



uDiamond® NANODIAMOND PLATING ADDITIVE FOR ENHANCED ELECTROLESS NICKEL

Breakthrough in Wear Resistance

Introducing uDiamond® Plating Additive for Electroless Nickel – the first ever custom designed NanoDiamond dispersion for electroless plating.

uDiamond Enhancement

Carbodeon's uDiamond® plating additive addresses these needs:

- Wear Resistance: + 200%
- No reduction in corrosion performance
- Maintained or reduced friction
- Hardness: Small increase
- Direct addition to plating solution with no sonication required

How Does uDiamond® Enhancement Work?

The 4-6 nm NanoDiamond particles disperse throughout the plating electrolyte:

uDiamond® particles control the growth of the plating microstructure – reducing the grain size at nano scale, improving its strength and eliminating porosity.

uDiamond® particles reinforce the plated material by controlling dislocation movement under stress.

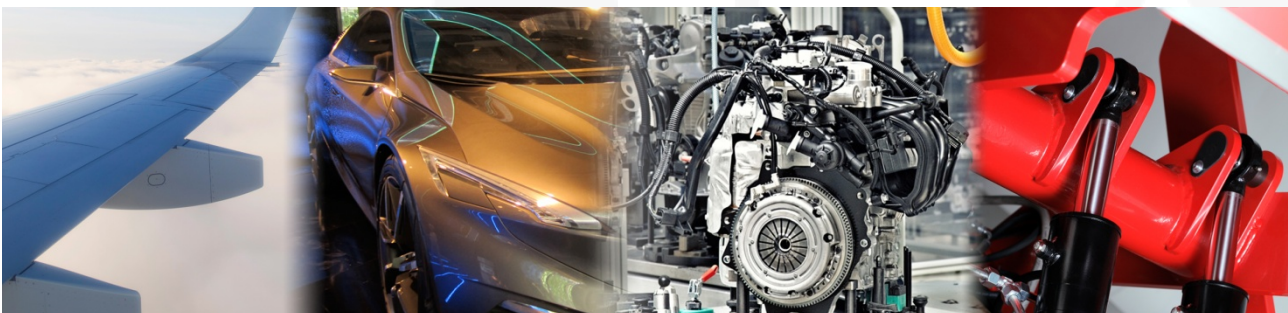


uDiamond® particles present hard wearing, low friction surfaces at the operating face.

uDiamond® has a long and successful history in Hard Chrome plating. It has now been proven in Electroless Nickel, thanks to a breakthrough in NanoDiamond dispersion technology that has enabled the bath concentration to be a small fraction of what has traditionally been used in diamond enhanced plating.

The material and process has been developed to enable durable and environmentally friendly products throughout industries including automotive, power generation, aerospace, industrial and marine.

uDiamond® deposition in the plated layer is <1wt.%, providing an economic means of performance enhancement.



Performance

The concentration of NanoDiamond in the plated layer can be adjusted to tailor the properties according to requirements. This is done by control of the concentration of dispersed NanoDiamond particles in the electrolyte as well as other plating parameters.

No increase in wear of the counterpart components.

High concentrations are to be used when absolute performance is required, whereas lower concentrations generate significant benefits with reduced costs.

Process

Use any standard Electroless Nickel process and chemistry, by applying Carbodeon uDiamond® material within the plating solution. We can support the determination of the correct concentrations and process control according to customer requirements and plating installation.

Low, medium and high phos supported.

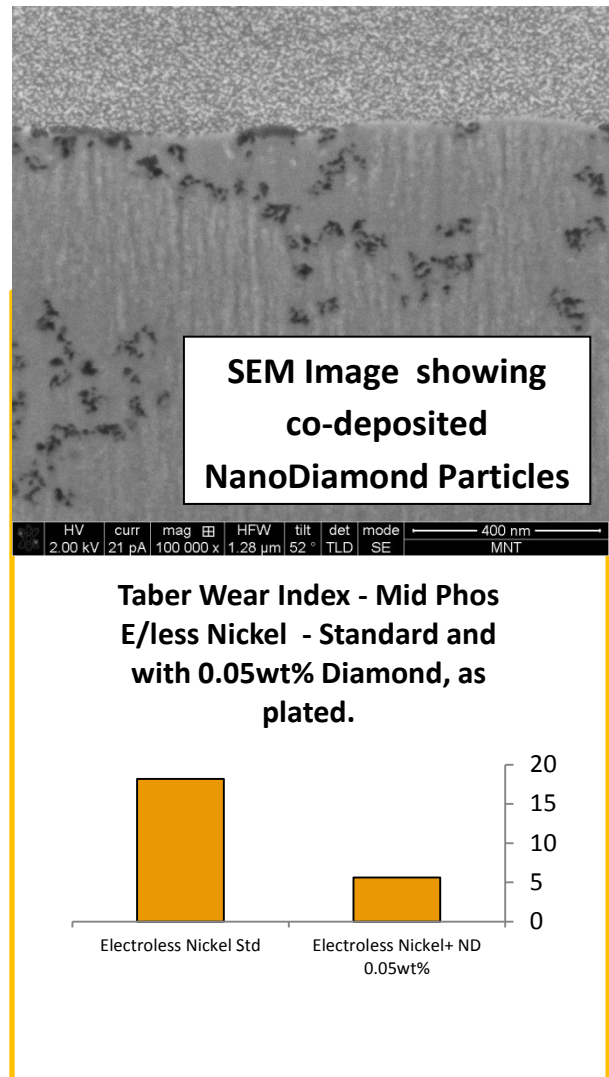
The Carbodeon Difference:

Carbodeon uses unique NanoDiamond processing technology to bring you the highest level of purity, particle size control and surface chemistry options on the market. These materials are served to you alongside expert knowledge in plating process and electrolyte preparation and multi sector industry experience.

How to Obtain uDiamond®

Available directly from Advanced Abrasives Corp, our North American distributor.

Subcontract plating is available through a worldwide network of subcontractors; contact us to find your nearest provider.



Advanced Abrasives
CORPORATION

7980 National Hwy, Pennsauken, NJ 08110

Tel: (856) 665-9300 Fax: (856) 488-1815

www.AdvancedAbrasives.com

