



## 19CH101 – ENGINEERING CHEMISTRY

### Unit-2 CORROSION AND ITS CONTRAOL

#### ELECTROPLATING (OR) ELECTRO – DEPOSITION

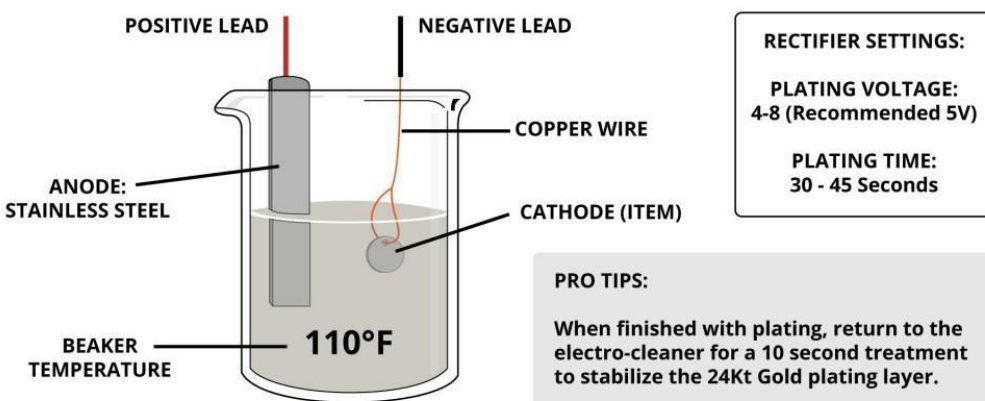
Electroplating is the process in which the coating a metal such as Nickel or Copper or Gold is deposited on the base metal such as iron or steel by passing a direct current through an electrolytic solution such as corresponding soluble salt of the coating metal. Electroplating is used to change the properties like abrasion, wear resistance, corrosion protection, lubricating power and aesthetic qualities of a metal.

24Kt gold plating will deposit the highest pure gold content you can find. Plating something with 100% gold is obviously going to be a bit more expensive than plating with a mixture of gold and other alloys, but it will also be much more durable (and *extravagant*, of course).

#### Bath for Plating

Pour 1 liter of TWL 24Kt gold plating solution into a 1 liter glass beaker and drop the magnetic pellet for stirring inside. Put the beaker on the magnetic mixer hotplate and heat to 100°F, letting it mix on a medium-slow setting for 15 mins. Install a stainless steel bent anode so that the long end is in the beaker. Connect the positive lead of the rectifier to the anode and set the rectifier voltage to 4-8 (recommended 5 volts) and the plating time to 30-45 seconds. Now you're ready to plate!

#### BATH PLATING SETTINGS FOR 24Kt GOLD





## STEPS INVOLVED

Now, if you're plating a brand new item you can skip to step 5, but if you're plating an older piece or performing a repair you should complete all 13 steps. Note: when we say to use distilled water it is because distilled water is contamination free and will ensure spot free drying. Replace distilled water rinses daily and electro-cleaner and acid activator salt weekly.

1. Polish the item. Be sure to remove the polish from the item as soon as possible after application. If you have an [ultrasonic cleaner](#) we recommend using it with a jewelry solution to make sure the polish does not harden on the ring. This will help the plating solution stick stronger for it eliminates all contaminants.
2. Cut a 4" piece of copper wire. Make a loop to hold the item and connect it to the negative wire lead from the rectifier.
3. Rinse in distilled water.
4. [Electro-clean](#) for 1 minute at 125°F, 5 volts.
5. Rinse in distilled water. Visually inspect for polish oil. Electro-clean again if necessary.
6. Place in [acid activation](#) beaker for 10 seconds.
7. Rinse in distilled water.
8. Electroplate in 24Kt Gold for 40 seconds at 110°, 5 volts.
9. Rinse in distilled water.
10. Return to electro-cleaner for 10 second treatment to stabilize the 24Kt gold plating layer.
11. Rinse in distilled water. Pro tip: hot distilled water dries faster.
12. Dry item with a small hair dryer or soft tissue without lotion.
13. Dispose of all chemicals properly! Check your local laws and regulations.