Chapter 8 summary notes

Wednesday, 24 April 2024 8:06 PM

Topic 8.1 (What is an acid?)

Different types of acids:

↳ Ethanoic acid: $CH_3COOH \Rightarrow H^+ \ CH_3COO^-$

↳ Nitric acid: $HNO_3 \Rightarrow H^+ \ NO_3^-$

↳ Hydrochloric acid: $HCl \Rightarrow H^+ \ Cl^-$

↳ Sulfuric acid: $H_2SO_4 \Rightarrow H^+ \ SO_4^{2-}$

↳ Phosphoric acid: $H_3PO_4 \Rightarrow H^+ \ PO_4^{3-}$

Definition of acids: An acid is a substance that form hydrogen ions, H^+ in aqueous solution.

Properties of acids (6):

↳ Acids have a sour taste

↳ Acids produce ions when dissolved in water ~~solution~~. Acids can conduct electricity in aqueous state.

↳ Acids can react with reactive metals

↳ Acids can react with oxides and hydroxides

↳ Acids can react with carbonates

↳ Acids turn blue litmus paper red and have no effect on a red litmus paper.

Acid related reactions:

Acid + Metal → salt + hydrogen

Acid + oxide / hydroxide → salt + water

Acid + carbonate → salt + water + carbon dioxide

*Oxides and hydroxides are bases

*Acids can only react with reactive metals } No reaction can take place

Unreactive metals = Copper (Cu), Silver (Ag), Gold (Au), Platinum (Pt)

↳ GIPSC (Acronym)

Test for hydrogen

- Use a burning splinter
- Place it at the mouth of the test tube
- If hydrogen is present, the burning splinter should extinguish and produce a 'pop' sound

Topic 8.2 (Strong and weak acids)

Definition of strength of an acid:

The strength of the acid refers to the extent of ionisation of acid when it dissolves in water.

Definition of strong acids:

A strong acid is an acid that completely ionises in an aqueous solution.

Definition of weak acids:

A weak acid is an acid that only partially ionises in an aqueous solution.

Examples of strong acids:

↳ Hydrochloric acid (HCl)

↳ Sulfuric acid (H_2SO_4)

↳ Nitric acid (HNO_3)

Examples of weak acids:

↳ Ethanoic acid (CH_3COOH)

↳ Citric acid

↳ Carbonic acid

Lesson 1 and 2:

- Definition of acids
- Chemical formulae of different acids
- Test for hydrogen and oxygen (Explanation)
- Strong acids and weak acids
- Explaining strong and weak acids
- Acid reactions (with metal, alkaline and carbonate)
- Acid basicity (monobase, tribase, dibase)
- Soluble and insoluble salts