Using concentrations of solutions: Worksheet 3.11

Titrations

1. (a) What are the following used for in a titration:

(i) burette

(ii) pipette

(iii) pipette filler

(iv) indicator

(v) white tile?

(b) Describe:

(i) where to measure a burette reading

(ii) when you have reached the end point

(iii) how to fill a burette safely

2. (a) Eva uses a pipette to measure 25.0 cm3 of sodium hydroxide solution. She titrates this against 0.10 mol/dm3 hydrochloric acid. The average titre is 19.8 cm3. Calculate:

(i) the number of moles of hydrochloric acid used.

(ii) the number of moles of sodium hydroxide this reacts with.

(iii) the concentration of the sodium hydroxide in mol/dm3.

(iv) the concentration of the sodium hydroxide in g/dm3.

(b) Jack carries out a titration to find the concentration of a solution of sodium hydroxide. He measures 25.0 cm3 of sodium hydroxide solution into a conical flask. He titrates this against 0.25 mol/dm3 of sulfuric acid in the burette. These are his burette readings:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Volume of acid used/cm3** | | | |
| **Titration** | **Trial** | **1** | **2** | **3** |
| Initial burette reading/cm3 | 0.5 | 10.5 | 20.4 | 30.4 |
| Final burette reading/cm3 | 11.5 | 20.4 | 30.4 | 40.5 |
| Titre |  |  |  |  |

Calculate the concentration of the sodium hydroxide solution.