



QUALITEK®

357

VOC-Free No Clean, No Residue Flux

DESCRIPTION

Qualitek 357 is a water-based, water-soluble, halide free flux designed for mass soldering of conventional and surface mount PCB assemblies. The unique activator systems permit exceptional wetting on a wide variety of substrates.

BENEFITS

- Rapid wetting on virtually all types of substrates
- CFC Free, VOC Free
- Halide Free
- Compatible with most solder masks
- Non-corrosive, non-conductive residue
- Very bright, shiny solder joints

APPLICATION METHODS

357 no-clean flux may be applied by foam, spray, or wave methods. The conveyor speed and preheat should be adjusted to ensure complete water removal before contact with the wave. The optimum pre-heat temperature range is 93°–115°C (200°–240°F) on the topside of the assembly.

PROCESS CONTROL

Control of the flux is necessary to ensure a consistent amount of flux is applied to assemblies. Due to the very low solids percentage of no-clean fluxes, specific gravity is not an accurate measure for solids content. Monitoring and controlling acid number is recommended to maintain the proper flux concentration. Titration may be accomplished with the Qualitek HDT-200 Digital Titration Kit. Control of the flux can be achieved with DI water. Debris and contaminants will accumulate in the flux reservoir. Periodically, the replacement of the flux is required for consistent soldering performance, and to prevent debris build-up on the circuit assembly. This should be performed every 35-40 hours of operation.

PACKAGING & STORAGE

357 flux is available in 1, 5 and 55 gallon containers. It should be stored in cool, dry place. Due to this formulation being water-based, it is subject to freezing. A minimum storage temperature of 40°F is recommended. Should the flux become frozen, 357 will reconstitute upon returning to a liquid.

PHYSICAL & CHEMICAL CHARACTERISTICS

| | |
|--|---------------------------------|
| Color and Appearance | Light Straw Liquid |
| Solids Content, % (By Wt.) | 1.5 – 2.5 |
| Flash Point | None |
| Specific Gravity | 1.010 +/- 0.010 |
| pH (1 % soln) | 3.80 |
| Acid Number | 18.0 – 22.0 |
| Flux Classification per J-STD-004 | ORLO |
| Copper Mirror Test | Pass (No complete breakthrough) |
| Silver Chromate Test | |
| Chloride and Bromide | Pass (No discoloration) |
| Spot Test (Flouride) | Pass (No color change) |
| Corrosion Test | Pass (No evidence of corrosion) |
| Shelf life (un-opened) | 2 years |

Surface Insulation Resistance¹ (Ohms)

| Board | Initial | Final |
|---------------------|------------------------|------------------------|
| Control | 6.40x 10 ¹² | 1.8 x 10 ¹³ |
| Pattern Up | 4.60x 10 ¹¹ | 3.5 x 10 ¹² |
| Pattern Down | 4.40x 10 ¹² | 8.6 x 10 ¹² |

Electromigration Resistance² (Ohms)

| Board | Initial | Final |
|---------------------------|--|------------------------|
| Control | 5.40x 10 ¹¹ | 5.7 x 10 ¹¹ |
| Pattern Up | 7.80x 10 ¹¹ | 4.2 x 10 ¹² |
| Pattern Down | 8.20x 10 ¹² | 1.2 x 10 ¹² |
| Visual Examination | No evidence of dendritic growth when viewed at 10x magnification | |

1. Standard Bellcore test pattern, 0.025 in wide lines, 0.050 spacing.
Environment: 35°C , 90% R.H.
Bias Voltage: 45 – 50 volts D.C.
Test Voltage: 100 volts D.C.
2. Test pattern: IPC-B-25 , 0.025 in. space, 0.0125 in. wide lines.
Environment: 85°C , 85% R.H.
Bias Voltage: 10 volts D.C.
Test Voltage: 100 volts D.C.
Initial Reading: 96 hrs.
Final Reading: 500 hrs (ohm)

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Consult MSDS for health and safety information