

ALPHA® NCP-1213

No-Clean, High Lead Solder Paste

Zero-Halogen, Low Voids, Excellent Dispense Performance

DESCRIPTION

ALPHA NCP-1213 is a high lead, Zero-Halogen no-clean solder paste designed for high power, high performance, die attach applications.

This product is designed to enable consistent dispensing performance, through 20 to 24 gauge needles. Its excellent dispensing repeatability provides value by reducing defects associated with dispense process variability. Additionally, the low voiding performance is ideally suited to minimize voiding under the die, after reflow, for demanding high power die attach applications. **ALPHA NCP-1213** achieves IPC7095 Class III voiding performance.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- Excellent Voiding Performance: Meets IPC7095 Class III Requirement
- Excellent Solder Joint and Flux Residue Cosmetics: after reflow soldering with high lead profile, with no charring, burning or discoloration
- Halogen Content: Zero Halogen, no halogen intentionally added
- Safe and Environmentally Friendly: Materials comply with environmental requirements, as well as TOSCA & EINECS

PRODUCT INFORMATION

Alloys:	SnPbAg (92.5Pb/5Sn/2.5Ag); For other alloys, contact your local Sales Office
Powder Size:	Type 3 (25 to 45µm per IPC J-STD-005)
Packaging Sizes:	500 gram jars, 6" & 12" cartridges, 30cc Syringes

APPLICATION

Formulated for dispense application through 20 to 24 gauge needles using time pressure dispense equipment. The reflow process window will give high soldering yield with good cosmetics and low under die voiding performance.

HALOGEN STATUS

ALPHA NCP-1213 is a Zero Halogen product and passes the standards listed in the Table below:

Halogen Standards			
Standard	Requirement	Test Method	Status
JEITA ET-7304 Definition of Halogen Free Soldering Materials	< 1000 ppm Br, Cl, F in solder material solids	TM EN14582 Solids extraction 2.3.34	Pass
IEC 612249-2-21	Post Soldering Residues contain < 900 ppm each or total of < 1500 ppm Br or Cl from flame retardant source		Pass
JEDEC A Guideline for Defining “Low Halogen” Electronics	Post soldering residues contain < 1000 ppm Br or Cl from flame retardant source		Pass
Zero Halogen: No halogenated compounds have been intentionally added			

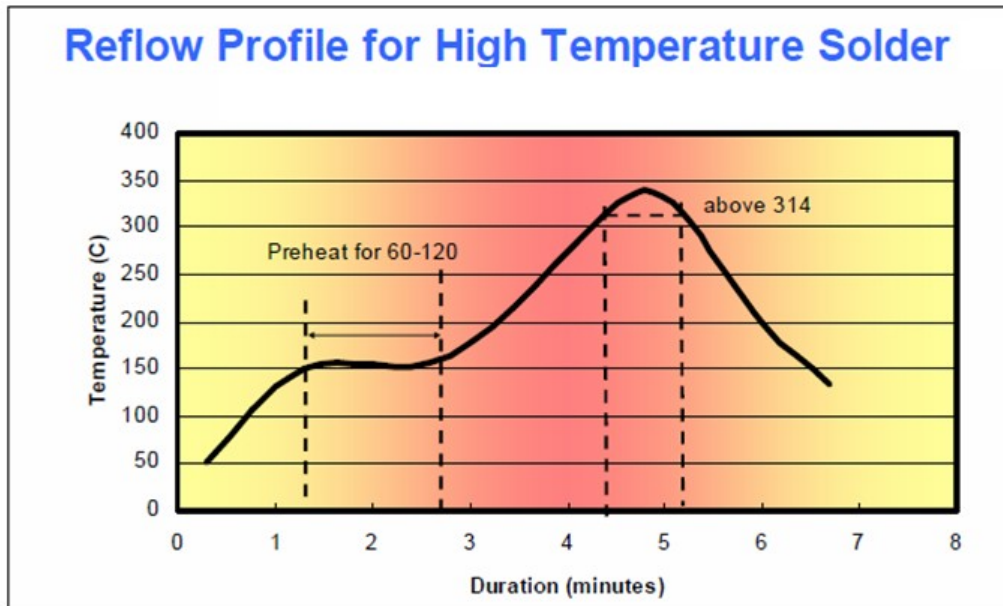
TECHNICAL DATA

ALPHA NCP- 1213		
Category	Results	Procedures/Remarks
Chemical Properties		
Activity Level	ROL0	IPC J-STD-004B
Halide Content	Halide free (by titration).	IPC J-STD-004B
Fluoride Spot Test	Pass	JIS-Z-3197-1999 8.1.4.2.4
Halogen Test	Pass, Zero Halogen – No halogen intentionally added	EN14582, by oxygen bomb combustion, non detectable (ND) at < 50 ppm
Ag Chromate Test	Pass	IPC J-STD-004B
	Pass	JIS-Z-3197-1999 8.1.4.2.3
Copper Mirror Test	Pass	IPC J-STD-004B
	Pass	JIS-Z-3197-1999 8.4.2
Copper Corrosion Test	Pass (No evidence of Corrosion)	IPC J-STD-004B
	Pass (No evidence of Corrosion)	JIS-Z-3197-1999 8.4.1
Physical Properties		
Color	Clear, Colorless Flux Residue	
Viscosity	410 poise at 10 RPM Malcom	Malcom Spiral Viscometer

HANDELING PROCEDURES

Storage And Handling	Dispensing	Reflow (See Fig. 1)	Cleaning
<p>1. Refrigerate to guarantee stability @ 0 to 10 °C (32 to 50 °F). of NCP-1213 is 6 months. When stored at -15 to -4°C conditions, the shelf life of NCP-1213 is up to 7 months.</p> <p>2. Paste can be stored for 1 week at room temperature up to 25 °C(77 °F) prior to use.</p> <p>3. When refrigerated, warm up paste container to room temperature for up to 4 hours. Paste must be 19 °C (66 °F) before processing. Verify paste temperature with a thermometer to ensure paste is at 19°C (66 °F) or greater before set up of printer.</p> <p>4. Paste can be manually stirred before use. A rotating/Centrifugal force mixing operation is not required. If a rotating/ centrifugal force mixing is used, 30 to 60 seconds at 300 RPM is adequate.</p> <p>5. Do not remove worked paste from stencil and mix with unused paste in jar. This will alter the rheology of unused paste.</p> <p>6. These are starting recommendations and all process settings should be reviewed independently.</p>	<p>1. Use 20 to 24 gauge needle size for type 3 paste</p> <p>2. Use time pressure dispense system.</p>	<p>ATMOSPHERE: Clean-dry reducing atmosphere.</p> <p><u>PROFILE (High Lead Alloys):</u></p> <p><u>Straight Ramp:</u></p> <p>0.7 °C/sec & 1.3 °C/sec ramp profiles, 45 to 90 TAL, Peak Temperature 340 to 350 °C.</p> <p><u>Soak:</u></p> <p>155 to 175 °C, 60 to 120 sec soak profiles have been determined to give optimal results.</p> <p>If required, good results are also achievable with high soak temperature profiles of 175 to 185 °C for 60 s. Typical peak temperature is 340 to 350 °C with 45 to 90 TAL.</p> <p><u>Note 1:</u> Slower ramp rates may minimize/reduce voiding</p>	<p>ALPHA NCP-1213 residue is designed to remain on the board after reflow. If reflowed residue cleaning is required, Vigon A201 (in line cleaning), Vigon A 250 (Batch Cleaning) or Vigon US (Ultrasonic Cleaning) are recommended. Vigon is a registered trademark of Zestron</p> <p>Misprints and stencil cleaning may be done with IPA, ALPHA SM-110E, ALPHA SM-440, and Bioact™ SC-10E cleaners. Bioact is a registered trademark of Petroferm.</p>

REFLOW PROFILE



General Reflow Profile Guidelines		
Parameter	Guideline	Additional Information
Atmosphere	Dry Reducing	
Alloy 92.5Pb/5Sn/2.5Ag	Melting Range 287 to 296 °C	
40 to 300 °C	4:00 to 4:30 min.	Straight Ramp
40 to 150 °C	1:00 to 1:30 min	Preheat Profile
150 to 300 °C	1:30 to 2:00 min	Preheat Profile
TAL (296 °C)	45 to 90 sec.	Shorter TAL Needed for Preheat Profile
Cool Down	< 3 °C/second	Recommended to prevent surface cracking issues.

* Above recommendations are for High Lead Alloy. If assistance is required on reflow profiling, please contact MacDermid Alpha Electronics Solutions technical service support.

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 NCP-1213 should be stored in a refrigerator or freezer upon receipt.

ALPHA NCP-1213 should be permitted to reach room temperature before unsealing its package prior to use (see handling procedures). This will prevent moisture condensation build up in the solder paste.

CONTACT INFORMATION

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

www.macdermidalpha.com

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

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