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ELECTROPLATING:

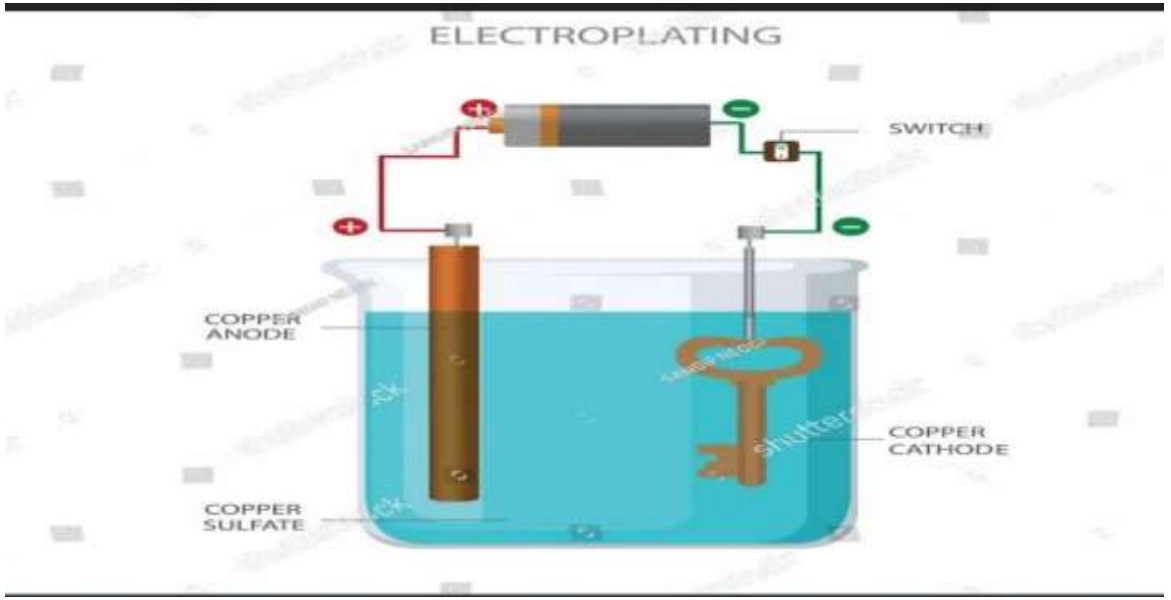
- Electroplating is the process in which the coating metal is deposited on the base metal by passing a direct current through an electrolytic solution contain in the soluble salt of a coating metal. In the electrolytic cell, the base metal to be placed acts as cathode where as the coating metal or good electrical conducting inert material acts as an anode.

OBJECTIVES OF ELECTROPLATING

- ✓ To increase the resistance to corrosion of the base metal.
- ✓To increase the decorative and commercial values of the articles.
- ✓To improve the hardness and physical appearance of the articles.
- ✓To obtain a polished surface.

PRINCIPLE:

- If the anode is made of coating metal itself in the electrolytic cell, during electrolysis, the concentration of electrolytic both remains unaltered, since the metal ions deposited form the bath on cathode are repolished continuously by the reaction of free anions with the anode.



PROCESS:

- The copper objects to be placed is first treated with dil. HCl or dil.H2SO4. The cleaned object is then made cathode of an electrolytic cell and gold foil as an anode. AuCl3 solution is taken as the electrolyte. When the current is passed from the battery through the solution, gold dissolves in the electrolyte and deposits uniformly on the copper object. Thus an thin layer of gold is obtained on the article (at cathode). Sodium thiosulphate or Gelatin is used as additives.

REACTIONS:

AuCl3 ionizes as

$$AuCl_3 \rightarrow Au^{3+} + 3Cl^-$$

AT CATHODE: on passing current ,Au^{3+} ions more towards the cathode and get deposited on the Au object.

$$Au^{3+} + 3e^- \rightarrow Au$$

AT ANODE: The few Cl^- ions more towards the gold anode and dissolve an equivalent amount of Au to form AuCl3.

$$Au + 3Cl^- \rightarrow AuCl_3$$

CHARACTERISTICS OF GOLD PLATING:

- For jewelry very thin coating is given (0.05 – 1.0 microns)
- It gives high quality decorations and high oxidation resistance coating.

APPLICATIONS:

- Gold plating is used in modern semi conductor technology
- It provides corrosion protection and decoration finishes.

THANK YOU