CIRRUS Dopant
Nano-composite Coatings

A drop-in additive to standard plating baths that produces nano-composite coatings without alteration to the existing plating process.

Enhanced Coatings
Developed at The University of Auckland, New Zealand, CIRRUS dopant creates low volumes of non-crystalline nano-particles (typically ranging in size from 5nm –12nm), directly in the plating bath.
These particles will not agglomerate or precipitate in the bath, but instead combine with ions to be taken up in the plated coating.
The new coating contains less than 1% by volume amorphous ~10nm particles, distributed evenly throughout the coating.
- Evenly distributed amorphous nano-particles prevent grain size growth, producing smaller grained, less porous coatings with a lower co-efficient of friction;
- Small, evenly distributed particles moderate the frequency and length of dislocations in the crystal structure, reducing vulnerabilities; and
- Highly distributed nano-composite element lends strength and durability to the metallic coating.
- Depending on the application, CIRRUS doped nano-composite coatings are 20% -50% harder, significantly more wear-resistant and scratch resistant, and have enhanced corrosion resistance.
- Proven effective with Au, Ag, ZnNi, Ni, NiP, NiB, NiCo, Cu (and more).

Performance
- Thinner coatings providing the same level of protection and corrosion defence.
- Additive, not alteration –no change to the plating process or bath.
- Titania, zirconia or aluminanano-composite as desired.
- Aqueous or organic formulations, easily stored and transported.
- Non-toxic -no solid particles or particulate emissions.

- Operates across a wide range of bath acidities and plated coatings.
- Works well with DC, pulse plated, and electroless plating systems.
- Hard Ni based coatings up to and above 1,000 Vickers.
- Compatible with pre / post plating treatments, and duplex coatings.
- Very low % volume of particles means negligible effect on electrical resistivity.

COMPETITIVE ADVANTAGE
- Supports electrolytic & electro-less baths.
- Maintains coating functionality.
- Adapts to a wide variety of coatings, substrates and finishes.

Contact
Stephen Flint
Commercialisation Manager
Technology Development
✆ +64 9 923 4989 or +64 21 240 3076
s.flint@auckland.ac.nz

Auckland UniServices Limited
Level 10, UniServices House 70 Symonds Street, Auckland
Private Bag 92019 AMC
Auckland 1142, New Zealand
✆ +64 9 373 7522
www.uniservices.co.nz