P.O.Box 157,
3315 Connelly Road
Emigsville,PA 17318

SPC
PLATE WHILE YOU WAIT.

P:717-767-6702
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PALLADIUM / PD-NI PLATING

SCOPE: Palladium and Palladium-Nickel plating are known replacement options for hard gold plating. These coatings may either be almost pure palladium or palladium alloyed with nickel up to 20% or more nickel.

BEST IN PRACTICE PROCESS ADVICE

Underplate

- Nickel (50µ" Min)

Strike

- Palladium or gold

Palladium and PD-NI Plating Deposits

- Mechanical & Electrical Erosion – 100-200µ" (2.5-5.0µm)
- Electrical Contacts – 30-60µ" (0.75-1.5µm)
- Catalysts – 10-20µ" – (0.3-0.5µm)

Post Stress Relief

- Up to End User for duration and temperature

Mostly this application is used for relay contacts, electrical connectors and lesser known by the electronic connector industry but more consumed by the automotive exhaust component i.e. catalytic converter for car mufflers. The use of the palladium in catalytic converters is a key fundamental in converting carbon monoxide into carbon dioxide since palladium can absorb thousands more times the amount of hydrogen than that of gold. Pure or alloyed palladium can reduce precious metal consumption upwards of 50% or more when being employed with a final gold layer.

PALLADIUM / PD-NI PLATING APPLICATIONS

Mechanical & Electrical Erosion

- Relay Contacts
- Electrical connector contacts

Solder

- Catalysts
- Ceramic Catalytic Converters
- Spark Plugs

Jewelry

- Replacement for platinum white gold alloys

Dentistry

- Caps & Crowns

Surgical Instruments

- Scalpels

Aerospace

- Turbine blades

Musical Instruments

- Transverse Flute

Solder

- Integrated Circuits (IC's) - better wetting, and holds up to achieve superior pull test and thermal test results than Tin-Lead (SnPb) Alloys.

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PALLADIUM / PD-NI PLATING (CONT.)

SPECIAL REQUIREMENTS

Quality systems

- Sampling plan
- Thickness Testing / Cross Sectional Analysis (done at independent lab)
- Thermal Cycling (Heat Testing) (done at independent lab)

Packaging and handling

SPC TEST METHODS

Deposit Purity by: Atomic Absorption Spectrophotometry

Appearance: Use of 10X Magnification Thickness: Seico 9000 X-Ray Fluorescence Spectrometry

Adhesion: Bend Test, Heat Test, Cutting Test Plating Integrity: Porosity, Micro-cracks Ductility