

Product Application

TechniEtch CN10 is a highly tunable, effective & selective Cu & Ni metal etchants for UBM, RDL and Cu pillar applications.

TechniEtch CN10 is an acidic based metal etchant, containing particular additives that greatly enhance stability, low bubbling generation, Ni/Cu selectivity and metal loading capability compared to conventional oxidative acidic based solutions.

Solution Main Features:

- Better process controllability/reliability.
 - Etch rate Tunable by H₂O₂ addition for Cu
 - Add H₂O₂ spikes of 2 to 15wt%
 - Without peroxide addition, only Ni is etched
 - Selectivity Cu/Ni up to 1/6
 - Better NiOx and Ni intermetallic removal
 - High etch rate at room temperature.
- High stability even in presence of metal contamination
 - Profile and process control enhanced with the CN10 formulation additives compared to standard peroxide-acid approach.

- Loading & bath life independent of the solution loading

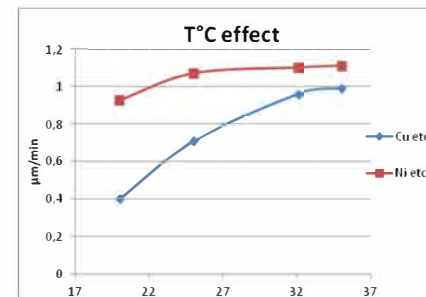
Material etch rate

Metal	static	Dynamic
Ni*	0.1-10**	>2
Cu*	0.02-10**	>0.05
Ti/TiN	<1	<1

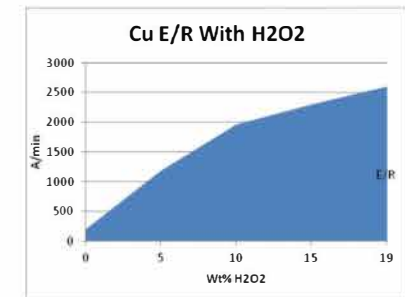
Etch rates in $\mu\text{m}/\text{min}$ @ 23°C

* metal etch rate is process dependent (static, spray, dynamic), stack materials and CuOx layer thickness dependent.

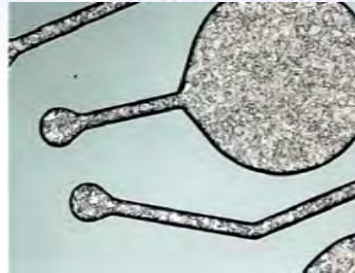
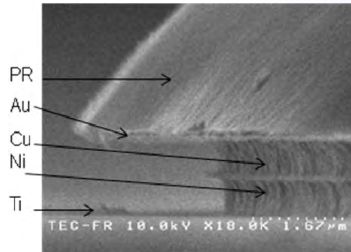
** Metal etch rate is tunable by addition of H₂O₂ at POU



Temperature effect



H2O2 effect



UBM (Au/Cu/Ni) and RDL (Cu seed/Cu) applications

Material compatibility

COMPATIBILITY TechniEtch CN10			
PVC	B	EPDM	A
Viton	A	PP	A
PVDF	A	PE	C
HDPE	B	Silicone	D
Teflon	A	NBR	B
PFA	A	Stainless steel 316i	B
PTFE	A	Kalrez	A

Temperature <30C

Ratings -- Chemical Effect : A = Excellent, B = Good/Minor Effect, slight corrosion or discoloration, C = Fair Softening, Moderate effect, continuous use loss of strength, continuous swelling may occur, D = Severe Effect, not recommended for ANY use

Physico-Chemical properties

- State: Liquid at room temperature.
- Color: colorless
- Density: 1,06.
- pH: 0.6 @ 25°C.
- Miscible with water in all proportions.
- Boiling point: >100°C.

Additional information

- For use in batch and spray tool platforms
- The metal etch rate is mass transfer dependent
 - Dynamic dispense leads to high etch rate and better uniformity
- Water rinse
- Shelf life of 12 months minimum.
- Available for POU or RTU version

Quality

Technic' solutions are formulated using most adopted purity and quality raw materials to ensure and respond to specific

customer's process specifications .e.g. metal level contamination, particle count, packaging...

The full manufacturing process is in accordance with the company quality policy.

Health, Safety and Environment

To obtain comprehensive information on the safe use and handling of the Technic's solutions, a material safety data sheet is available on request.

Technic's safety policy is to optimize and promote safer chemical to the industry in accordance to latest European regulation and Customer' chemical banned substance list.

Contact

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Product Application

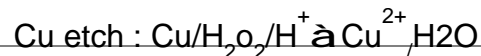
TechiEtch CN10 is an highly tunable, effective & selective metal etchants for UBM, RDL and Cu pillar applications.

TechniEtch CN10 is an acidic based metal etchant, containing particular additives that greatly enhance stability and metal loading capability compared to conventional oxidative acidic based solutions.

TechniEtch CN10 is designed to etch both Ni and Cu metal layers.

POU version

- Blend ingredients in a vessel equipped with agitation, blowhole
 - See material compatibility
 - For sampling (<1 gallon), ingredient can be mixed up within the bottles itself while following the mixing instructions hereafter.
 - All vessels, tubing, filters should be free of organic and metallic contaminations
- Recommended Mixing Temperature: 15-25°C
- without peroxide spike, only Ni metal is etched away
- The amount of peroxide to be added into the TechniEtch CN10 POU solution would depend of the Cu etch rate required.
- The Cu etch rate would mainly depend of the peroxide content fig 1, temperature agitation and the propriety of the Cu layer itself (see process information)
- The standard peroxide spike added to the TechniEtch CN10 is 5 to 15 Wt% of H2O2 (30%) and can be adjusted accordingly.



Process information

Etch rate key factors:

Equipment- immersion Vs batch
 Static Vs dynamic
 Temperature

All those process parameters and set up must be carefully monitored and controlled to get repeatable etch rate

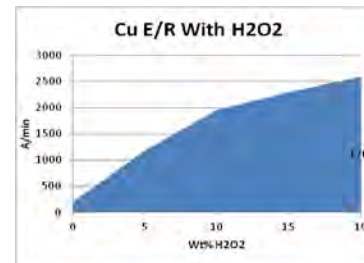


Fig1- Cu etch rate f(H2O2)

Metal	static	Dynamic
Ni*	0.1-10**	>2
Cu*	0.02-10**	>0.05
Ti/TiN	<1	<1

Fig 2- Etch rate @ 23C in mm/min
 Material and process dependent

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