MacDermid Alpha ELECTRONICS SOLUTIONS

TECHNICAL DATA SHEET

KESTER® 185 SOLDERING FLUX

Mildly Activated Rosin Liquid Flux

DESCRIPTION

Kester 185 Soldering Flux is classified as type ROL0 flux under IPC J-STD-004 Joint Industry Standard. Under the older MIL-F-14256, 185 was QPL approved as type RMA. This formulation consists of high quality, purified rosin to which a synergistic combination of activating agents has been incorporated. The fluxing ability of 185 flux is much greater than ordinary mildly activated rosin fluxes and approaches the activity of fully activated rosin fluxes. 185 rosin flux represents state-of-the-art flux formulation technology. This flux has been developed for use in critical electronic applications where difficult assemblies are to be soldered, but process requirements stipulate use of mildly activated rosin flux.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- Excellent fluxing ability with instant wetting
- Low surface tension property
- Fewer defects and less touch-up required
- Non corrosive, tack-free residue
- High ionic cleanliness after flux removal

APPLICATION

185 rosin flux has been designed for automated wave or drag soldering of both single-sided and double-sided printed circuit boards. This flux has been formulated for use in foam fluxing equipment. 185 possesses surface tension quality that produces a stable, uniform head of bubbles under low air pressure. Filters and traps should be used on air lines to assure proper foaming action by preventing dirt and water from getting into the flux and reducing its effectiveness. Spray or wave fluxing can also be used. The specific gravity of the flux should be checked at regular intervals with a suitable hydrometer or other device and the appropriate amount of Kester 109 thinner added to assure consistent, controlled soldering results. The use of an improper thinner may adversely affect the properties of the flux. After adding thinner to replace evaporative losses, add fresh flux to the flux tank to maintain the appropriate level.

TECHNICAL DATA

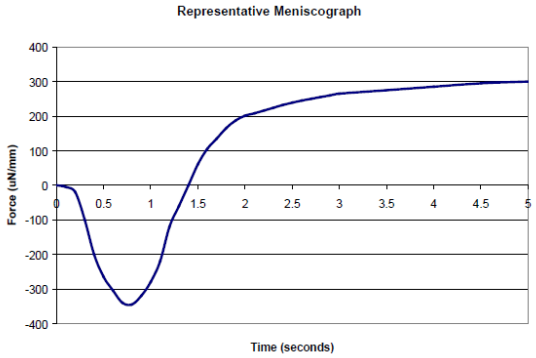
Properties	185 Flux	109 Thinner
Physical Properties		
Specific Gravity @ at 75 °F (24 °C)	0.879 + 0.005	0.785 + 0.005
Percent Solids (typical)	36	$4.9*10^9$ Ω
Flash Point	65 °F (18 °C)	65 °F (18 °C)
LLL-R-626	Class A, Type 1, Grade WW rosin	Class A, Type 1, Grade WW rosin
Free halides	<0.03 Wt. %*	
Water Extract Resistivity (typical) (MIL-F-14256, 4.7.2)	170,000 ohm-cm* (Minimum req.100,000 ohm cm)	
Effect on Copper Mirror (IPC-TM-650, Test Method 2.3.32)	Pass	
Chlorides and Bromides Test (IPC-TM-650, Test Method 2.3.33)	Pass	
Spread Factor (Mil-F-14256, 4.7.5)	94 mm^{2*} (Minimum required 90 mm^2)	

*Typical value

PROCESSING GUIDELINES

Flux Activity (typical)

The wetting balance test is one method for measuring comparative fluxing ability of various rosin flux formulations. Speed of wetting is an important criteria in wave soldering and can be evaluated by this test. Quantitative data taken from the wetting balance test results shows the fast wetting action of 185 flux compared to ordinary mildly activated rosin flux. Specifically, the speed of wetting achieved by 185 is 25% greater. The maximum wetting force is significantly higher.



Flux	Time to Commence Wetting	Time to Reach Baseline (Equilibrium)	Time to Achieve 85% of Max. Wetting	Maximum Wetting Force
Kester 185	0.4 sec	1.0 sec	2.1 sec	26.5 units
Ordinary Flux	0.5	1.3	2.2	25.0

Test parameters: Sn60/Pb40 solder @ 255 ± 5 °C; 7 to 8 sec immersion time; 4 mm immersion depth, degreased and deoxidized copper coupons. A representative meniscograph is shown below for illustration.

The area of spread of solder on a metal surface produced by a flux is another measure of fluxing ability and the ultimate effectiveness of a given flux in actual use in a production environment. The results below using both copper and nickel surfaces show the overall superior solder flow produced by 185 compared to other mildly activated rosin fluxes. The activity of 185 approaches that of fully activated rosin Kester 1585-MIL.

Flux	Flux Type	Copper Surface Area of Spread (typical)	Nickel Surface Area of Spread (typical)
Kester 185	ROL0	320 mm^2	170 mm^2
Kester 197	ROL1	250	120

Test parameters: 0.45 gm solder ring; Sn63/Pb37 solder alloy; 0.25 mL flux volume; 5 sec reflow @ 255 ± 5 °C

Residue Properties & Removal

Although 185 possesses high flux activity, it is non-corrosive and non-conductive under normal conditions of use. The low conductivity results from a minimum of ionic activating agent as shown by the high water extract resistivity. The flux residue is also moisture and fungus resistant. When desired or required by process specification, the flux residue can be completely removed, leaving circuit boards which exhibit high ionic cleanliness and surface insulation resistance. MacDermid Alpha recommends using 5768 Cleaner.

Storage, Handling and Shelf Life

185 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

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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