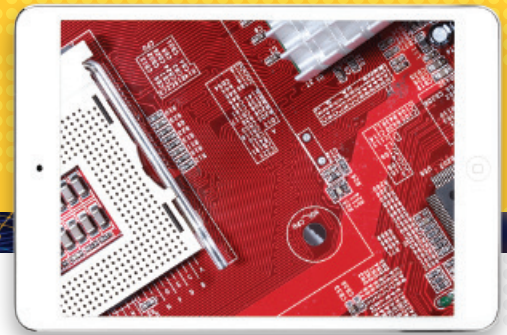


# Acid Copper Plating



## Through-hole Plating

**Thru-Cup EPL** “high throwing power” acid copper additive is designed for high aspect ratios with fine line circuitry. It offers the simplicity of DC plating with results that compete favorably with complex waveforms of pulse plating.

The EPL Very High Aspect Ratio (25:1) plating process delivers greater than 60% throw, with zero dog-boning at the hole entrance.

**Thru-Cup ETN** is an acid copper additive for printed wiring board plating. It is ideally suited for vertical conveyORIZED lines where plating speed is critical. It plates with current densities as high as 40 ASF or 4.0 ASD. The chemistry is highly stable and does not require continuous regeneration.

**Thru-CUP ECD-CF** is a high-speed copper process for use with insoluble anodes. It operates at up to 40 ASF current density and provides excellent performance for BVH immediately following make-up. Throwing power remains high despite bath aging. ECD-CF is easily controlled with CVS measurement.

**EVF-YF-4** fills through-holes and blind vias, and pattern plates with exceptional uniformity. It maintains excellent tensile and elongation throughout bath aging, and is easily controlled by CVS.

## Via Filling

**Thru-Cup EVF-R** is an acid copper system that provides void-free blind via fill; its unique leveling agent keeps holes open until plating is filled. EVF-R plates aspect ratios of 1:1 and higher, and fills blind vias 3-4 mils, often in less than 90 minutes. 10x10 mil vias are successfully plated with EVF-R.

Unique organic additive system is based on DC rectification, so no pulse plating is required.

The process produces minimum (<15%) “dimple” and low surface thickness. Stable organic additives never require regeneration. Carbon treatment is recommended at 2000AH/L of bath every 10–12 months. Deposits have excellent elongation and tensile strength.

**Thru-Cup EVF-N** simultaneously plates through-holes and vias, reducing process times. It delivers exceptional performance for hole diameters  $\leq 150\mu\text{m}$ . The process uses DC current, minimizing equipment cost and chemical consumption.

**MSC-PS** is an excellent cleaner for acid copper applications, particularly blind via cleaning. This low surface tension cleaner has excellent wetting capabilities. It does not contain organic solvents, and will not attack the photoresist.

## Copper Etching

**MEC EtchBond CZ-2030** is an organic acid-based copper surface roughening process. Its unique surface topography provides the best adhesion on resin systems.

CZ-2030 has a stable etching rate, and provides maximum soldermask adhesion at a low etch ( $\leq 40\mu\text{ins}$ ). CZ-2030's single-component system, coupled with its high copper capacity (55 g/l) minimizes inventory and waste.

**MEC EtchBond 5480** is a nitric acid-based copper micro roughening formulation for PWB dry film and soldermask applications. It provides a unique copper surface topography that is unachievable with conventional chemical cleaning, enhancing adhesion between copper surface and resin.

**MEC FlatBOND GT** is the ideal copper surface treatment for 25 GHz+ applications. FlatBOND provides a profile-free surface, and improves adhesion by 40% on low dielectric resins, although the treated surface is flat.

As speeds and frequencies move higher, conductor surface roughness produces signal loss. The goal is to balance signal integrity and layer adhesion, a feat FlatBOND executes exceptionally well. FlatBOND produces a chemical bond without topographical change and with negligible signal loss and distortion on HF applications.

