

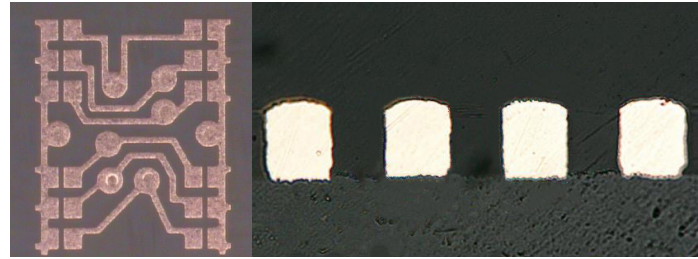
CircuEtch 300

Anisotropic Final Etching Process for SAP and mSAP

Precise, High Speed Etching. Pristine Trace Definition.

CircuEtch 300 is a high-performance flash etching process for circuit formation in Semi-Additive and modified-Semi Additive Processing of IC substrates and Substrate-Like HDI. The highly stable process can precisely etch away copper at the base of traces without undercut while maintaining trace shapes and adhesion to the substrate.

The high-speed etching of CircuEtch 300 is easily maintained with a wide operating window. With the dimensions involved in substrate manufacturing, the final etch process must be extremely stable and repeatable so that expensive errors are not introduced after the layer build-up process is nearly completed. CircuEtch 300 has a stable etching rate across a wide operating window for the primary additive, copper, sulfuric acid, and temperature. It can quickly etch many types of copper with excellent performance including electrodeposited thin foils, electroless copper, while treating the electroplated pattern plate on traces with care, maintaining the critical circuit dimensions.



KEY FEATURES

- Provides vertical trace sidewalls without undercut for optimal circuit geometry and adhesion
- Reduces surface roughness, improving electrical properties
- Capable of etching up to 5 μm per minute of base layer copper at 30 $^{\circ}\text{C}$
- Simple peroxide-sulfuric based bath composition for ease of maintenance
- Stable, predictable etching rates under a wide variety of conditions
- Easy horizontal spray operation
- Non-flammable



MacDermid Enthone

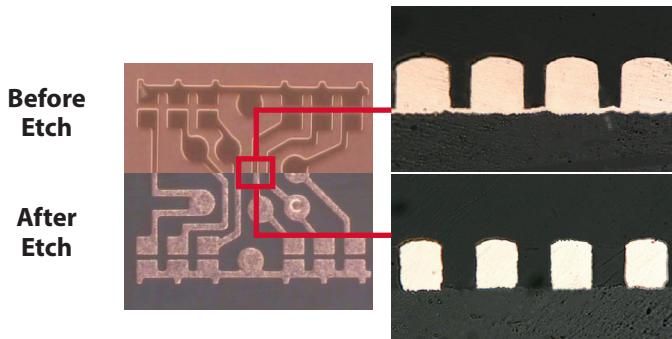
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Flash Etching Process Technology for Excellent Trace Geometry

The final etch step of additive build-up is arguably the most critical of the entire process. The level of performance of this key manufacturing step in the definition of traces can make or break a long, expensive layer build-up cycle. CircuEtch 300 is designed to provide a stable process that performs predictably and repeatably so that critical dimensions and material properties can be obtained from the line with a high degree of precision and quality.

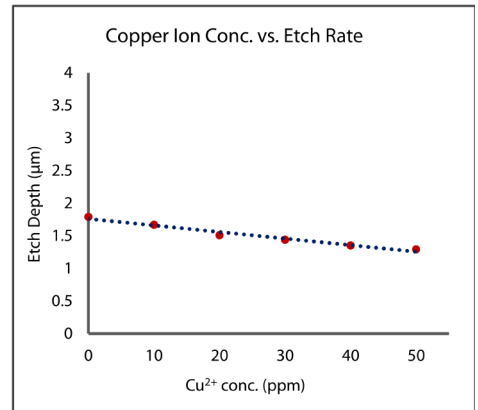
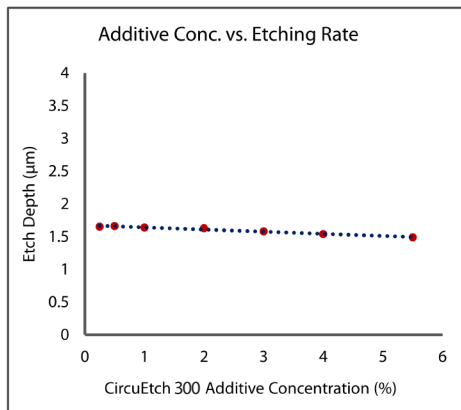
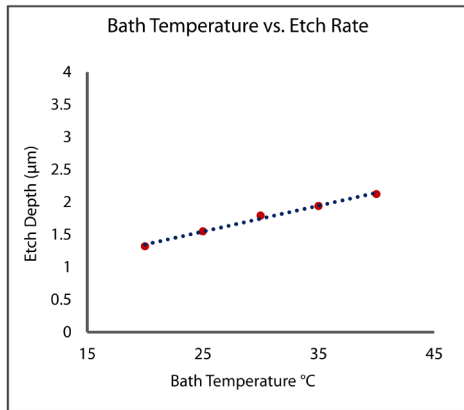
Excellent Trace Definition



Polishing Etch Reduces Roughness on Electroplated Copper

Etch Depth (μm)	Roughness Ra / Rz (μm)	SEM Image
1.60	0.32 / 2.64	
2.39	0.27 / 2.40	
3.54	0.27 / 2.35	

Stable, Predictable Etching. Versatile Capability



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