

Acids, Bases and Salts

Acids Acids from animal and plant material are called Organic acid ?

Acids that chemists have found ways of creating are mineral acids ?

Mineral acids are strong acids and organic acids are weak acids ?

Solutions of acids can be dilute or concentrated ?

An acid is a substance that releases hydrogen ions when dissolved in water

Properties: Acids have sour taste

Change colour of indicators. Acids turn blue litmus paper red

Acids react with metals to produce hydrogen and salt of the metal

Some metals react slow (copper) and some react very fast (sodium) Metal + acid ? metal salt + hydrogen
Zinc + Sulphuric Acid ? Zinc Sulphate + Hydrogen
 $Zn(s) + H_2SO_4(aq) \rightarrow H_2(g) + ZnSO_4(aq)$

Metal replaces hydrogen of acid

Acids react with carbonates to give carbon dioxide, salt and water
Magnesium Carbonate + Hydrochloric Acid ? Carbon Dioxide + Magnesium Chloride + Water
 $MgCO_3(s) + 2HCl(aq) \rightarrow CO_2(g) + MgCl_2(aq) + H_2O$

Acids neutralize bases to form salt and water only

Bases A substances that reacts with an acid to form a salt and water only ?

They neutralize acids, the product being a salt Acid + Base ? Salt + Water
Calcium Hydroxide + nitric acid ? Calcium nitrate + Water

Alkalis are soluble bases Sodium Hydroxide + hydrochloric acid ? Sodium Chloride + Water
 $NaOH(aq) + HCl(aq) \rightarrow NaCl(aq) + H_2O(l)$

Limewater is an alkali (calcium hydroxide). The test for carbon dioxide turns it cloudy (Calcium carbonate)

Carbon Dioxide + Calcium Hydroxide ? Calcium Carbonate + water

Properties: Bases neutralize acids to form salt and water only

Soluble bases change colour of indicators e.g. turn red litmus blue

Soluble bases feel soapy (they convert some oil on your skin into soap).

Decreasing agents; convert oil and grease into soap.

Solution of alkali in water contains hydroxide ions $OH^-(aq)$. Because most metal hydroxides are insoluble, an alkali added to a solution of a metal salt will precipitate an insoluble metal hydroxide.

Weak and Strong Acids Acids that contain more hydrogen ions (ionize to a larger extent) react faster (e.g. HCl)

This is a strong acid (nearly all acid molecules form ions)

In weak acids, only some of the acid molecules form ions ?

Strong acids have lower pH numbers than weak acids of the same concentration

Strong Acids
Hydrochloric Acid
Ethanoic Acid
Sulphuric Acid

Citric Acid
Nitric Acid

Carbonic Acid

Weak and Strong Alkalis A strong alkali exists almost completely as ions in solution

A weak alkali, only some of the molecules will form ions in solution

Strong Alkalis
Sodium Hydroxide
Potassium Hydroxide
Calcium Hydroxide

Ammonia

pH/Universal indicator paper pH expressed the level/degree of acidity or alkalinity in an aqueous solution or a liquid

universal indicator turns different colors in strongly acidic and weakly acidic solutions

comes in both liquid and solution ?

Acids: pH number less than 7

Alkali: pH number GREATER than 7

Neutral Substances = pH = 7

Other Indicators

