

ALPHA 615 SERIES Super RMA Fluxes

GENERAL DESCRIPTION

ALPHA 615 flux meets MIL-F-14256 requirements for flux type RMA, making it suitable for all Military work requiring conformance to DOD-STD-2000. ALPHA 615 also meets the IPC-SF-818 standard for type LR3NC, the lowest flux residue corrosivity category and the highest surface insulation resistance rating.

The standard solids content for ALPHA 615 is 37%. Where use of a lower solids flux is appropriate, such as when wave soldering surface mount boards, 615-25 (25% solids) and 615-15 (15% solids) are available.

FEATURES & BENEFITS

- Maximum achievable RMA activity. Very fast wetting flux.
- Very cleanable, even with high preheat. No white residue.
- Excellent foaming properties. Uniform, consistent flux coverage.
- Perfect for high reliability rework.

ACTIVITY

ALPHA 615 is the most effective soldering flux yet developed for achieving excellent soldering yields with complex Military assemblies, while clearly passing all requirements for an RMA, non-conductive, non-corrosive flux.

Wetting balance and solder spread tests are widely used quantitative measures for comparing flux activity. The faster the speed of solder wetting, as measured by the wetting balance, and the greater the area of solder spread, i.e. spread factor percent, the more efficient the flux is for promoting solder wetting. The superior activity of ALPHA 615 can be seen from the following test data:

	Alpha 615	Brand A	Brand B
Spread Factor ¹	91.7%	90.2%	86.8%
Wetting Speed ²	0.41 seconds	0.47 seconds	0.64 seconds

¹ Test conducted using oxidized copper and 60Sn/40Pb flowed at 500°F for 15 seconds.

² Test conducted using oxidized copper, 60Sn/40Pb at 500°F, 5 mm immersion depth and 10 second cycle time. Wetting speed measured as time for wetting to reach equilibrium.

ALPHA 615 has also demonstrated the ability to prevent solder icicle formation, when tested according to the method developed by Philips-Eindhoven, Netherlands, "Determination of the Flux Efficiency to Prevent Formation of Icicles (and Bridges)."

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USE

ALPHA 615 is designed for wave soldering printed circuit assemblies that must use an RMA flux meeting military specifications. While formulated to have excellent foaming properties, wave and spray fluxing, along with various rework application methods can also be used.

All three solids levels of ALPHA 615 flux should be maintained by periodic measurement of flux specific gravity (corrected to 77°F) and kept to within +0.015 and -0.005 of the nominal values.

While topside preheat temperatures of 180-200°F are sufficient for ALPHA 615 flux activation, higher preheat conditions may be required for assemblies that have significant heat sinking characteristics, or when attempting to minimize the temperature gradient that ceramic chip components see between preheat and the solder wave.

Under conditions of extreme preheat, most RMA fluxes become extremely difficult to clean after soldering, especially with mild fluorocarbon-blend solvents. ALPHA 615 flux residues clean very well with either mild fluorocarbon-blend solvents or aqueous saponifier (Alpha 2110).

PACKAGING

ALPHA 615 series fluxes are available in 1, 5 and 55 gallon containers. Write Flux flux pens are also available.

HEALTH & SAFETY

ALPHA 615 is flammable. Keep away from heat, sparks and open flames. Observe standard precautions for handling and use, such as in well-ventilated areas and avoidance of prolonged or repeated contact with skin.

TECHNICAL SPECIFICATIONS

Physical Properties	Typical Values		
	615	615-25	615-15
Appearance		Clear, amber liquid	
Specific Gravity @ 77°F ± .005	.0876	0.845	0.818
Solids Content, % wt/wt	37	25	15
Water Extract Resistivity, ohm-cm, per MIL-F-14256, typical	17,000	190,000	225,000
Chlorides and Bromides, per MIL-F-14256 (Silver Chromate Paper)	Pass	Pass	Pass
Copper Mirror, per MIL-F-14256	Pass	Pass	Pass
Corrosion, per IPC-SF-818	No Corrosion	No Corrosion	No Corrosion
J-STD-004 Classification	ROL0	ROL0	ROL0
Surface Insulation Resistance:			
35°C/90% RH, comb-down, uncleaned, per Bellcore TR-TSY-000078		> 1.0 x 10 ¹¹ ohms	
85°C/85% RH, comb-down, uncleaned, per IPC-SF-818, Class 3		>1.0 x 10 ⁹ ohms	
Flash Point (T.C.C.)		53°F	
Recommended Alpha Thinner		438	

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