**GOLD PLATING**

**SCOPE:** Sharretts Plating Co., Inc. (SPC) provides gold plating to the electronics industry for its reliability to help prevent: corrosion and tarnish resistance; also to an extent fretting corrosion and polymerization resistance; bondability and solderability, low stable contact resistance and finally infrared reflectivity.

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**BEST IN PRACTICE PROCESS ADVICE**

**Underplates**

**NICKEL** – preferred 50-100μ” (1.2-2.5μm) is adequate for high anti-diffusion/migration of copper and zinc from copper alloys to the surface. Also helps produce a better surface by mitigating porosity of the gold layer through leveling surface roughness. Nickel has one more quality function that can act as a foundation for heavy load bearing that prevents the cracking of hard gold deposits during sliding of contact surfaces.

**COPPER** – used mostly for base material leveling and conductivity, but sometimes as a diffusion boundary layer. Silver – poor choice due to migration properties and poor corrosion and tensile stress of deposit (too hard).

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**GOLD PLATING APPLICATIONS**

- Semiconductor components
- Electronic Connectors
- Nuclear Engineering
- Bonding (Thermocompression, thermosonic, ultrasonic)
- Solderability
- Extreme high temperature conditions
- General Commercial Use
- High Reliability
- Electrical Appliances
- Wiring Connections
- Good wear resistance

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**SPC TEST METHODS**

**Deposit Purity by:** Atomic absorption spectrophotometry

**Appearance:** Use of 10X magnification

**Thickness:** Seico 9000 X-Ray Fluorescence Spectrometry

**Adhesion:** Bend Test, Cutting Test

**Mass Per Unit Area:** Back Strip & Weigh Method

**Hardness:** (done at independent laboratories)

**Porosity:** Steam Age Test

**Ductility**

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**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