



FCT ASSEMBLY

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Technical Bulletin NC130 No Clean Solder Flux

DESCRIPTION:

NC130 NO CLEAN FLUX is halide-free, non-rosin, organic activated material for wave soldering through-hole, mixed and surface mount assemblies. Due to this formulation, flux solids are either volatilized during pre-heat or removed by the solder wave. NC130 NO CLEAN FLUX will leave a "tack-free" surface with high surface insulation resistance (SIR) and no residue to interfere with electrical testing.

APPLICATION:

NC130 NO CLEAN FLUX is formulated for foam, spray, wave or dip applications. When using NC130 it is important to have a topside board temperature prior to entering the solder wave at 177-210F. Start testing at the low end of the temperature range and increase your topside temp. In 5F increments until you have found the optimum preheat temperature.

SPRAY SYSTEMS: NC130 is suitable and enhanced by the use of a total loss spray system.

Ideally an air knife should be fitted even when using a spray system in order to prevent insufficient capillary action when soldering. Spray system air knives should normally be angled slightly towards the system. Excessive white deposits on the topside of the board are usually attributable to excess flux application. Adjustment of the air knife angle, air volume, and pressure can rectify excessive white deposits.

FOAMING SYSTEMS: The air knife hole diameter should be between 1 and 1.5 mm and the distance from the fluxer to the air knife should be approximately 4 to 6 inches. The air knife should be angled between 5 to 12 degrees away from the foam wave so that excess flux can be removed without destroying the foam head.

CONVEYOR SPEED: The ideal conveyor speed is dependent on the type of board and preheat requirements, but a speed between 3.5 to 6.5 feet will suit most applications.

PREHEAT: A topside temperature between 80 and 110 degrees Celsius is recommended.

A bottom side temperature should be 35 degrees Celsius higher than the topside.

SOLDER TEMPERATURE: A solder temperature between 230 and 250 degrees Celsius should be maintained.

THINNING:

The consistency of NC130 NO CLEAN FLUX should be maintained by the addition of thinner to compensate for evaporation losses. It is recommended that the specific gravity @77F be maintained between 0.805 and 0.815 by addition of thinner. Only Flux Thinner FT-100 should be used for this purpose to ensure consistency of flux foaming and soldering characteristics. In addition to specific gravity checks, a simple laboratory analysis requiring titration for acid number should also be done. NC130 NO CLEAN FLUX requires an acid

number of 16.0 +/- 1 with adjustments made with FT-100 FLUX THINNER. An addition of 5.3% FT-100 by volume will lower the acid number by 1.

PHYSICAL PROPERTIES

	VALUES
Specific gravity	0.81
Flash Point	61F
Acid Number (mgKOH/gm)	16.0 +/- 1
Color	Clear to light Amber
% Non-volatiles	2%

ANALYSIS (using a buret)

1. Pipet 5 mL of NC130 into a titration flask.
2. Add 40-50 mL of D.I. water or isopropyl alcohol.
3. Add 2-3 drops of phenolphthalein indicator solution and mix well.
4. Titrate the mixture with 0.1 N base from clear to a pink endpoint.
5. Record the volume of KOH used.

Calculation for acid content of NC130:

$$\text{Acid number (mg KOH / g flux)} = (\text{mLs of 0.1 N base}) \times 1.38$$

ADDITIONS

Maintain the acid number between 15 and 17. An addition of 5.3% FT-100 by volume will lower the acid number by 1.

SAFETY AND HANDLING

Keep away from heat, sparks and open flames. Use in well-ventilated area and observe standard precautions for handling and use. Refer to the Material Safety Data Sheet for further information.

Available in 1-gallon jugs, 5-gallon pails and 55 gallon drums.

Refer to MSDS for additional information.

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