   |                       |   |
|   |                       |   |
| Surface Insulation Resistivity (SIR), Typical | Pass                  | Tested to J-STD-004, IPC-TM-650, Method 2.6.3.3   |
|   |                       |   |
|   |                       |   |
|   |                       |   |
|   |                       |   |

## FLUX APPLICATION

988 can be applied via foam or spray fluxing. Flux deposition should be 155 to 310  $\mu\text{g}$  of solids/ $\text{cm}^2$  (600 to 1200  $\mu\text{g}$  of solids/ $\text{in}^2$ ). An air knife after the flux tank is recommended to remove excess flux from the circuit board and prevent dipping on the preheated surface. For foam, fluxing, the consistency should be maintaining only using Kester 4662 Thinner to compensate for evaporation loss.

## PROCESSING GUIDELINES

The optimum preheat temperature for most circuit assemblies is 95 to 105 °C (203 to 221 °F) as measured on the top or component side of the printed circuit board. The bottom of the board will not reach 145 °C (293 °F). Dwell time in the solder is typically 2 to 4 seconds for leaded alloys and 4 to 8 seconds for lead-free alloys. The conveyor speed should be adjusted to accomplish proper board contact time with the solder. Then the preheat temperatures are adjusted to achieve the required preheat top board temperatures. In the event you need further direction on the setup of your wave soldering system, please contact MacDermid Alpha Technical Support.

### Flux Control

Kester PS-22 Test Kit and procedure are available to insure the level of solids in the flux. The instructions of how to use this kit will come with the purchase of the kit. This could be used as an incoming inspection device or if a container had been left open for any period of time allowing the solvents to evaporate. The flux thinner is Kester's 4662.

### Cleaning

988 flux residues are non-conductive, non-corrosive and do not require removal in most applications. If residue removal is required, Kester 5252 Cleaner may be used.

### Storage, Handling and Shelf Life

988 is flammable. Store away from sources of ignition. Shelf life is 1 year from date of manufacture when handled properly and held at 10 to 25 °C (50 to 77 °F).

## RECYCLING SERVICES

We provide safe and efficient recycling services to help companies meet their environmental and legislative requirements and at the same time, maximize the value of their waste streams.

Our service collects solder dross, solder scrap, and various forms of solder paste waste. Please contact your local sales representative for recycling capabilities in your area.



## SAFETY & WARNING

It is recommended that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use. **Safety Data Sheets are available.**

## CONTACT INFORMATION

[www.macdermidalpha.com](http://www.macdermidalpha.com)

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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE. Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

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