

Topic - Acid Base And Salt

Indicator - It is a dye that changes colour when it is put in acid or base. It can be - classified as

1 Litmus paper

Acid turn Blue litmus to Red
Base turn Red litmus to Blue

2 Methyl Orange -

It become Red in acid
It become Yellow in base

3 Phenolphthalien - (Neutral Colour)

It become Colourless in acid and become pink in base.

ACID - Those chemical substance which have sour taste.

Types of Acid

Organic Acid

Those acid which are present in plant and animals (Weak acid)

Ex- Acetic Acid - CH_3COOH
formic acid - HCOOH
etc

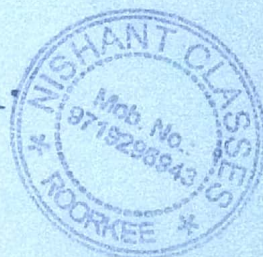
Mineral Acid

Those acids which are obtain from minerals. (Strong Acid)

Ex- Hydrochloric acid - HCl
Sulphuric acid - H_2SO_4
Nitric Acid - HNO_3

Some Imp Organic acid And their Source -

Acid	Formula	Source of Acid
<u>1</u> Acetic acid -	CH_3COOH (Imp)	Vinegar
<u>2</u> Oxalic Acid -	$\text{C}_2\text{H}_2\text{O}_4$ (Imp)	Tomato
<u>3</u> Lactic acid -	$\text{C}_3\text{H}_6\text{O}_3$	Curd
<u>4</u> formic Acid -	HCOOH (Imp)	Ant Sting
<u>5</u> Malic acid -	$\text{C}_4\text{H}_6\text{O}_5$	Tea leaves
<u>6</u> Carbonic Acid -	H_2CO_3	Rain Water



BASE - Those chemical substance which have bitter taste. Water soluble base are known as alkalis.

Ex- NaOH , $\text{KOH} \rightarrow$ (Potassium Hydroxide), Ca(OH)_2 , Mg(OH)_2
(Sodium Hydroxide) (Strong Base)

Common name of $\text{NaOH} \rightarrow$ Caustic Soda

Imp Common name of $\text{KOH} \rightarrow$ Caustic Potash (2015, 2016, 2017, 2018, 2019)
MCA

ACID-BASE Theory of different Scientist -

Arrhenius Theory - Acid are those substance which give H^+ ion on dissolving in water and Base are those which gives OH^- ion on dissolving
Ex- Acid $\text{HCl} \rightarrow \text{H}^+ + \text{Cl}^-$
Base $\text{NaOH} \rightarrow \text{Na}^+ + \text{OH}^-$

More $\text{H}^+ \rightarrow$ Strong Acid More $\text{OH}^- \rightarrow$ Strong Base

Bronsted-Lowry Theory - An acid is a substance which loose proton
Base is a substance which accept proton

Lewis Concept - An acid is a substance which accept pair of electron
2016, 2018 Base is a substance which donate pair of electron.

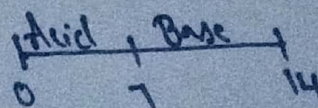
pH Scale - It is a scale which is used to find the strength of acid or base. It depends on the Concentration of hydrogen ion.

This scale has number from 0 to 14

$0 < \text{pH} < 7$ Acid

$\text{pH} = 7$ Neutral (Water)

$7 < \text{pH} < 14$ Base



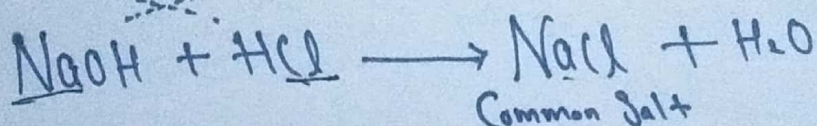
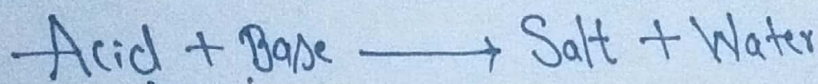
Some Important SALTS -



Ist Sodium chloride - (Common Salt) - NaCl

Method to prepare -

Neutralisation Reaction - When an acid react with base it will form Salt and Water, this reaction is known as neutralisation Rxn.

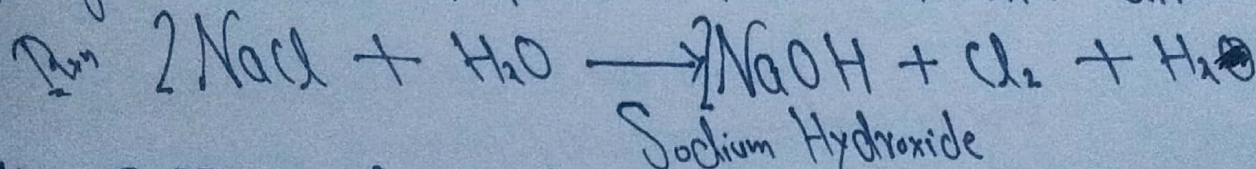


Uses - ① Use as raw material ② Use in manufacture of Soap

IInd Sodium Hydroxide -

Common Name - Caustic Soda formula - NaOH

Method to prepare - It is formed by electrolysis of aqueous solution of NaCl (Brine). In this process chlorine gas is produce at anode and hydrogen at Cathode - This process is known as chlor-alkali process.

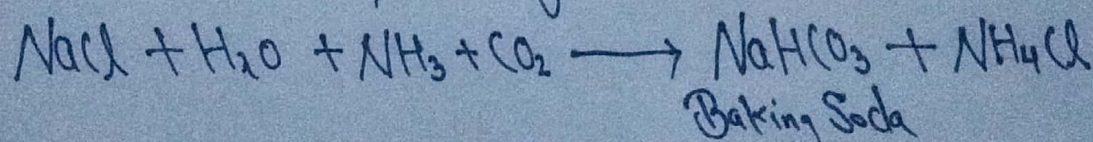


Uses - ① In manufacture of paper ② In manufacture of Soap.

IIIrd Sodium Hydrogen Carbonate -

Common Name - Baking Soda formula - NaHCO_3

Method to prepare - prepared by Reacting solution of NH_3 and CO_2 .



Uses - (i) It is used to remove acidity of stomach.

(ii) Used in making baking powder.

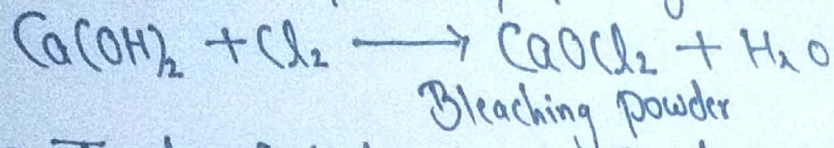
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IVth Calcium oxy Chloride - 2.15, 2.17

Common Name - Bleaching Powder formula - CaOCl_2

Method to prepare - prepared by passing chlorine gas over slaked lime.

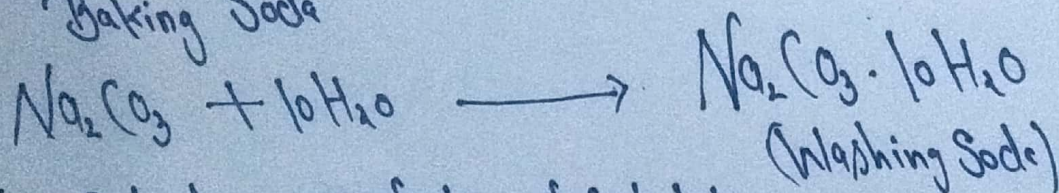
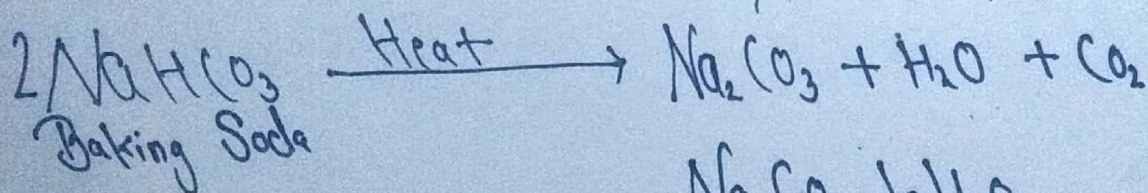


Uses - ① To disinfectant water ② Bleaching of clothes.

Vth Washing Soda - (Sodium Carbonate Deca Hydrate)

Common Name - ($\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$) → formula - $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$
→ Washing Soda

Method to prepare - It is formed by two steps by Baking Soda -



Uses - ① Used in manufacture of soap, paper.

② Used in removing permanent hardness of water.

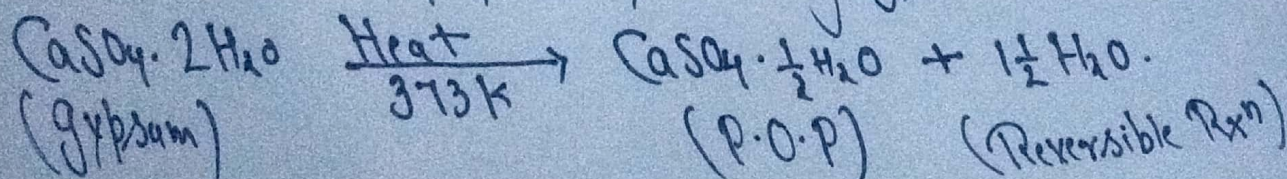


VIth Calcium Sulphate Hemi Hydrate - 2.17

Common Name - Plaster of Paris (POP)

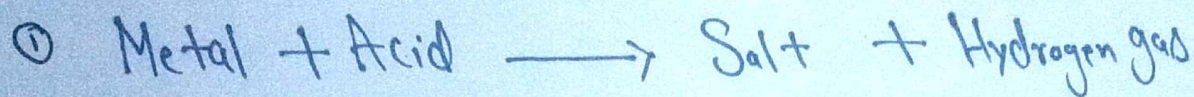
formula - $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$

Method to prepare - prepared by heating gypsum at 373°C

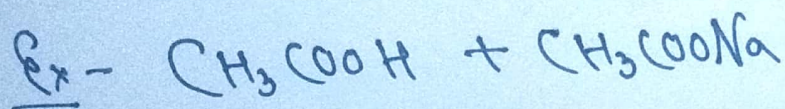


Uses - ① making wall surface smooth ② Making plaster to set up fractured bones.

Some Imp Rxn



Buffer Solution - It is a chemical solution which resist change to its pH or acidity. It is a solution in water of a mixture of a weak acid or base and its salt



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