## What is electrolysis?

Electrolysis can be defined as the **decomposition** of compounds which happens when **direct current** passes through a solution or molten compound.

## Terms used in electrolysis

### Electrolyte

This can be defined as a **liquid** which conduct elections.

Types of electrolyte

*Strong Electrolyte*: These are strong acids and strong bases/alkali's.

*Weak Electrolyte*: These are weak acids and weak bases/alkali's.

### Electrode

This is a metal rod, plate or wire, which conducts electricity in an electrolytic cell.

*Anode*: This is the positive electrode through which conventional current enters and electrons leave.

*Cathode*: This is the negative electrode through wich conventional current leaves and electrons enter.

### Electrolytic Cell

This is the setup of two electrodes, placed in an electrolyte, used in the electrolysis of substances.

## Fradays 1st law of electrolysis

Faraday's first law of electrolysis states that the amount of reaction that occurs at any electrode during electrolysis by a current is **directly proportional** to the quantity of electric current passed through the electrolyte

***Mathematically***

$M \propto Q$

$M=zQ$

But, $Q=IT$

So, $M=ZIT$

Where:
z = electrochemical equivalent {96500}

## Product Formation

This involves the reaction which takes place between the anode and cathode.

$M=ZIT$ -- (i)

$M=RAM \times IT/f$ --(ii)

$M=MF/f \times IT$ -- (iii)

$V/MV = IT/f$ -- (iv)

Note that:
' / ' means division

## Faradays 2nd law of electrolysis

The masses of **different** ions liberated at the electrodes when the **same** amount of electricity is passed through **different** electrolytes is **directly** proportional to their chemical equivalents

***Mathematically***

$n \propto 1/e$

$n=k/e$

$k=ne$

So, $ne(1)=ne(2)$

## Cost of electricity

$Q1/Q2 = C1/C2$

***Where:***

C=cost of electricity

Q=quantity of electricity

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