



FCT ASSEMBLY

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Technical Bulletin VOC501 VOC Free Flux

DESCRIPTION:

VOC501 VOC Free Flux is a halide-free, no clean activated material for wave soldering through-hole, mixed and surface mount assemblies. VOC501 eliminates solder balls while providing excellent solderability with minimal flux residue so that cleaning is not necessary.

APPLICATION:

VOC501 FLUX is formulated for foam, spray, wave or dip applications. VOC501 is suitable for conventional, mixed, and surface mount technologies for telecommunications, computer and general consumer electronics. **Before use** read all material safety data information. Previously used flux should be thoroughly cleaned out of the system since small amounts can reduce the performance of the VOC501. Conveyors, pallets and fingers should be cleaned. During extended periods of time such as nights and weekends the flux should be removed from the machine and stored in a sealed container. The air stone should be left soaking in FCT Assembly thinners (FT100) and changed before the quality of the foam deteriorates. It is recommended that you use a new stone when replacing Rosin type fluxes. A program should be established for the regular replacement of the flux to avoid the build up of contaminants within the flux. For optimal soldering consistency, the flux should be disposed of once every 40 hours of operation.

FLUX CONTROL:

The amount of flux to be applied during **foaming applications** should be between 800 and 1300 micrograms per square inch of circuit. The amount of flux to be applied during **spray application** should be between 475 and 850 micrograms per square inch of circuit.

SPRAY SYSTEMS:

VOC501 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 5.5 feet will suit most applications.

PREHEAT:

A topside temperature between 90 and 130 degrees Celsius is recommended.
A bottom side temperature should be 35 degrees Celsius higher than the topside.

SOLDER TEMPERATURE:

For 63/37, a temperature of 245-255 degrees Celsius is recommended.

THINNING:

Flux maintenance is much simpler with VOC Free fluxes as evaporative loss in a foam flux process is much less than with an alcohol based flux. No thinning is generally required in normal foam flux use.

PHYSICAL PROPERTIES

VALUES

Solids Content	4%
Specific gravity at 25 degrees C	1.005-1.020
Acid Number (mgKOH/gm)	38-42
Color	Clear, colorless to light yellow
Halide content	ZERO %
J-STD-004 Designation	ORM0

Cleaning:

VOC501 flux properly applied and processed leaves no discernible residues without cleaning. It is recommended that the soldering system itself be tested for cleanliness using an unfluxed board passed over the wave soldering machine. Suppliers should be requested to supply clean components and clean boards with good solderability. Special applications may have regulations insisting on board cleaning and in such cases the residues from VOC501 can be effectively removed with hot deionized water (120-140°C) in either an in-line washer or batch cleaner. No additional soap or saponifier is required unless there are other contaminants present. Machine contamination will in any case be much less than with conventional rosin fluxes. VOC501 flux may be slightly corrosive towards some metal PCB handling equipment.

SAFETY AND HANDLING

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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