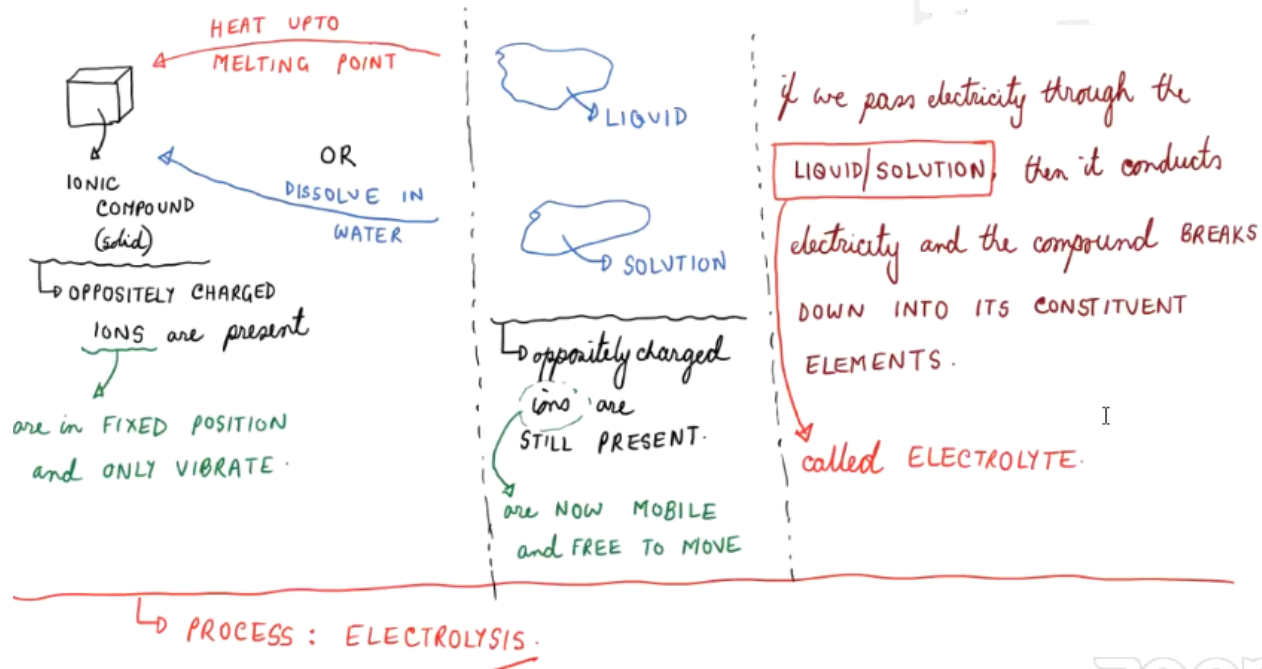
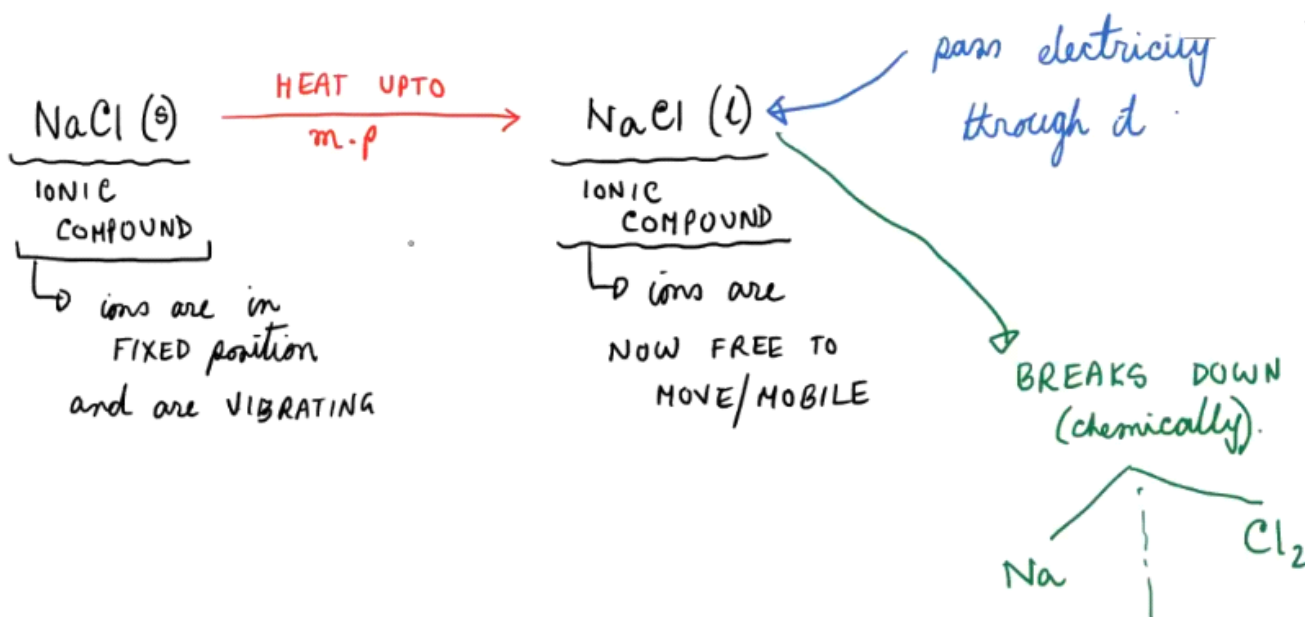


## Electrolysis #2



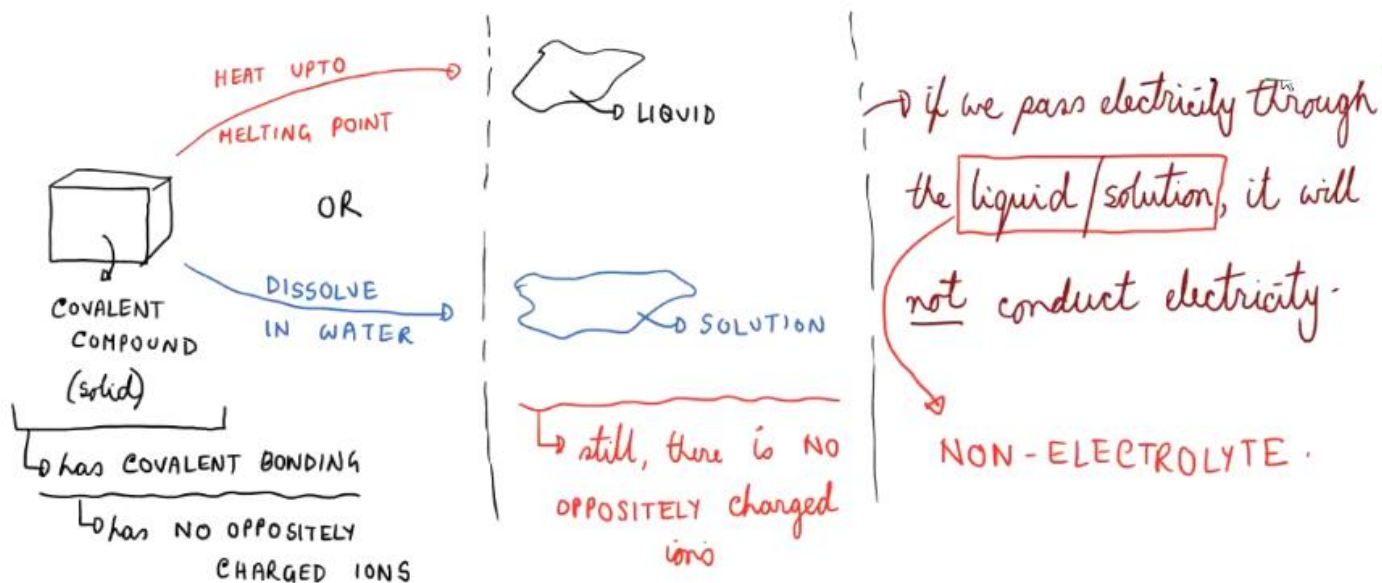
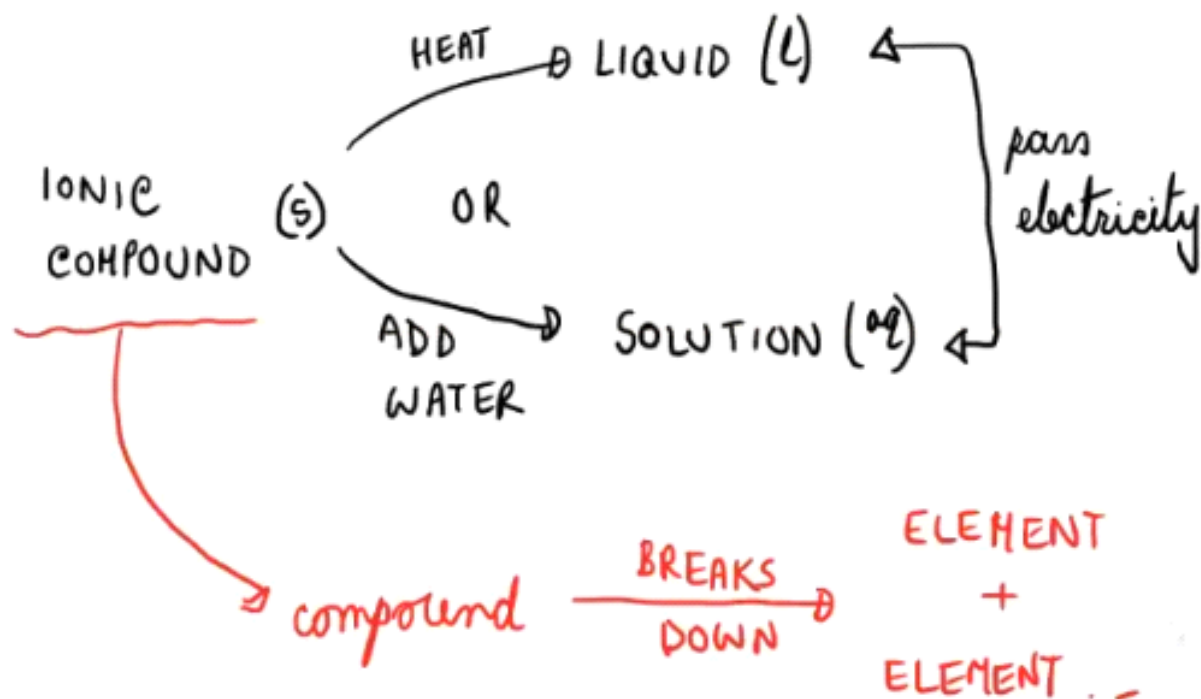
Compound -

Compound is a **chemical substance** which contains **two or more different elements**, which are **chemically bonded** together.



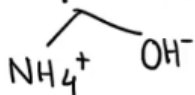
Electrolysis is the **decomposition / break down** of a compound by **passing electricity**.

Electrolyte is the **liquid or solution** which can **conduct electricity** during **electrolysis** as they have **oppositely charged ions** in them, which are **mobile and free to move**.



\* EXCEPTIONS :

→  $\text{NH}_4\text{OH (aq)}$ ,  $\text{HCl (aq)}$ ,  $\text{HBr (aq)}$ ,  $\text{H}_2\text{SO}_4 \text{ (aq)}$ ,  $\text{HNO}_3 \text{ (aq)}$ .



① ACID

② HYDROGEN  
HALIDE

③ AMMONIUM  
SOLUTIONS!

Non-electrolyte is the **liquid or solution which does not conduct electricity** as they have **no oppositely charged ions in them.**

Question # 01 :

Why covalent compounds do not conduct electricity? [1 mark]

Answer :

Because covalent compounds **do not have any charged particles** (which are mobile / free to move to carry the charge).

Question # 02 :

Why ionic compounds conduct electricity only in molten or aqueous solution state? [2 marks]

ELECTRODES

→ these are

**ELECTRICAL CONDUCTORS**

MUST be SOLIDS

usually, metal poles

↳ used:

① to pass electricity from POWER SUPPLY to ELECTROLYTE.

② for the oppositely charged ions in the electrolyte to DISCHARGE.

that is to NEUTRALIZE the ions  
by GAIN/LOSS of electrons by the  
ions to turn into their  
elements.

EXAMPLE:

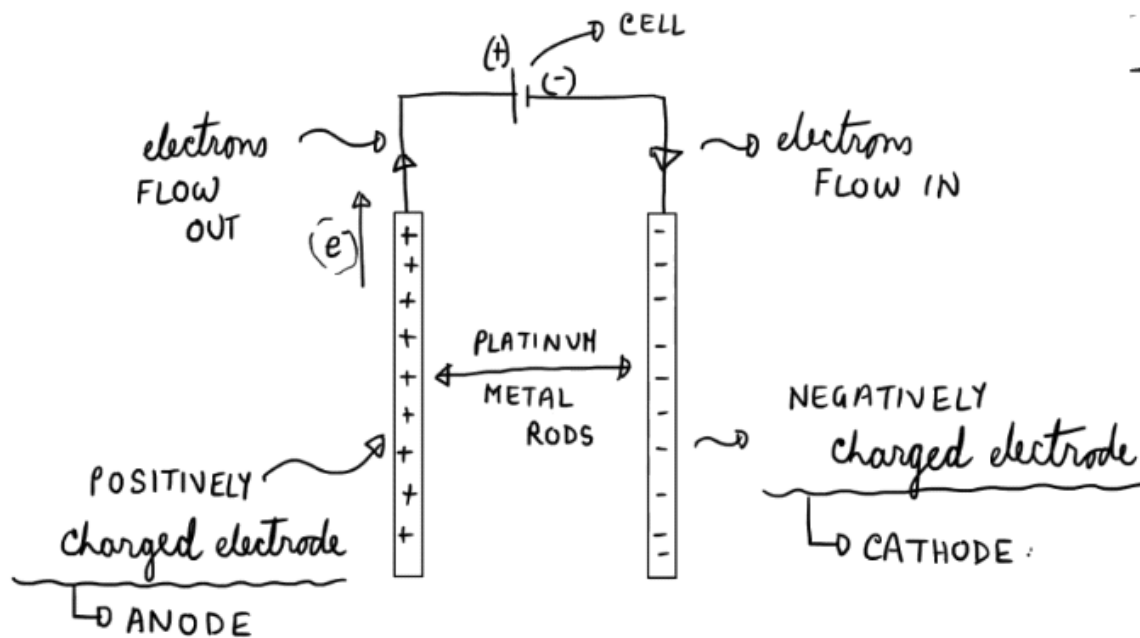
Platinum, Steel, Copper, Graphite/Carbon, Titanium.

\* During electrolysis, in most cases, the electrodes are INERT / UNREACTIVE

Electrodes are of **two** types. They are:

1. Cathode : It is the **negatively charged** electrode.
2. Anode : It is the **positively charged** electrode.

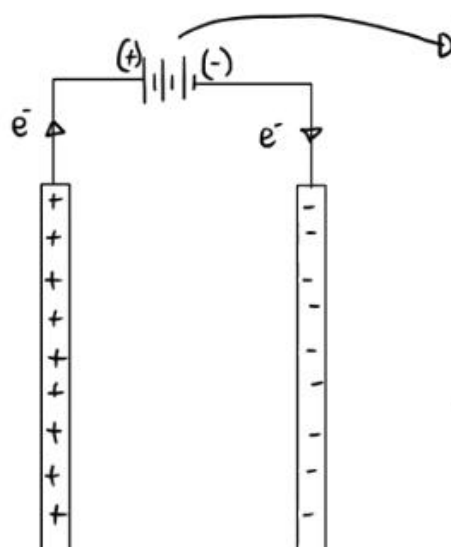
## HOW ELECTRODES ARE FORMED ?



## LABORATORY SETUP OF ELECTROLYSIS -

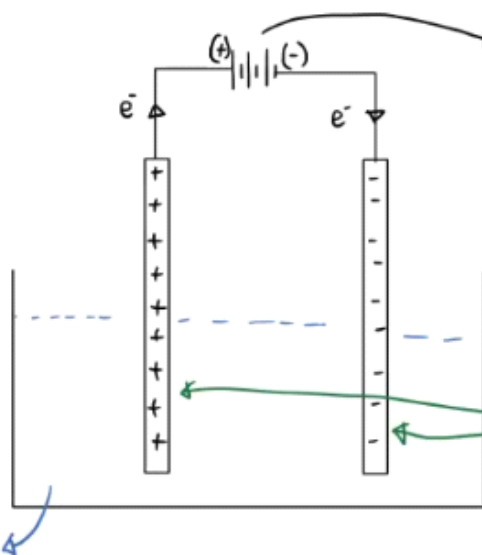
For electrolysis, we mainly need three things:

1. Power Supply (Battery / Cell)
2. Electrodes (Cathode and Anode)
3. Electrolyte



#### Battery :

- Acts as an "electron pump"
- It pumps the electrons away from the **Anode** and makes it **positively charged electrode**.
- The electrons then enter the positive terminal of the battery and comes out through the negative terminal of the battery.
- The electrons are pumped into the **Cathode** and makes it **negatively charged electrode**.



#### Battery :

- Acts as an "electron pump"
- It pumps the electrons away from the **Anode** and makes it **positively charged electrode**.
- The electrons then enter the positive terminal of the battery and comes out through the negative terminal of the battery.
- The electrons are pumped into the **Cathode** and makes it **negatively charged electrode**.

#### Electrodes:

- Conducts **electricity**
- Usually, **Graphite / Carbon rods** or **Metal Plates** for instance Platinum / Titanium / Steel.
- Electrode connected to the positive terminal of the battery is called **Anode**.
- Electrode connected to the negative terminal of the battery is called **Cathode**.

#### Electrolyte:

- Conducts **electricity**
- Free moving oppositely charged ions allow it to conduct electricity
- Molten ionic compound or an aqueous solution
- Gets decomposed to form positive ions and negative ions, which produce the elements from the compound.