TECHNICAL DATA SHEET

CATEGORY: **NO-CLEAN LIQUID FLUX**

NAME: **NC 266-3**

FEATURES

- ROSIN / RESIN FREE
- HALIDE FREE
- CAN BE FOAMED, SPRAYED, MISTED, OR DIPPED
- REDUCES BRIDGING
- VERY GOOD WETTING
- LEAD-FREE COMPATIBLE

* Passes BELLCORE (Telecordia GR-78-Core Flux Requirements) and IPC (product testing summary on third page, data available upon request)

DESCRIPTION

NC 266-3 is a rosin-free, resin-free, halide-free, no-clean wave solder flux designed to enhance wetting and prevent bridging during the wave soldering process. NC 266-3 offers an enhanced activity level, as well as lower surface tension than other no-clean flux chemistries. NC 266-3 performs well with bare copper, solder coated and organic coated pwbs, leaving negligible post-process residues that are non-conductive and do not require cleaning. NC 266-3 may be utilized with tin-lead and lead-free solder alloys.

PHYSICAL PROPERTIES

SOLIDS CONTENT	FLUX DENSITY	ACID NUMBER
2.4%	.79 ± .01	14.7MG KOH/GRAM ± .5

HANDLING

- NC 266-3 has an unopened shelf life of 1 year when stored at room temperature.
- Do not store near fire or flame. Keep away from sunlight as it may degrade product.
- NC 266-3 is shipped ready-to-use, no mixing necessary.
- Do not mix used and unused chemical in the same container. Reseal any opened containers.

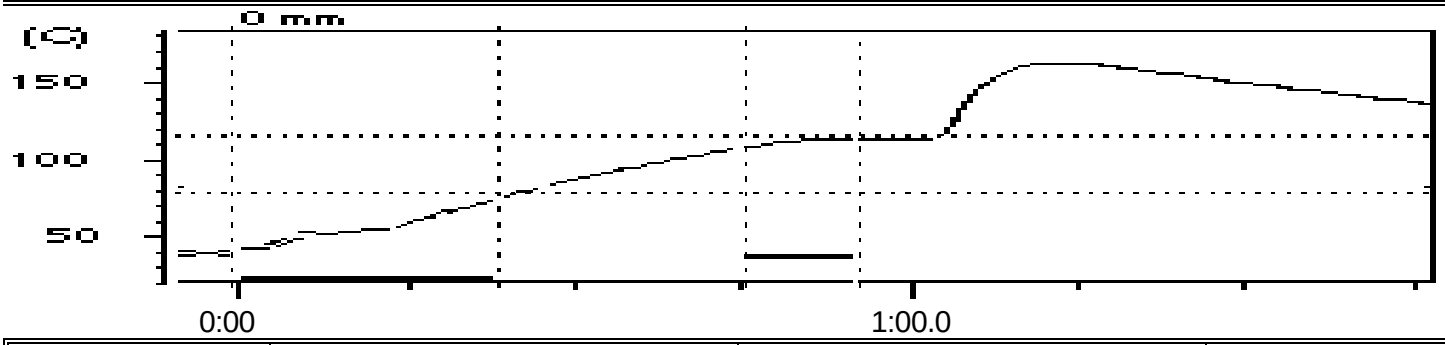
FLUX APPLICATION

- NC 266-3 is formulated for application via spray, foam, brush, mist, or dip. For spraying, NC 266-3 is ready to use directly from its container, no thinning required. When spray fluxing, it is imperative that proper flux coverage and uniformity be achieved and maintained. A dry flux coating of 500 to 1500 micrograms per square inch is recommended as a starting point.
- When nitrogen sealed wave solder equipment is used, it is generally necessary to apply slightly more flux than normal as a result of excess drying due to the extended length of the equipment.
- When foaming, air stones should be supplied with compressed air, free of oil and moisture. Adjust foam head to achieve uniform bubble size for optimum coverage. During foaming applications, it is periodically necessary to add AIM's Common Flux Thinner to replace that which is lost due through evaporation.
- Monitoring and controlling the acid number is recommended for maintaining the flux composition. The acid number should be maintained between 14.2–15.2MG KOH/GRAM or 30– 32 drops using AIM's N.020 Titration Kit.

PROCESS CONTROL

Because of the low percentage of solids in this flux, control of specific gravity with automated equipment usually is found to be ineffective; therefore, control via titration is necessary. AIM's Titration Kit has proven to be cost-effective, user friendly, quick and accurate. Titration should be carried out at least once an hour for flux foaming operations, or more often if large variances are found. Specific gravity should be carefully maintained at .79 ± .01.

THERMAL PROFILE



RATE of RISE 2-3 ºC / SEC MAX	PROGRESS THROUGH 66°C - 77°C (150 - 170ºF)	PCB TOP SIDE TEMP 87°C - 115°C (190ºF - 240ºF)	COOLDOWN £ 4ºC
	£ 40 SECONDS	JUST BEFORE WAVE	

FLUX TECH-TIPS

PROBLEM	POTENTIAL CAUSE
• **BRIDGING:**	INSUFF. FLUX, EXCESSIVE PRE-HEAT, HIGH CONVEYOR SPEED, SOLDER CONTAMINATION
• **SOLDER BALLS:**	LOW PREHEAT TEMPERATURE, EXCESS FLUX
• **WHITE RESIDUE:**	EXCESS FLUX, FLUX CONTAMINATION, SOLDER CONTAMINATION
• **DISCOLORED JOINT:**	SOLDER OXIDATION, BOARD/COMPONENT CONTAMINATION, EXCESSIVE HEAT

CLEANING

NC 266-3 can be cleaned, if necessary, with saponified water or an appropriate solvent cleaner. Please refer to the AIM No-Clean-Cleaner Matrix for a list of suitable le cleaning materials.

SAFETY

- Use with adequate ventilation and proper personal protective equipment.
- Refer to the accompanying **M**aterial **S**afety **D**ata **S**heet for any specific emergency information.
- Do not dispose of any hazardous materials in non-approved containers.

PRODUCT TESTING RESULTS

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Physical Specifications

Parameter	Value
Visual	Clear, Colorless
Odor	Aromatic (slightly)
Solids Content	2.4%
Acid Number	14.65 mg KOH per gram flux
Specific Gravity	0.78 – 0.80 (water = 1)
Flash Point	<10°C
Boiling Point	82°C
pH (1% soln / water)	Acidic

Corrosion Testing

Parameter	Requirements	Results
Copper Mirror (24 hrs @ 25°C,50%RH)	Bellcore GR-78	Pass
Halide Test (Silver Chromate)	Bellcore GR-78	Pass
Silver Chromate	IPC-J-STD-004 3.2.4.2.1	Pass

Surface Insulation Resistance

Test	Conditions	Specification	Results
S.I.R. Bellcore GR-78 Flux Requirements	Unsoldered Control	2.0E10 Ohms Minimum	4.1E11
S.I.R. Bellcore GR-78 Flux Requirements	266-3 Flux, Pattern Up	2.0E10 Ohms Minimum	6.7E11 Pass
S.I.R. Bellcore GR-78 Flux Requirements	266-3 Flux, Pattern Down	2.0E10 Ohms Minimum	1.0E12 Pass
S.I.R. Bellcore GR-78 Flux Requirements	266-3 Flux, Pattern Down, Cleaned	2.0E10 Ohms Minimum	9.5E11 Pass

Electromigration

Test	Conditions	Specification	Results
Electromigration Bellcore GR-78 Flux Requirements	85/85, 21 Days	Rf/Ri > 0.1	1.1E11/ 1.7E10 Pass
Electromigration Bellcore GR-78 Flux Requirements	85/85, 21 Days	Rf/Ri > 0.1	5.3E11 / 6.37E09 Pass