

## Thru-cup® EVF-N Copper Via Filling Electrolyte



**UYEMURA**  
Japan

### Your advantages:

- + Excellent blind via hole filling characteristics
- + Suitable for panel, pattern and through-hole plating
- + Long electrolyte lifetime
- + Excellent thickness distribution of the plated copper film
- + Concentrations of all additives can be analysed by cyclic voltammetry (CVS)

## Additives for acid copper via filling

Thru-cup® EVF-N is a new additive system for electrolytic acid copper plating on PCB. It is used in panel and pattern plating technology for blind via filling and through-hole plating. The blind via hole filling characteristics for holes with diameters less than 150 µm are excellent. Thru-cup EVF-N works with three additives which can be easily controlled by CVS.

Via filling performance is not influenced by electrolyte ageing. The plated copper film has an excellent thickness distribution.

### Application features

- Thermal management enhancement
- Higher interconnect density in HDI PCB
- Long term reliability of the assembly and packaging operation

### Applications

- IT products
- Consumer electronics
- Automotive applications



Thru-cup® EVF-N is used for copper via filling in PCB for smart phones, camcorders, mobile phones, digital cameras, etc.

### Technical specifications Thru-cup® EVF-N

#### Electrolyte characteristics Thru-cup® EVF-N

Electrolyte type	Acidic
Metal content	200 g/l CuSO <sub>4</sub> ·5H <sub>2</sub> O
pH value	(not monitored)
Operating temperature	25 (22 - 27) °C
Current density	1.0 (0.5 - 2.5) A/dm <sup>2</sup>
Anode material	Soluble / Insoluble

### Needed additives and optional products

- EVF-2A
- EVF-2B
- EVF-N

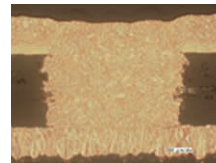
#### Cross-sections after Thru-cup® EVF-N plating

Surface thickness: 20 µm

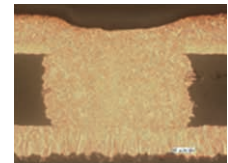
Hole size:           Diameter 125 µm  
                          Depth 85 µm



1.5 A/dm<sup>2</sup>



2.0 A/dm<sup>2</sup>

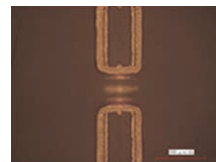


2.5 A/dm<sup>2</sup>

For FPC (0.6 A/dm<sup>2</sup> - 8 µm, Board thickness: 60 µm)



Diameter 50 µm



Diameter 100 µm