ALPHA® WS9160-M7

Water Soluble Flux

DESCRIPTION

These water soluble fluxes are engineered to be used in the attachment of Sn-Pb Eutectic or Pb-free spheres onto BGA or CSP components. They are compatible with Cu-OSP, electrolytic Ni-Au and ENIG pad finishes.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES AND BENEFITS

- Excellent wettability: Excellent activity reduces the occurrence of dark balls
- Excellent cleanability: Flux residues are removed easily with water even after the operation of baking at 150 ºC
- Long tackiness life
- Low residues

APPLICATION

- Metal mask or screen printing
- Ball Dip, doctor blade, Pin transfer
- Dispenser method

PHYSICAL AND CHEMICAL PROPERTIES

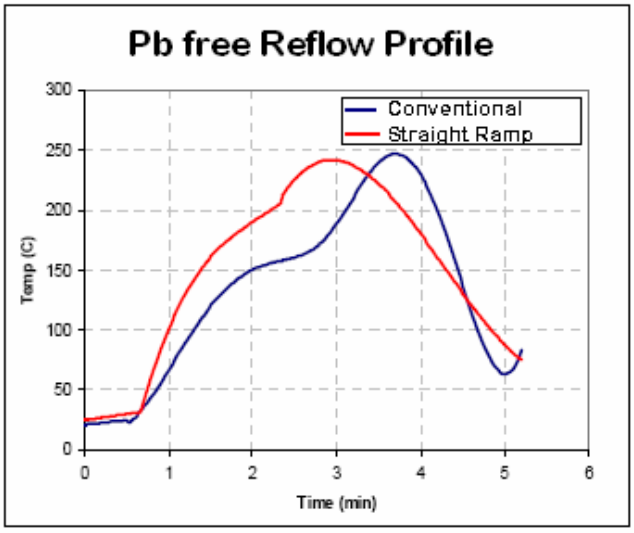
Properties	Method	Value	Remarks
Appearance	Visual	Brown	
Flux type classification	J-STD-004	ORH0	
Tack strength	JIS Z 3284	≧ 130gf (left for 15hrs.)	
Stencil life		8 hours	(@40 to 60%RH, 20 to 25 ºC)
Wetting balance		Faster than traditional RMA's	SnPb and SAC305
Halide content	IPC-TM-650 method 2.3.35	Halide free	
pH value	IPC-TM-650, pH Meter	5 to 7	5% Solution
SIR (7 Days)	IPC-TM-650 method 2.6.3.3	> 10^9	85%RH 85 ºC

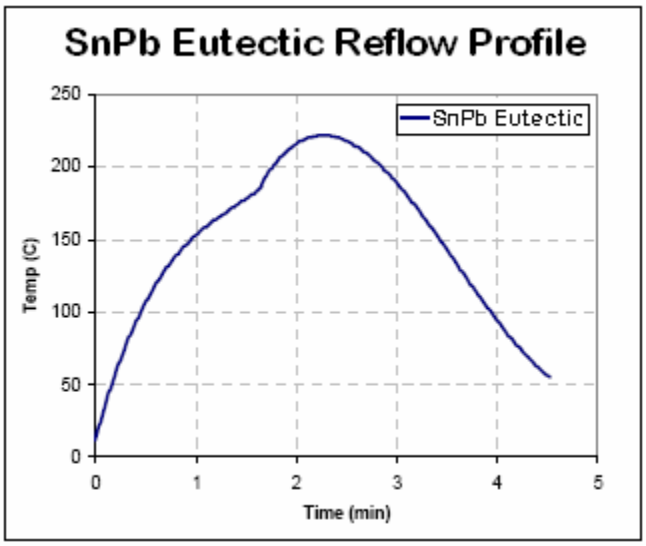
Viscometry (Spiral/Malcom)			
Viscosity (Spiral/Malcom)	**Method**	**Value**	**Remarks**
WS9160-M3 @ 10 rpm	Alpha metals# ICPH213	350 ± 100 Poise	(@ 25 ºC)
WS9160-M7 @ 10 rpm		700 + 150 Poise	(@ 25 ºC)

REFLOW

Reflow can be accomplished in air or nitrogen controlled atmosphere. The initial ramp rate should be at 60 to 120 °C per minute. If necessary, a dwell of 1 to 2 minutes at 150 to 160 °C is acceptable. (Because of the uniform furnace load in Flip Chip assembly to Ball Grid Array or Chip Scale Packages versus typical surface mount board assembly applications, equilibrium or dwells at a "preheat" temperature are not usually necessary.) Following this equilibrating period is a ramp of 60 to 120 °C to a peak temperature of up to 220 to 240 °C depending upon alloy. The time over alloy liquidus (183 °C for SnPb Eutectic, 217 to 221 °C for Sn/Ag/Cu alloys) should be 45 to 90 seconds maximum. Cooling rate should be at 90 to 120 °C per minute to room temperature.

REFLOW PARAMETERS (Pb free)	VALUE
Ramp rate (°C/sec)	1 to 1.5
Pre-heat dwell time 150 to 180 °C(sec)	60 to 120
Peak range (°C)	240 to 245
Time above liquidus (sec)	45 to 75
Cool down rate (°C/sec)	1.5 to 3.0





RESIDUE REMOVAL

Water at less than 50 °C without saponifier is suitable to achieve excellent results. Spray pressures of 35 to 65 psi are sufficient to remove all residues. Cleaning results using WS9160 series fluxes may exceed those achievable using traditional RMA materials.

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.**

STORAGE

This flux should be stored in sealed containers at 15 to 25 °C and should not be refrigerated. Temperatures above 27 °C should be avoided. Shelf life of unopened containers is nominally 12 months. Refrigeration is NOT required to store the flux, and temperatures below 5 °C should be avoided. If a container has been chilled, the container should be allowed to reach room temperature before opening in order to prevent moisture condensation from ambient air onto the flux.

CONTACT INFORMATION

To confirm this document is the most recent version, please contact techinfo@MacDermidAlpha.com

www.macdermidalpha.com

North America	Europe	Asia
3950 Johns Creek Ct, Suite 300 Suwanee, GA 30024 USA 908.791.2300	Unit 2, Genesis Business Park Albert Drive Woking, Surrey, GU21 5RW, UK 44.01483.758400	14 Joo Koon Crescent, Singapore 629014 65.6430.0700

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