185
Mildly Activated Rosin Flux

General Information

Kester formula 185 is classified as type ROL0 flux under IPC J-STD-004 Joint Industry Standard. Under the older MIL-F-14256, Kester 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. Kester 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.

Performance Characteristics

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

Application

Kester 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. Kester 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.

Physical Properties

	185 Flux	109 Thinner
Specific Gravity @ 75°F (24°C)	0.879 ± 0.005	0.785 ± 0.005
Solids Content, %	36 (typical)	-----
Flash Point (T.O.C.)	65°F (18°C)	65°F (18°C)
LLL-R-626	Class A, Type 1, Grade WW rosin	
Free halides	<0.03 Wt. % *	
Water Extract Resistivity (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

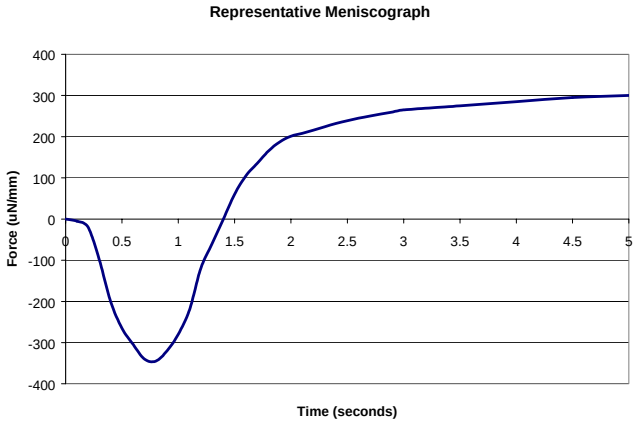
Flux Activity (typical)

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 Kester 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; 7-8 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 Kester 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
Kester 1585-MIL	ROM1	265	195

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. The recommended Kester flux removers are 5240 Rosin Residue Remover or 5769 Bio-Kleen Aqueous Saponifier.

Health & Safety

This product, during handling or use may be hazardous to health or the environment. Read the Material Safety Data Sheet and warning label before using this product.

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