

ELECTROLESS NICKEL PLATING

Electroless Nickel Plating is the deposition of a nickel-phosphorous alloy onto a metal substrate without the use of an electrical current. The electroless nickel plating process utilizes an autocatalytic chemical reaction to deposit a reliable, repeatable coating of uniform thickness. This uniformity of deposit can, in some cases, eliminate the need for post-plate grinding. Electroless nickel demonstrates excellent corrosion protection, with similar lubricity properties to plated chromium. Electroless nickel effectively coats parts with sharp edges, deep recesses, seams, threads, and complex geometries. Chem Processing offers varying alloys of nickel and phosphorous, including:

High Phosphorus (10% to 13%): superior corrosion protection; most resistant to acidic environments; greater than 65 Rc hardness with post-plate thermal treatment; amorphous structure

Medium Phosphorus (5% to 9%): best appearance; mixed amorphous/crystalline structure

Low Phosphorus (<5%): highest as-plated surface hardness (up to 60 Rc); most resistant to alkaline environments; best solderability; lowest electrical resistance

Nickel-Teflon®: increased lubricity; low reflectivity; can reduce or eliminate the need for liquid lubricants in some applications (see nickel-Teflon page for more information)

Electroless nickel can also be rendered non-magnetic, making it the optimal choice for electromagnetic shielding. Electroless nickel can be applied over a variety of substrates including stainless steel, aluminum, copper, brass and many proprietary alloys.

Chem Processing Inc. Electroless Nickel Plating Capabilities:

- AS 9100 certified and Nadcap accredited
- Boeing, GE Aviation, Honeywell, Eaton and Rockwell approved
- Plating thicknesses from 0.0001 to 0.0050 inches
- Precision masking for selective plating
- Salt spray corrosion testing per ASTM B117
- Post-plate hydrogen embrittlement relief
- Hardnesses up to 70Rc (high phosphorous with post-plate bake)
- XRF thickness analysis

Applicable Specifications:

- MIL-C-26074
- MIL-F-14072 (M265)
- SAE AMS 2404 & 2405
- MIL-STD-171 (1.4.3)
- ASTM B733

All processes comply with industry specifications including ASTM, SAE, MIL, etc., as applicable for the particular process involved and are performed under ISO 9001/AS9100 standards.

