

Low-profile ED Copper Foil

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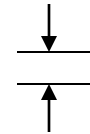
Low-profile ED Copper Foil

- **Statement**: Rolled Annealed copper yields results better passive intermodulation (IMD) properties than Electro Deposited copper foil
- Drawback of RA foil: More expensive than ED copper foil

Low-profile ED Copper Foil

R_z Value

Standard ED Foil



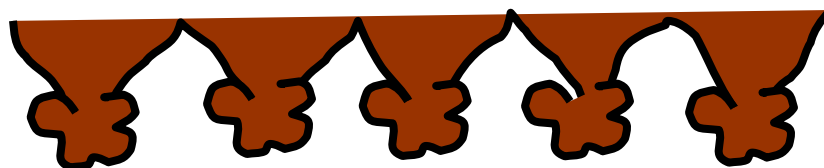
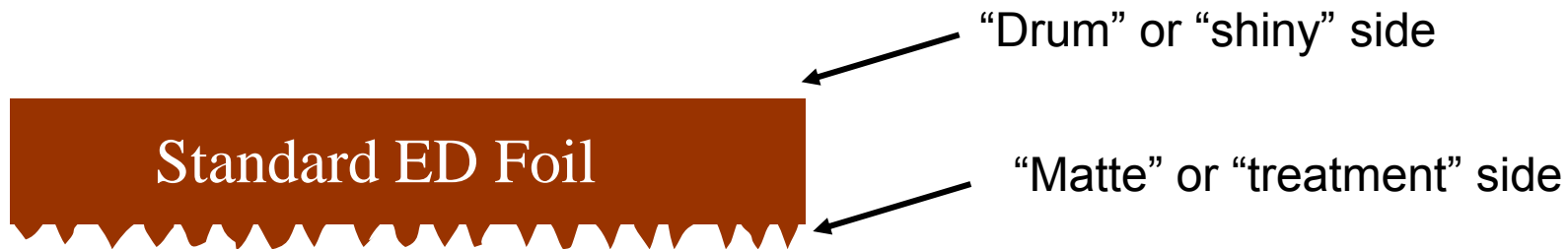
6 - 9 μ m

RA Foil



2 - 3 μ m

Low-profile ED Copper Foil



Additional plating process applied to “grow” microcrystalline copper structure to increase effective surface area.

Low-profile ED Copper Foil

ED Foils history:

- Treatment topography to provide good adhesion to epoxy resin
- Zinc applied to prevent copper migration

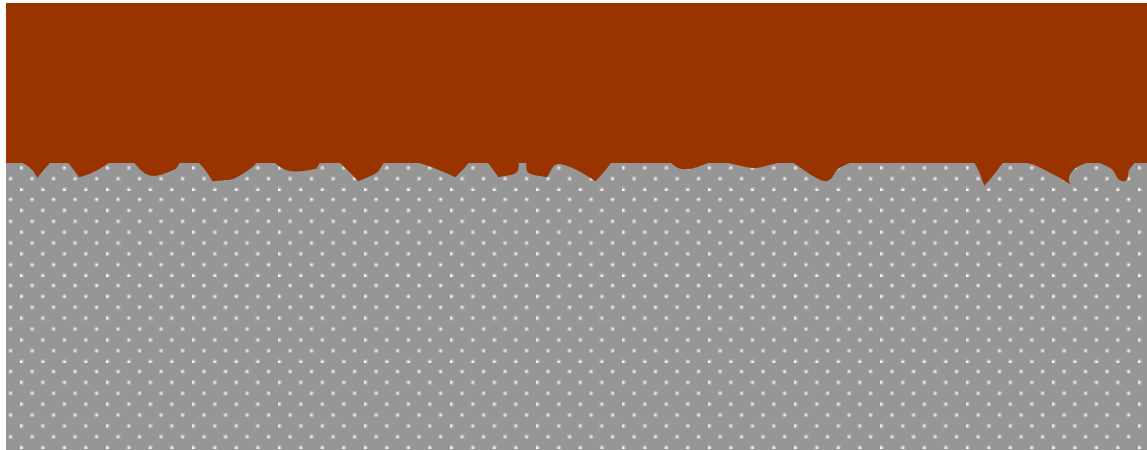
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Perceived drawbacks of “standard” ED Foils:

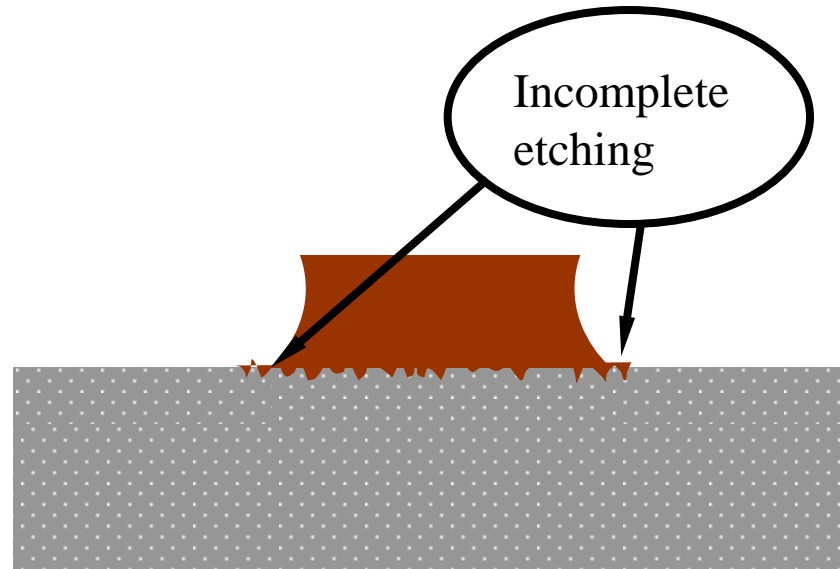
- Zinc has lower electrical conductivity
- Coupling effect of dissimilar metals (Cu/Zn)
- Opportunity for incomplete etching.....

Low-profile ED Copper Foil

Cross-section of laminate



Low-profile ED Copper Foil



- **Lower-profile copper increases opportunity for complete copper dendrite removal**
- **Etching process is isotropic**
- **“Cleaner/straighter” conductor side-walls**

Low-profile ED Copper Foil

Taconic approach:

Working with foil supplier to bring RA-type attributes at ED costs:

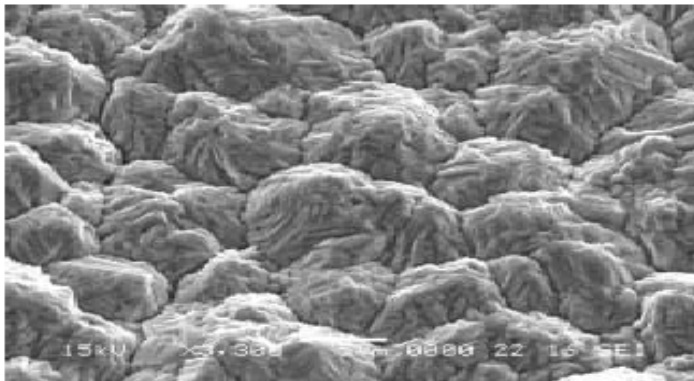
Zn-free CL1

R_z Value

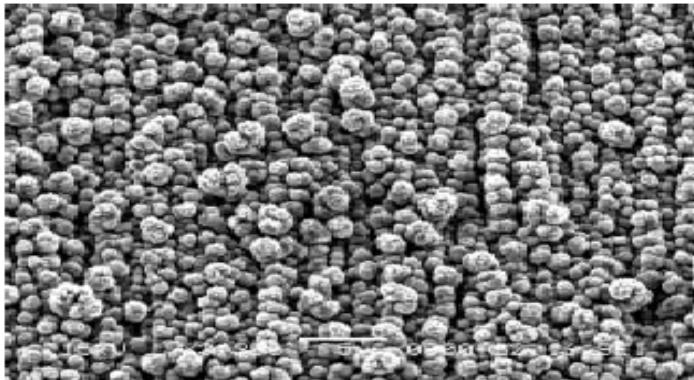
4 - 5µm

Low-profile ED Copper Foil

What is CL1 Copper?



Resist Side



Bonding Side

Low-profile ED Copper Foil

Reverse Treated Copper Foil (Etching Process Model)

