



STEPPING STONE
SCHOOL (HIGH)

CLASS: X

Subject: CHEMISTRY

Date: 03/06/2020

Topic: ELECTROLYSIS

Time: 60 MINS

Worksheet No. : 8

Good day Children,

Last class we have studied various examples of **Electrolysis**, today we are going to learn the last topic **Applications of Electrolysis**.

APPLICATIONS OF ELECTROLYSIS

1. ELECTROPLATING WITH METALS.
2. ELECTROREFINING OF METALS.
3. ELECTROMETALLURGY.

Electroplating with metals:-

ELECTROPLATING:- A process in which a thin film of metal like Gold, Silver, Nickel etc. gets deposited on another metal article with the help of electricity.

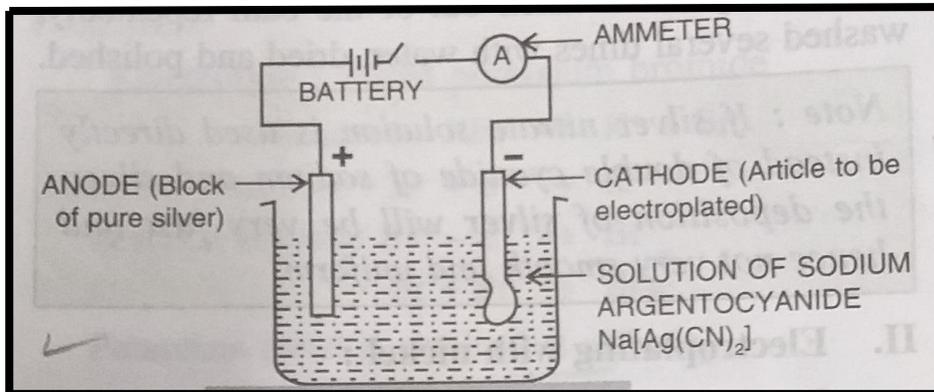
Reasons for electroplating: - i) Decoration purpose, ii) To protect from rusting.

Conditions for electroplating:-

- The article to be electroplated is always placed at cathode.
- The metal to be plated on the article is always the anode.
- The electrolyte must contain ions of the metal which is to be plated on the article.
- A low current for longer time should be used.
- A D.C. preferred over A.C. Current.

Examples of electroplating:

1. Electroplating an article with silver.



ELECTROLYTE:- Sodium argentocyanide, $\text{Na}[\text{Ag}(\text{CN})_2]$
Potassium argentocyanide, $\text{K}[\text{Ag}(\text{CN})_2]$

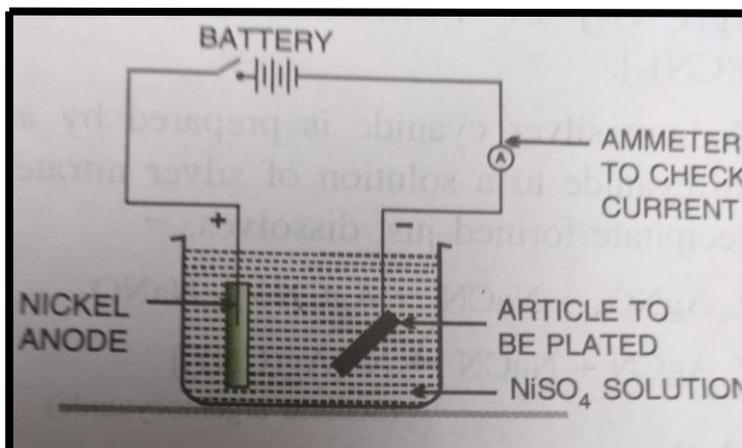
DISSOCIATION:- $\text{Na}[\text{Ag}(\text{CN})_2] \rightleftharpoons \text{Na}^+ + \text{Ag}^+ + 2\text{CN}^-$
 $\text{H}_2\text{O} \rightleftharpoons \text{H}^+ + \text{OH}^-$

CATHODE:- $\text{Ag}^+ + \text{e}^- \rightarrow \text{Ag}$

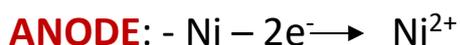
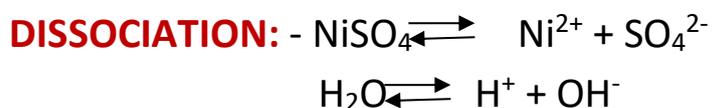
ANODE:- $\text{Ag} - \text{e}^- \rightarrow \text{Ag}^+$

NOTE:[Silver nitrate solution is not preferred because the deposition of silver is very fast and not very smooth and uniform.]

2. Electroplating an article with nickel.



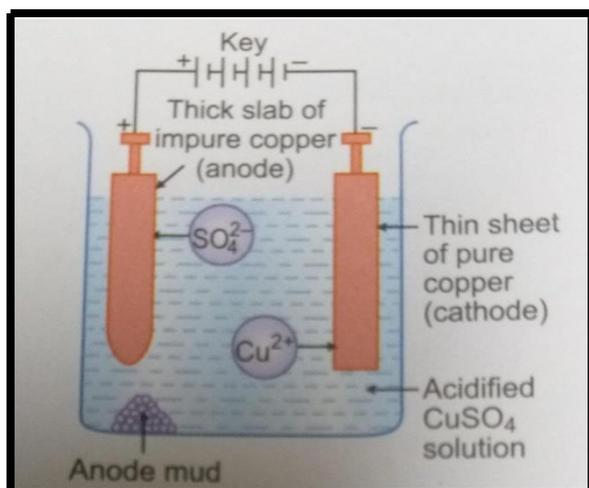
ELECTROLYTE: - Aqueous solution of nickel sulphate.



Electrolytic refining of metals

ELECTROLYTIC REFINING:- It is a process by which metals containing impurities are purified electrolytically to give a pure metal.

Example: Refining of copper.



ELECTROLYTE: - A solution of copper sulphate and dilute sulphuric acid.

CATHODE: - Thin strip of pure copper.

ANODE: - Impure copper.

Reaction:



NOTE: [Copper ions from the solution get deposited at cathode as pure copper metal and copper metal from anode get oxidised to copper ion and goes into solution. The impurities in the impure copper settle down as anode mud.]

3. Electrometallurgy

It is a process of extraction of metals by electrolysis.

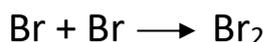
Example: Potassium.

ELECTROLYTE:- Fused potassium bromide.



REACTION AT CATHODE: - $\text{K}^+ + \text{e}^- \rightarrow \text{K}$

REACTION AT ANODE: - $\text{Br}^- - \text{e}^- \rightarrow \text{Br}$



NOTE:

Children you are going to copy this complete worksheet in your class work copy along with the diagrams which is to be done with pencil.

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PLEASE GO THROUGH THE ABOVE LINK AND FOLLOW THE NOTES
