ALPHA® NCX-402-M3

Halogen Free, Ultra Low Residue No Clean Flux for Flip Chip Attach, And Pop Stacking Applications

DESCRIPTION

ALPHA NCX-402-M3 is a highly active, halogen free, ultra low residue no-clean flux, engineered for flip chip attach applications. **ALPHA NCX-402-M3** has been designed to achieve high yields with excellent SIR reliability performance to ensure the final packaging will meet electrical reliability needs. Residue level post reflow is exceptionally low to ensure maximum compatibility with capillary and molded underfill material.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES AND BENEFITS

- Good thermal stability, tack strength and high activity for excellent yield rates
- Ultra low residue post reflow; <8% by Wt
- IPC-J-STD-004 compliant for long term electrical reliability
- Halide and Halogen free formulation

APPLICATION

- Chip Dip
- Ball Dip

PHYSICAL AND CHEMICAL PROPERTIES

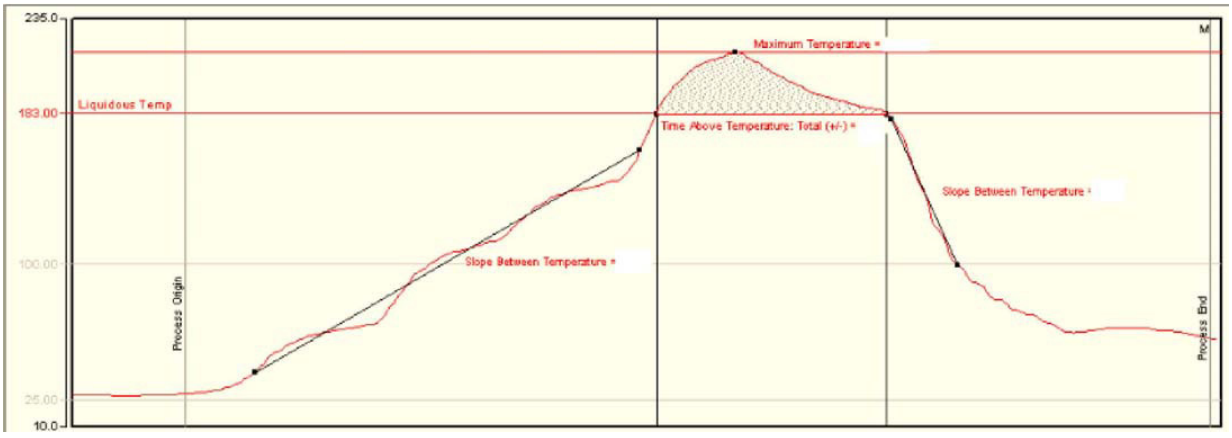
ALPHA NCX-402-M3 Technical Data		
Category	**Results**	**Procedures / Remarks**
Chemical Properties		
Activity Level (J-STD	ORL0	IPC J-STD-004

ALPHA NCX-402-M3 Technical Data		
Category	**Results**	**Procedures / Remarks**
Halide Content	Halide free (by titration), Passes Ag Chromate Test	IPC J-STD-004
pH (5% Solution)	~ 3 to 6	IPC-TM-650 pH Meter
Physical Properties		
Appearance	Smooth Off White to Pale Yellow Paste	ASP-WI-QC-009FS
Tack Strength @ Time – 0 (gF)	> 130	IRC-SOP-CSP 0011
Viscosity; Malcom Spiral Viscometer @	~ 150 to 450	GLB-AMG-STM00541
Acid Number (MgKOH/g)	~ 25 to 55	ASP-WI-QC-001FS

REFLOW

Reflow can be accomplished in an air or nitrogen controlled atmosphere, with nitrogen and O_2 levels of 300 ppm or below typically providing significantly improved results. The below table lists general reflow profile parameters. Given the uniform furnace loading and low mass associated with typical semiconductor packages, a soak or dwell at 150 to 180 ºC is usually not required, especially for the Pb free bearing alloys due to the slower ramp rate typically employed.

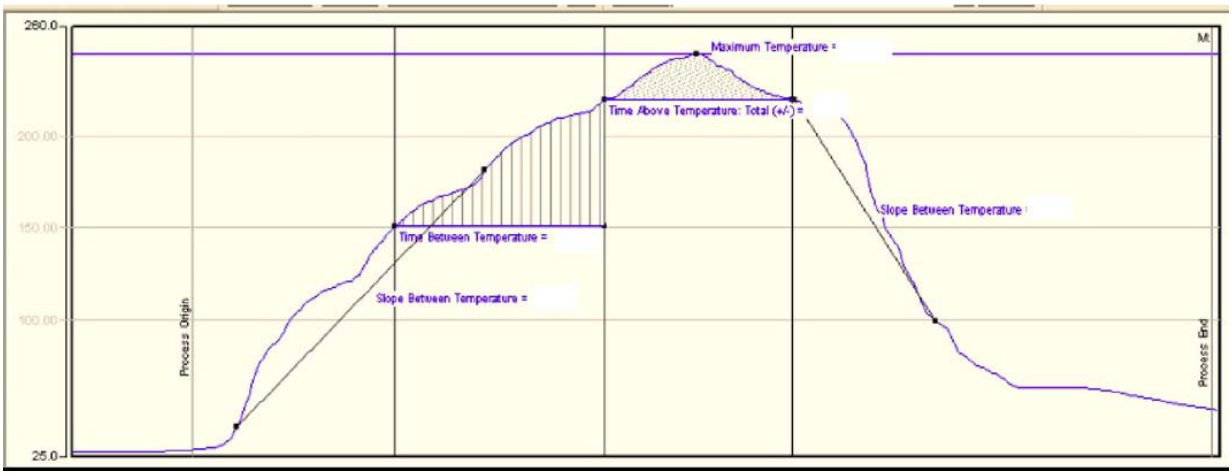
SnPb Eutectic Reflow Profile



- Ramp-Up Rate: 0.9 to 1.1 ºC/sec (Ramp to Peak)
- Peak Temperature: 205 to 225 ºC

- Dwell Time (TAL): 45 to 75 sec
- Ramp Down (Cool Down Rate): > 3 ºC/sec

Lead Free Reflow Profile



- Ramp-Up Rate: 1.2 to 1.5 ºC/sec (Ramp to Peak)
- Peak Temperature: 240 to 245 ºC
- Dwell Time (TAL): 60 to 90 sec
- Ramp Down (Cool Down Rate): >3 ºC/sec

CLEANING

ALPHA NCX-402-M3 is a no-clean flux and the residues are designed to remain. If desired, ALPHA NCX-402-M3 residues can be removed using Alpha 2110 Saponifier or Bioact SC-10 can also be used. Spray pressures of 35 to 60 psi are sufficient to remove all residues.

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

ALPHA NCX-402-M3 should be stored in sealed containers at 15 to 25 °C and need not be refrigerated. Shelf life testing is still on-going and unopened containers are nominally 6 months. If the material 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

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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