KESTER® SELECT-10™ SELECTIVE SOLDER FLUX

Zero-Halogen, No-Clean

DESCRIPTION

Kester SELECT-10TM Selective Solder Flux is a zero-halogen, no-clean, liquid flux designed specifically for the needs of the selective soldering process. Sustained activity within the flux allows for good barrel fill in challenging applications, such as reflowed copper OSP boards or with difficult to solder components. Specific to selective soldering, SELECT-10 TM does not spread beyond the spray pattern and will not clog the fluxer head. SELECT-10 TM residues are non-tacky for improved cosmetics. SELECT-10 is classified as ROL0 flux under IPC J-STD-004B. SELECT-10 TM is classified as ROL0 per IPC J-STD-004B. SELECT-10 TM is also available as a flux-pen. For a list of compatible products, contact MacDermid Alpha Technical Support.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- Zero-halogen (none intentionally added)
- Provides good solderability under air atmosphere
- Controlled flux application, flux does not spread beyond the spray pattern
- Non-corrosive, non-conductive and non-tacky residues
- Ability to provide desired hole-fill with preheat temperatures over 140 °C
- No clogging
- Compliant to GR-78-CORE (Telcordia/Bellcore)
- Classified as ROL0 per J-STD-004B
- Pass SIR in raw and preheating condition
- Also available as a flux-pen

ROHS COMPLIANCE

This product meets the requirements of the Restriction of Hazardous Substances (RoHS) Directive.

TECHNICAL DATA

Category	Results	Procedure/Remarks
Physical Properties		
Specific Gravity	0.835	@ 25°C (Typical)
Acid Number (Typical)	40.0 mg KOH/g flux	
Percent Solids (Theoretical)	10%	
Reliability Properties		
Copper Mirror Corrosion	Low	Tested to J-STD-004B, IPC-TM-650, Method 2.3.32
Corrosion Test	Low	Tested to J-STD-004B, IPC-TM-650, Method 2.6.15
Bono Corrosion Test	Pass; Fc=1.05%	Test Conditions: 85 °C, 85% RH, 15 days, 12V
Halogen Content	None Detected	Tested to J-STD-004B, IPC-TM-650, Method 2.3.28.1
Bellcore SIR, IPC	Pass; All Readings >2.0x1010 Ω	Tested to GR-78 13.1.3 Test Conditions: 35 °C, 85% RH, 4 days, 100V Board Prepare Conditions: Room Temperature: Dry with 80 °C Preheating. Pattern up through by soldering process, pattern down through by soldering process
Electrochemical Migration (ECM)	35 °C, 85% RH, 4 days, 100V	Tested to J-STD-004B, IPC-TM-650, Method 2.6.14.1 Test Conditions: 65 °C, 90% RH, 25 days, 100V Board Prepare Conditions: Room Temperature: Dry with 80 °C Preheating. Pattern up through by soldering process, pattern down through by soldering process
Surface Insulation Resistance (SIR)	Pass	Tested to J-STD-004B, IPC-TM-650, Method 2.6.3.7

Category	Results	Procedure/Remarks
		Test Conditions: 40 °C, 90% RH, 7 days, 12.5V Board Prepare Conditions: Room Temperature: Dry with 80 °C Preheating. Pattern up through by soldering process, pattern down through by soldering process
Surface Insulation Resistance (SIR)	Pass; All Readings > 1.0x108 Ω	Tested to J-STD-004A, IPC-TM-650, Method 2.6.3.3 Test Conditions: 85 °C, 85% RH, 7 days, 100V Board Prepare Conditions: Room Temperature: Dry with 80 °C Preheating. Pattern up through by soldering process, pattern down through by soldering process

FLUX APPLICATION

SELECT-10™ is designed for a drop jet fluxer or ultrasonic fluxer in selective solder applications. Flux deposition should be 186 to 465µgr/cm^2 (1200 to 3000µgr/in^2) of solids. SELECT-10™ Flux-Pen® is applied to circuit boards via Flux-Pen® for rework.

PROCESSING GUIDELINES

Process Considerations

Circuit Board Process Recommendations	
Printing Process Parameters	**Recommendations**
Flux deposition	186 to 465µgr/cm^2 (1200 to 3000µgr/in^2) of solids
Top side board temperature (bottom preheaters only)	90 to 140 °C (194 to 284 °F) Maximum bottom side board temperature145 °C
Top side board temperature (top preheaters only)	90 to 145 °C (194 to 293 °F)
Top side board temperature (bottom and top preheaters)[1]	90 to 140 °C (194 to 284 °F) Maximum bottom side board temperature145 °C
Recommended preheat profile	Straight ramp to top side board temperature

Circuit Board Process Recommendations	
Printing Process Parameters	**Recommendations**
Solder contact time	2.5 to 6 seconds
Maximum soldering time in the soldering module with pre-heat at 125 °C	2+ hours
Solder bath temperature[2]	280 to 320 °C (536 to 608 °F) for SnCu or SAC alloy 260 to 300 °C (500 to 572 °F) for Sn63Pb37 alloy

[1] Board is heated from top and bottom there will be a smaller delta temperature between the top and bottom of the board and minimizing the risk of sublimation. Caution: Using top and bottom preheaters simultaneously does not ensure the center of the board reach proper temperature for soldering.

[2] The solder bath temperature is a function of the solder nozzle size, circuit board design and components.

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.

SELECT-10™ Flux-Pen® should only be applied to areas that will be fully heated by the soldering iron or other reflow tool. Care should be taken to avoid flooding the assembly. The surface tension has been adjusted to help the flux form a thin film on the board surface allowing rapid solvent evaporation.

Flux Control

SELECT-10™ is designed to be sprayed with a drop jet fluxer or ultrasonic fluxer. Incoming solderability inspection of circuit boards and components is advisable as a part of process control to maintain consistent soldering results.

Cleaning

SELECT-10™ residues are non-conducive, non-corrosive and do not require removal in most applications. If residue removal is required it can be removed using commercially available flux residue cleaner. Contact MacDermid Alpha Technical Support for additional assistance.

Storage, Handling and Shelf Life

SELECT-10™ is flammable. Store away from sources of ignition. Shelf life is 2 years from the 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

North America 140 Centennial Avenue Piscataway, NJ 08854 1.800.367.5460	**Europe** Unit 2, Genesis Business Park Albert Drive Woking, Surrey, GU21 5RW, UK 44.01483.758400	**Asia** 8/F., Two Sky Parc 51 Hung To Road Kwun Tong, Kowloon, Hong Kong, SAR China 852.2500.5365

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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