



Technical Data Sheet

24K Pure Gold Solution

Gold Plating Services' *24K Pure Gold Solution* is an extremely efficient (cathode efficiency 98%+), neutral pH, water-clear gold plating solution designed to produce a gold electro-deposit of 99.9+% purity to virtually any desired thickness. It is primarily used for surfaces in the medical, semiconductor, electronic, and PWB industries where soft, high purity gold is required. Note: Due to the grain structure of this type of gold deposit, the reflective qualities of the surface will become noticeably matte with increased thickness.

This solution is fabricated with a purity and hardness of electrodeposited gold that meets Type III, Grade A specifications, as indicated in **MIL-DTL-45204D** as follows:

Purity - 99.9+ percent gold minimum (24 karat)

Hardness - Knoop hardness < 90 (typically 55-60)

Operating Conditions

Temperature -	120° - 150°F, 48° - 65°C (optimum 150°F/65°C)
Anode to Cathode Ratio -	2:1
Suggested Voltage -	1.5 V (Voltage may vary if current driven)
Current Density -	3 amperes per square foot, (20 ma/in ²) 5.8 -
pH (electrometric) -	6.4 (optimum 6)
Time to deposit 1 micron on 1in² -	5.5 minutes at 3 ASF
Solution gold content -	Recommend maintaining 2g/liter
Replenishment -	Add Gold Replenisher Solution as needed
Efficiency (Deposit Rate, Weight) -	115-mg/ampere minute
Filtration -	Continuous, for large scale plating
Hardness -	60 - 80 Knoop
Anode -	Platinized Titanium or Bagged Graphite
Agitation -	Moderate relative cathode to solution movement

If plating according to the above parameters, the following amount of gold is required to plate 1 in² to the specified thickness (not including rack surface area):

0.2 micron (decorative plate) - ~0.0025 g
0.5 micron (jewelry grade plate) - ~0.0062 g
1 micron - ~0.0125 g

Gold Plating Services

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NOTES:

To ensure consistency of deposit, the following operating conditions should be controlled.

METAL CONTENT - maintain within 20% of specified operating conditions.

TEMPERATURE - maintain within 5% of specified operating conditions.

pH - maintain within 5% of specified operating conditions. pH will slowly rise during operation. To lower the pH, use Pure Gold pH Control. Add slowly, as there is often a delayed reaction.

CURRENT DENSITY - maintain within 5% of specified operating conditions.

Contact us for more details on how to calculate deposit thickness.