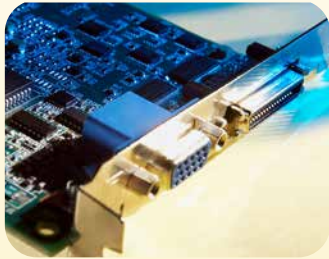




**UYEMURA
USA**



Miralloy, Palluna and Antitarnish 616 PLUS are registered trademarks of Umicore Galvanotechnik; products are available in North America exclusively from Uyemura.

Line Card: Connectors and Sensors

Miralloy is a cost-effective alternative to silver, palladium and nickel for many connector and sensor applications. The newest Miralloy product, 2851, operates at 10 ASF, which is 25-43% faster than competitive products, providing substantial advantages in cycle time and cost.

Miralloy is an advanced alloy that deposits up to 15 μm with exceptional uniformity. Its average composition is 51% copper, 33% tin and 17% zinc. Deposits resist abrasion and corrosion, and are non-magnetic, so they're well suited to high frequency applications. It has excellent solderability, high hardness value, and good contact resistance values in sulphur-containing atmospheres. This versatile, lead-free finish is also tarnish-free, RoHS compliant, and RF-friendly. Slightly leveling deposits can be achieved at all current densities.

Miralloy has earned widespread acceptance for use on HF connectors, contact elements and solder pins. It is plated using standard rack equipment.

Palluna 468 is a high-performing electrolyte for the high-speed deposition of palladium-nickel. Its stable bath is less aggressive than competitive products, with less ammonia odor, and a wide current density range of up to 60 A/dm².

Palluna 468 produces ductile, wear resistant coatings with low hydrogen content. Wear and corrosion resistance, solderability and bondability are excellent. Contact resistance is approximately 1 mOhm; hardness is 580 -620 HV 0.025.

Palluna 468 produces a bright finish and a maximum thickness of 10 μm .

NEW Palluna ACF-100 is the newest development in high-speed electrolytes. Ammonia and chloride-free, it deposits a bright palladium-nickel-alloy in reel-to-reel lines (selective dipping, jet plating, brush plating) and in tab platers. Anode service life is exceptionally long.

Palluna ACF-100 layers are ductile, crack-free and abrasion resistant. Contact properties are comparable to hard gold. ACF-100 is ideally suited for electrical contacts.



Antitarnish 616 PLUS is an organic antitarnish process based on nanotechnology: special nanopolymers absorb on the metal surface and crosslink to form a protective layer a few nanometers thick. Antitarnish 616 PLUS provides invisible protection from tarnish and wear, while permanently preserving precious metal brightness. It also seals thin gold's inherent porosity more effectively than alternatives.

616's aqueous formula is chrome-free and RoHS compliant. It will not compromise solder-

ability or bonding capacity, has low contact resistance, and preserves metal's inherent lubricity, making it suitable for plug connectors and other electronic applications. It can be used in rack, barrel, or reel-to-reel equipment.

Niphos 966 electrolytic nickel process has a phosphorus content of more than 11%. PH stable, chloride-free bath produces nickel-phosphorus layers that are amorphous, diamagnetic and abrasion and corrosion resistant.

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Nickel-phosphorous electrolytes can be operated with soluble or insoluble anodes, or a combination. 966 can be applied as an intermediate layer prior to tin, chromium or gold, or as a final layer. It is compatible with both barrel and rack operation.

Niphos 967 electrolytic nickel accommodates up to 13% phosphorus. It was engineered specifically for connectors, and is used with a thin gold overcoat. Used in combination with hard gold, Niphos 967 allows significant reductions in gold thickness, while providing substantial advantages over EN in by-product generation, waste treatment and bath life cycle cost.

967 offers better wear properties than traditional electrolytic nickel processes, and better plated thickness distribution than pure nickel deposits. Current densities of up to 300 ASF are achievable.

Niphos deposits provide excellent corrosion resistance and meet Bellcore GR-1217-CORE requirements.

GRX-70 high-speed electrolytic plating process prevents whiskers in electroplated tin for 22,000+ hours. Proprietary Uyemura technology dissipates compressive stress, preventing whisker formation.

GRX-70 offers high deposition speeds for rackless and reel-to-reel processing; high deposition efficiency over a wide current density. Ideally suited for connectors and semiconductor lead frames.

Soft Gold Electrolytes for Rack and Barrel Plating

Auruna 550 neutral electrolyte deposits pure gold coatings with a matte yellow appearance. It was engineered for use where lifting of fully aqueous resists is an issue and where excellent bondability and solderability are required.

Deposits exhibit excellent ductility, hardness below 90 HK25, low contact resistance, and 99.9% purity. Auruna 550 deposits meet ASTM B488 Type III, Code A.

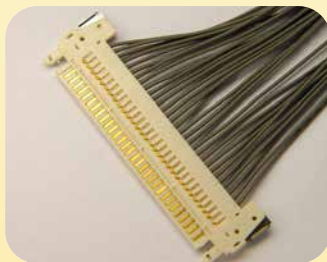
Auruna 551 mildly acidic electrolyte deposits thin, pure gold (0.05-0.1 μm) as gold strike layers for neutral or alkaline gold plating baths. It also provides adhesive activation of the basic material and protection of the main gold bath from contamination.

Auruna 553 neutral fine gold electrolyte produces silk-matte coatings of exceptional ductility. Deposits are up to 200 μm ; hardness is approximately 90 HV 0.01. Auruna 553 has excellent soldering and bonding properties and meets ASTM B488-01, Type III, Code B.

Auruna 556 neutral electrolyte deposits hard and bright pure gold with a high current efficiency of 90%. 556 is well suited for use with PCBs where lifting of the resist by hydrogen should be avoided.

Auruna 5000 neutral electrolyte deposits a fine gold matte yellow microcrystalline coating. It was developed for use on flexible PCBs and rigid substrates.

PCBs are plated in matte nickel, strike gold plated, then coated in Auruna 5000. Gold layers exhibit excellent bondability and solderability, high ductility and low electrical resistance. Auruna 5000 layers are 99.95% pure gold, with as-plated hardness of 70-85 HV 0.025. Coating meets the requirements of ASTM B-488-01, Type III, Code A/B.



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Hard Gold Electrolytes for Rack and Barrel Plating

Auruna® 527 hard gold-nickel electrolyte minimizes gold consumption, delivers excellent throwing power in barrel plating operations.

Long-life, room temperature bath is mildly acidic, highly stable and impurities-tolerant; low deposition speed facilitates good thickness distribution, particularly for hollow parts.

Coatings exhibit excellent abrasion resistance and low contact resistance. Low gold content can be reduced from 4 g/l to 2 g/l, to further reduce drag-out. Ideal for connector applications where masking is impractical.

Auruna 528 hard gold-nickel electrolyte provides high current efficiency, hardness of 150 HV 0.025. Solution can be run with high current density or reduced gold content; maximum coating thickness is 10 µm. Ideal for connectors, PCB with sensitive resists, and decorative applications.

Auruna 529 hard gold-cobalt electrolyte provides high current efficiency, hardness of 180 HV 0.025. The process has a high efficiency (65%) and a mildly acidic pH. Coating offers excellent abrasion resistance, with a maximum thickness of 10 µm.

Auruna 530 hard gold-cobalt electrolyte was developed for electrical contacts. Process provides high current efficiency, hardness of 170 HV 0.01. Bath is mildly acidic. Coating offers excellent abrasion resistance, with a maximum thickness of 5 µm.

Auruna 539 hard gold-cobalt electrolyte produces gold alloy deposits of 99.7% gold, alloyed with cobalt. Baths have excellent throwing power. Ultra-bright deposits have excellent corrosion and abrasion resistance, and a hardness of 200 HV.

Auruna 539 was developed for technical and decorative applications with low coating thickness requirements. It is well suited for pregilding and barrel gold plating.

Process provides excellent deposit uniformity and a maximum thickness of 2 µm.

Reel to Reel and High Speed Plating

Auruna 580 is a mildly acidic, impurity-tolerant pregilding bath used with Auruna 558 (for rack and barrel operation) or Auruna 559 (for high speed, flow and spray cells.) It has low gold content, and produces bright fine gold coatings up to 0.3 µm.

Deposited coating is 99.9% gold and bright up to 0.3 µm. For optimum adhesion, layer thickness is 0.1 µm or greater.

Auruna 7100 is a high-speed mildly acidic electrolyte for depositing cobalt-hardened gold coatings at high current densities, under high loads. Auruna 7100 is ideally suited to high speed lines, such as those used for PCBs, selective gold plating and continuous reel-to-reel systems.

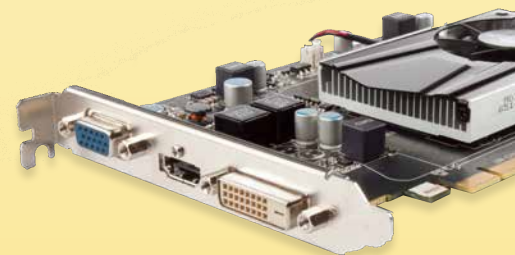
Gold coatings are 99.7% gold, and exceptionally brilliant; deposits are abrasion resistant and solderable, with low contact resistance. 7100 has a hardness of 180-200 HV and is ideal for electronic components such as contacts, connectors, and PCB edge connectors.

Auruna 8400 is a mildly acidic gold-nickel electrolyte with a low gold content (1 g/l) and a deposition speed of 1 µm within approximately 8 minutes. The 8400 bath is ideally suited to technical applications requiring a coating thickness up to 2 µm.

The bath has good throwing power and is well suited for pregilding and barrel gold plating. Deposits exhibit high hardness (130-190 HV) and abrasion properties.



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