When an acid is treated with a base, the base neutralises the acid and destroy its acidity. Since, an acid and a base neutralise each other effect. So, the reaction between acid and a base top forms salt and water is called a neutralisation reaction takes place.

$NaOH + HCL \rightarrow NaCl + H_2O$

REACTION OF METALLIC OXIDE WITH ACIDS

Acids react with metal oxide to forms salt and water. Metal oxide + acid →salt + H_2O

CuO (BLACK) + $HCL \rightarrow CuCl_2$(BLUE GREEN)+H_2O

The reaction between acids and metal oxide to forms salt and water is similar to the neutrilisation reaction between an acid and a base to forms salt and water. Thus the reaction between acids and metal oxide is a kind of neutralisation reaction. So, we can say that metal oxides are basic in nature just like metal oxides, the metal hydroxides are also basic in nature. The acids also reacts with metal hydroxides to form salt and water.

REACTION OF NON- METALLIC OXIDE WITH BASE

Non-metallic oxides react with base to form CO_2 and H_2O

$Ca(OH)_2 + CO_2 \rightarrow CaCO_3 + H_20$

The reaction between base and non-metallic oxides to form salt and water is similar to the neutralisation reaction between acid and bases and non – metallic oxides is a kind of neutralisation reaction. So, we can say that non-metallic oxides are acidic in nature.

WHAT DO ALL ACIDS HAVING COMMON

All the acids contain hydrogen. The hydrogen presence in acids is such that when acid is dissolve in water it separates out as positively charged hydrogen ions and enters the solution as H^+ ions. An acid a substance which dissociates on dissolving in water to produce hydrogen ions. For e.g.- an aqueous solution of hydrochloric acid dissociates to form hydrogen ions along with chloric ions.It is the presence of hydrogen ions in hydrochloric acid solution which makes it behave like an acid please note that hydrogen ions do not exits as H^+ ions in solutions, they attach themselves to water molecule to form hydronium ions (H_3O)

So, hydrogen ions must always be written as either H^+ or as H_3O.

ACIDS DO NOT SHOW ACIDIC BEHAVIOUR IN THE ABSENCE OF WATER

The acidic behaviour of acidic is due to the presence of hydrogen ions in them. The acids produce hydrogen ions only in the presence of the water does not form hydrogen ions and hence will not show its acidic behaviour.

DILUTION

The process of dissolving an acid or a base on water is a highly exothermic one. Care must be taken while mixing concentrated nitric acid or sulphuric acid with water. The acid must always be added slowly to water with constant stirring. If water is added to a concentrated acid, the glass contain may also break due to excessive local heating. Look out for the warning sign (shown in fig. 2.5) on the can of concentrated sulphuric acid and on the bottle of sodium mixing pellets.

Mixing an acid or base with water result in decrease in the concentration of ions (H_2O^+/OH^-) per unit volume. Such a process is called dilution and the acid, or the base is said to be diluted.