QUALITEK Technical Bulletin

Delta 737N Water Soluble Flux

DESCRIPTION

737N is a neutral, Water Soluble flux designed for wave soldering, surface mount assembly and through-hole applications. The organic activating system in 737N has a neutral pH at room temperature and becomes activated at elevated soldering temperatures. 737N is formulated to be effective over a broad preheat range and may be used for both Tin-Lead and Lead-Free soldering applications.

FEATURES AND BENEFITS

- Excellent wettability and hole fill
- Neutral pH
- Rosin/Resin free
- Compatible with Lead-Free & Leaded Solder Systems

TECHNICAL DATA

	Specification	Test Method
Flux Classification	ORH1	JSTD-004-00B
Color and Appearance	Colourless liquid	
Copper Mirror	Complete removal of copper film	IPC-TM-650 2.3.32
Corrosion (Cleaned)	Pass	IPC-TM-650 2.6.15
SIR (Cleaned)	1.80×10^{10} ohms	IPC-TM-650 2.6.3.3
Specific Gravity (g/cm3) @ 25°	0.846 ± 0.006	
C Solids Content, % Wt.	17.5 ± 1	
pH Value	6.80 - 7.80	

PACKAGING

1L
5L
20L

CLEANING

As with all water-soluble fluxes, post-soldering cleaning is required. Residues can be easily removed with both hot and cold water, thus; no neutralizer is needed. De-ionized water should be used in the final rinse for cleanliness results beyond MIL-28809A. Spray pressures should be maintained at 20-30 psi and conveyor speed of 3-6 ft. /min.

STORAGE & SHELF LIFE

737N No Clean Liquid Flux should be stored in a 65-80°F in a cool, dry environment. Shelf life is 2 years from date of manufacture.

DISPOSAL

737N contains hazardous ingredients, therefore, should be disposed of in accordance with federal, state and local authority requirements.

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PROCESS CONTROL

Control of flux during use is necessary to assure a consistent amount of flux is applied to assemblies. Monitoring and controlling specific gravity is recommended for maintaining the proper flux concentration. Density (specific gravity) can performed using a hydrometer. Control of the flux can be achieved with 700T thinner to maintain fluxing activity.

Over time debris and contaminants may accumulate in the flux reservoir. Therefore, periodically replacing the flux and cleaning the reservoir is recommended for consistent performance and minimizing debris build-up.

#737N Flux	
Specific Gravity	Thinner Required Fl oz/ga
0.846	0
0.849	6
0.853	12
0.856	17
0.859	22
0.863	26

APPLICATION

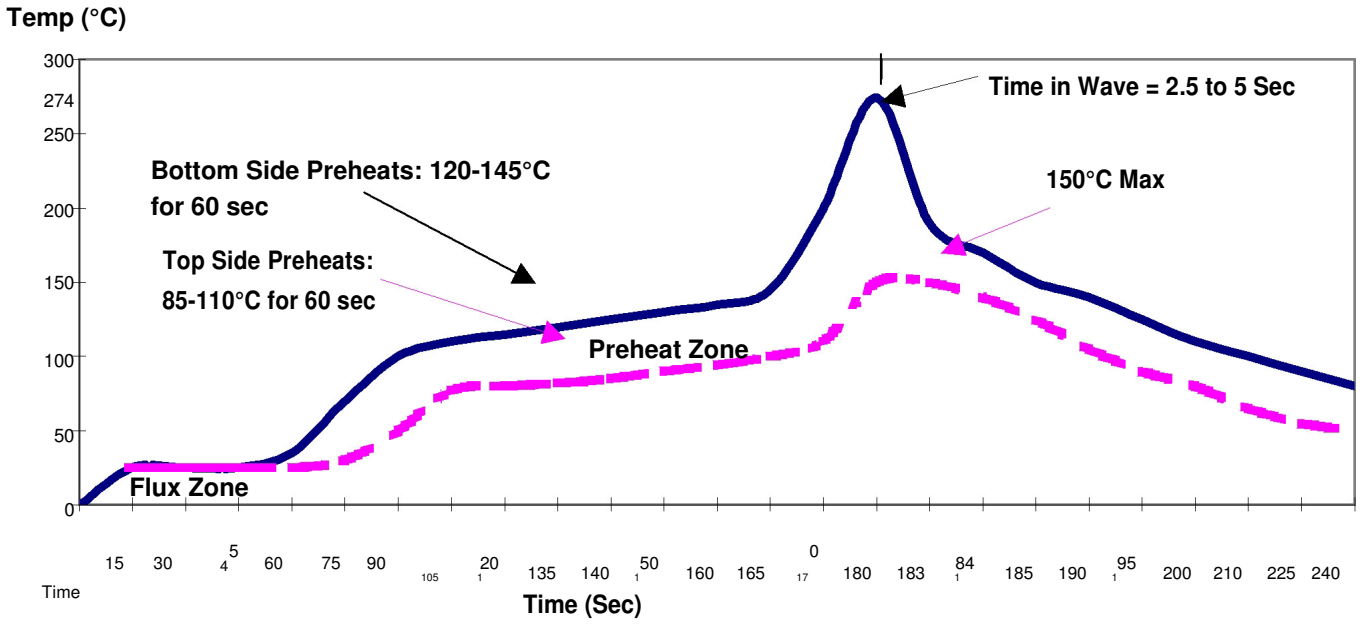
Flux Application

For mass wave soldering of OSP and plated circuit boards, spray, foam or wave fluxing can be utilized to apply this flux. Flux deposition density and uniformity are critical to successful use of low solids water soluble flux. If foam fluxing, the foam fluxer should be supplied with compressed air, which is free of oil and water. The flux tank should be full at all times. The surface of the flux should be 1-½ inches above the top of the flux aerator, or flux stone. Pressure should then be adjusted to produce the optimum foam height with a fine uniform foam head. After fluxing, an air knife should be used to remove excessive flux from the assembly.

Uniformity of the spray flux coating can be visually checked by running a tempered glass plate (usually supplied by machine manufacturer) through the spray and preheat sections, and inspected before going across the wave.

OPERATING PARAMETERS	**TYPICAL LEVEL**
Amount of flux	Foam, Wave: 1000-2000 µg/in^2 solids Spray: 750-1500 µg/in^2 solids
Foam Fluxing Parameters	
Foam Stone Pore Size	20-50 µm
Flux Level Above Stone	1-1 ½ inches (25-40mm)
Chimney Opening	3/8-1/2 inch (10-13 mm)
Air Pressure	1-2 psi
Top Side Preheat Temperature	190-230 °F (85-110 °C)
Bottom Side Preheat Temperature	65 °F (35 °C) higher than topside
Conveyor Speed	4-6 feet/minute(1.2-1.8 meters/minute)
Contact Time in the Solder (including Chip & Lambda)	2.5-4.5 seconds
Solder Pot Temperature	
Sn96.5/Ag3.5	500-530 °F (260-276 °C)
Sn95/Ag5	536-565 °F (280-296 °C)
Sn99.3/Cu0.7	510-530 °F (265-276 °C)
SnAgCu	520-530 °F (271-276 °C)
Sn95/Sb5	536-565 °F (280-296 °C)

TYPICAL Lead Free Wave Solder Profile (SNAGCU)



TYPICAL Leaded Wave Solder Profile (Sn63/Pb37)