# QUALITEK® 737NVF
# WATER SOLUBLE
# NEUTRAL VOC-FREE FLUX

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## Description

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

Main Features

- VOC-Free
- Neutral pH
- Excellent Hole Fill
- Compatible with Lead-Free & Leaded Solder Systems

### Technical Data

| | **Specification** | **Test Method** |
|---|---|---|
| **Flux Classification** | ORH1 | IPC-J-STD-004B |
| **Color and Appearance** | Colorless 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)** | > $1.0 \times 10^8$ ohms | IPC-TM-650 2.6.3.3 |
| **Specific Gravity (g/cm$^3$) @ 25°C** | 1.02 ± 0.01 | |
| **Solids Content, % Wt.** | 12.0 ± 2.0 | |
| **pH Value** | 6.50 – 8.00 | |
| **% Halides** | 2.2 | |

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## Applications

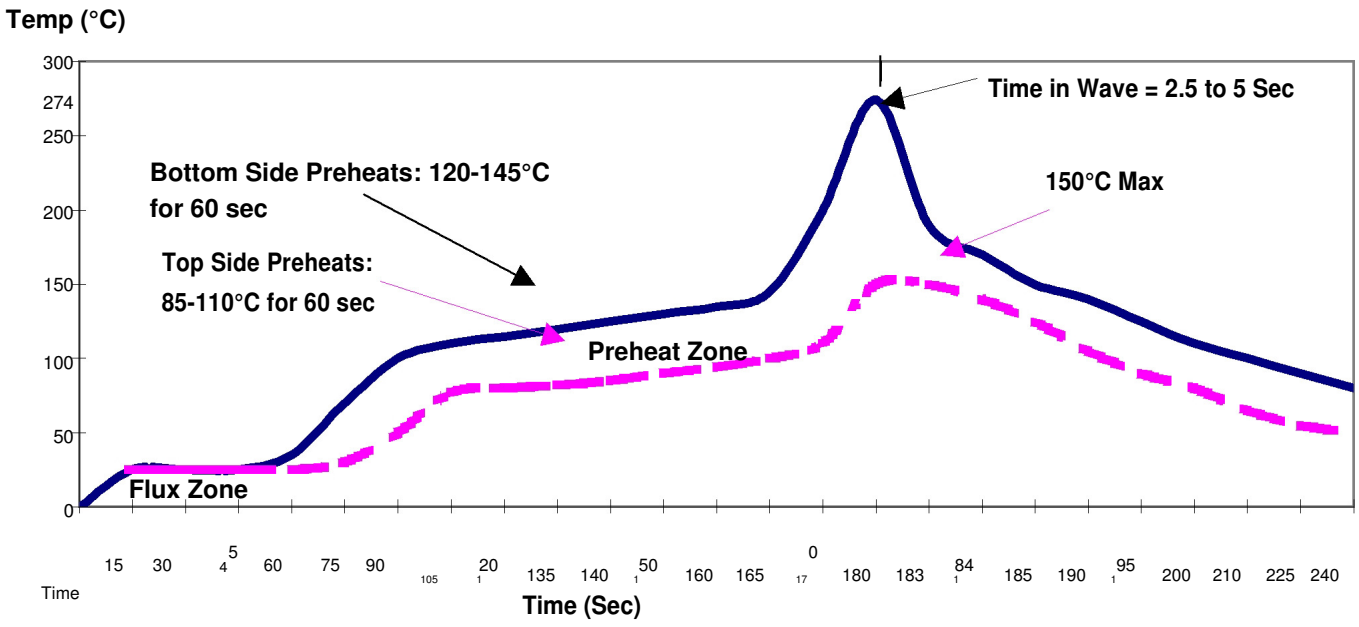
### Flux Application

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.

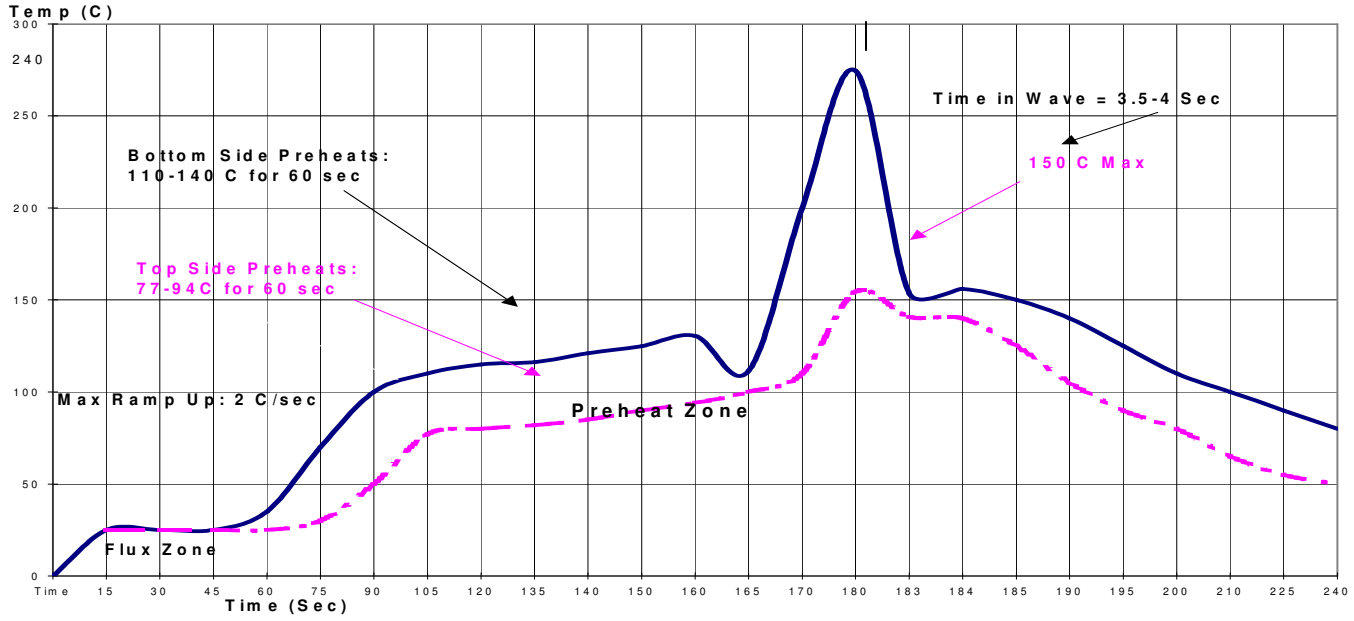
Uniformity of the spray flux coating can be visually checked by running a tempered glass plate (usually supplied by machine manufacturer) through the spray and preheat sections, and inspected before going across the wave.

| OPERATING PARAMETERS | TYPICAL LEVEL |
|---|---|
| Amount of flux | Foam, Wave: 1000-2000 µg/in$^2$ solids<br>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)**




## 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 deionized water 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.

## Flux Residues and 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

737NVF VOC-Free Liquid Flux should be stored in a cool, dry environment away from direct heat. Shelf life is 2 years from date of manufacture.

## Packaging

737NVF VOC-Free Water Soluble Liquid Flux is available in

1 Gallon/1 Liter containers
5 Gallon/5 Liter containers
55 Gallon/20 Liter containers

## Disposal

737NVF contains some hazardous ingredients therefore the flux should be disposed of in accordance with federal, state, local & federal authority requirements.