

Acids and Alkalis

Arrhenius' idea of ionisation:

acid - a substance which dissolved in water produces hydrogen ions (H^+)

alkali - a substance which dissolved in water produces hydroxide ions (OH^-)

Arrhenius and Brønsted

acid - a proton donor

alkali - a proton acceptor

Arrhenius' idea took a long time to be accepted as it was completely new. Arrhenius and Brønsted theory was readily accepted as it was a refinement of an existing idea and it explained behaviours with non-aqueous solvents.

STRONG ACID OR ALKALI - completely ionised in water (all of compound dissociates into ions)

WEAK ACID OR ALKALI - partially ionised in water.

Indicators

strong acid + strong alkali - orange

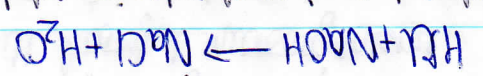
weak acid + strong alkali - phenolphthalein

strong acid + weak alkali - no colour change

Titration (neutralisation)

20cm³ of 1.0M reacted with 25cm³ of NaOH. What is the concentration of NaOH?

work out balanced equation



work out number of moles in solution using known concentration and volume.

$$\text{moles} = \text{concentration} \times \text{volume (cm}^3\text{)}$$

$$\frac{1}{20} \times \frac{1000}{1000} = 0.02 \text{ moles of HCl}$$

work out number of reactant moles

$$HCl : NaOH \quad \text{moles of NaOH} = \text{moles of HCl} = 0.02 \text{ moles of NaOH}$$

1 : 1

work out concentration of reactant solution.

$$\frac{\text{moles}}{\text{volume}} \times 1000 = \frac{0.02}{0.02} \times 1000 = 0.8 \text{ mol/dm}^3$$