kester® Technical Data Sheet

985M Soldering Flux
Low-Solids No-Clean Flux

Product Description

Kester 985M is a low-solids, halide-free, no-clean flux that is designed for wave solder and touch up processes. 985M was developed for use with both traditional tin-lead and lead-free solder alloys. 985M exhibits improved soldering performance to minimize solder bridges (shorts) during all soldering operations.

Performance Characteristics:

- Improves soldering performance
- Eliminates the need and expense of cleaning
- Non-corrosive tack-free residues
- Classified as ORL0 under IPC JSTD-004 and ORM0 under IPC JSTD-004B
- Compliant to Bellcore GR-78

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

Specific Gravity @ 25°C: 0.805 (typical)

Acid Number (typical): 20.0 mg KOH/g of flux

Percent Solids (theorotical): 3.6%

Reliability Properties

Copper Mirror Corrosion:
No Breakthrough "L"
IPC J-STD-004B, IPC-TM-650, Method 2.3.32

Corrosion Test:
No Corrosion "L"
IPC J-STD-004, IPC-TM-650, Method 2.6.15B

Minor Corrosion "M"
IPC J-STD-004B, IPC-TM-650, Method 2.6.15C

Bono Corrosion Test: Pass; Fc=0.7%
Test Conditions: 85°C, 85% RH, 15 days, 12V

Silver Chromate: Pass
Tested to J-STD-004, IPC-TM-650, Method 2.3.33

Chloride and Bromides: None Detected
Tested to J-STD-004, IPC-TM-650, Method 2.3.35

Surface Insulation Resistivity (SIR): Pass
Tested to J-STD-004B, IPC-TM-650 Method 2.6.3.7.
Test conditions: 40°C, 90% RH, 7days, 12.5V

Surface Insulation Resistivity (SIR) - Bellcore: Pass
Tested to GR-78-CORE Section 13.1.3
Test conditions: 35°C, 85% RH, 4days, 100V

Electrochemical Migration (ECM): Pass
Tested to J-STD-004B, IPC-TM-650 Method 2.6.14.1
Test conditions: 65°C, 85% RH, 500hrs, 100V

Fluorides by Spot Test: Pass
Tested to J-STD-004, IPC-TM-650, Method 2.3.35.1

Surface Insulation Resistivity (SIR): Pass
Tested to J-STD-004, IPC-TM-650, Method 2.6.3.3
Test Conditions: 85°C, 85% RH, 7 days, 100V

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Application Notes

Flux Application

985M is specially designed for spray and wave applications. It is not designed to be used in a foam application. The flux deposition target should start at 90-190µg of solids/cm^2 (600-1200µg of solids/in^2).

Process Considerations

The optimum preheat temperature for most circuit assemblies is 85-105°C (185-221°F) as measured on the top or component side of the assembly. It is important to note that the optimum preheat temperature for a given assembly will depend on the combination of machine design, circuit board design (board mass or size and component mix), board thickness, length of contact time with molten solder, solder wave shape, speed of solder flow, preheating time and alloy used in the solder pot. The key is to preheat the board to start the activation of the flux yet not burn it up prior to reaching the solder pot. For 985M, the maximum preheat temperature on the bottom side of the board is 130°C.

Leaded solders (Sn63Pb37) will require a dwell time of 2-4 seconds. Lead-free solders (Sn96.5Ag3.0Cu0.5) will require a dwell time in the wave of 4-7 seconds. Any time greater than 7 seconds, copper dissolution for OSP, ImAg, and ImSn boards may occur.

The above information is a guideline and it is advisable to note that the optimum settings for a given assembly may vary and this is dependent on the circuit board design, board thickness, components used and equipment used. A design of experiment is recommended to be done to optimize the soldering process. If you have any questions, please contact Kester Technical Support.

Touch-Up Application

Flux pens should only be used as a last resort. Any flux applied to the solder location should be kept to the location of the solder connection being soldered.

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 a means of incoming inspection.

Cleaning

985M residues are non-conducive and do not require removal in most applications. If residue removal is required it can be removed using commercially available flux residue cleaner. Contact Kester Technical Support for additional assistance.

Storage and Shelf Life

985M is flammable. Store away from sources of ignition. Shelf life is 1 year from the 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 and warning label before using this product. Safety Data Sheets are available at https://www.kester.com/downloads/sds.

Additional Information

Additional product information is available in 985M Data Package. Contact your Kester representative for a copy.

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