



Technical Data Sheet

24K Bright Gold Plating Solution

Gold Plating Services' *24K Bright Gold Plating Solution* is a cobalt-hardened, acid gold, electroplating solution that will yield a relatively low stress, fine-grained deposit with a hardness range of 130-200 Knoop. This solution is ideally suited for printed circuit boards, contacts, reflectors, as well as heavy decorative deposits.

This solution is fabricated with a purity and hardness of electrodeposited gold that meets Type I and 2, Grade C specifications, as indicated in MIL-G-45204C as follows:

Fine gold content -	Varies, based on product size and type; Recommend maintaining 2g/liter
Purity -	99.7 percent gold minimum (24 karat)
Hardness -	Knoop hardness 130-200
Density of Plate -	12.45 mg/in ² /μm (thickness)
Theoretical Coverage - *	1 gram of fine gold has a coverage of about 320 in ² with the gold plated to an average decorative thickness. (A gold plating thickness of 8 - 10 micro-inches is a common thickness for decorative gold plating and exceeds the US Federal Trade Commission standards for non-jewelry gold plated items to be marketed as "gold plated.")

*This coverage is based on the assumption that all gold in the solution will be deposited. In actual practice this is not likely since the cathode efficiency diminishes with metallic content depletion, making the solution unusable at extremely low metallic content. As the solution is depleted, the cathode efficiency will diminish as shown on the Bright Gold Depletion Table found at www.GoldPlating.com.

Operating Conditions

Operating Temperature -	90 - 105°F - optimum 100°F
Anode to Cathode Ratio -	2:1 or Higher
pH (electrometric)	4.2 - 4.5 - optimum 4.2

Time to deposit 0.000010"
(about .25 micron) -

Voltage driven: 2-3 min @ 2.8V
Current driven: 2-3 min @ 6 Amperes/ft² (ASF)

Current Density (cathode) -

5 - 15 Amperes/ft², (35 - 105 ma/in²)

Replenishment -

Add Gold Replenisher as required to maintain metallic content at desired levels. Gold content will affect deposit rate. For more information, see Bright Gold Depletion Table on website.

Filtration -

Continuous (for large scale)

Efficiency at normal operation -

Base Solution - no gold content
Economy Solution - starts at 14% efficiency
Deluxe Solution - starts at 30% efficiency
Professional Solution - starts at 36% efficiency
With increased metallic content, efficiency can reach 38%.
Efficiency will reduce with use unless more gold content is added.
See Bright Gold Depletion Table on website and Gold Replenisher product page.

Anode material -

Graphite, Platinized Titanium, Stainless Steel (Caution: Stainless steel anodes will release iron with long-term use, which can affect the purity of the deposit.)

Agitation -

Cathode movement or solution pumping

Tank, pump, and tubing material -

Glass, polyethylene, polypropylene, or other material inert to solution.

Shelf Life -

If stored at room temperature, properly sealed solution has a shelf life of about 2 years.

Note: pH will slowly rise during operation and should be checked every 100-ampere minute with a glass electrode pH meter. To lower the pH, use Gold Plating Service's pH Lowering Salt for Bright Gold Solutions. If the pH has dropped below 4, contact us directly as this can affect your plating results.

Read and understand SDS sheets before using. For professional use by trained technicians only.

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