

AQA Chemistry GCSE

Required Practical 2 - Neutralisation

(chemistry only)

Flashcards

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How could you find out the volume of sulfuric acid that will exactly neutralise 25cm^3 of sodium hydroxide solution?



How could you find out the volume of sulfuric acid that will exactly neutralise 25cm^3 of sodium hydroxide solution?

- Place exactly 25cm^3 of sodium hydroxide in a conical flask on a white tile, using a pipette and pipette filler
- Clamp the burette above the conical flask and fill it with sulfuric acid using a funnel, filling the burette to the 0.00cm^3 line
- Add 5-10 drops of phenolphthalein to the conical flask
- Slowly add the sulfuric acid to the flask, swirling the flask at the same time
- Close the burette tap as soon as the mixture turns from pink to colourless
- Record the final volume of sulfuric acid added



List the apparatus required to carry out a titration



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- Burette
- Conical flask
- Pipette and pipette filler
- Funnel
- Clamp and stand
- White tile



Why should a white tile be used in a titration experiment?



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The white tile is placed under the reacting mixture, making the colour change easier to see



Why might a volumetric pipette and pipette filler be used to measure 25cm^3 rather than a measuring cylinder?



Why might a volumetric pipette and pipette filler be used to measure 25cm^3 rather than a measuring cylinder?

A volumetric pipette will measure 25cm^3 more accurately so it is usually used for titrations



What is the purpose of repeating a titration?



What is the purpose of repeating a titration?

To allow a mean titre to be calculated,
reducing the effect of random error



What colour is phenolphthalein in acid
and alkali?



What colour is phenolphthalein in acid and alkali?

Acid - colourless

Alkali - pink



Why is the first trial in a titration often called a 'rough' trial?



Why is the first trial in a titration often called a 'rough' trial?

The first trial gives an approximate idea of where the end point is so then for further titres you can be more precise as you know approximately what volume will be required for neutralisation



What safety precautions should be undertaken when carrying out a titration?



What safety precautions should be undertaken when carrying out a titration?

- Wear eyewear and be aware of the dangers of the chemicals used, e.g. H_2SO_4 is corrosive, NaOH is an irritant
- The burette should be filled below eye level so there's no risk of it spilling and splashing your face
- Any broken glassware needs to be cleared immediately



Why are burettes used for titrations?



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Burettes allow the solution to be added drop by drop in very small quantities



Apart from phenolphthalein, what other indicator could be used in a titration?
What is the colour change?



Apart from phenolphthalein, what other indicator could be used in a titration?
What is the colour change?

Methyl Orange: Red (acid) to yellow (alkali)

Litmus Blue: Red (acid) to blue (alkali)



If you know the volume of acid required to neutralise an alkali, how could you calculate the concentration of the acid, given the alkali concentration and volume? (Higher)



If you know the volume of acid required to neutralise an alkali, how could you calculate the concentration of the acid, given the alkali concentration and volume?

(Higher)

- Calculate the number of moles of the alkali using the known volume and concentration
- Use the chemical equation to work out the ratio of acid and alkali that react and hence work out how many mole of acid have reacted
- Divide the moles of acid by the volume used in neutralisation



If you know the concentration of an acid in mol/dm^3 , how could you convert this to g/dm^3 ? (Higher)



If you know the concentration of an acid in mol/dm^3 ,
how could you convert this to g/dm^3 ?

(Higher)

Multiply the concentration in mol/dm^3 by
the molar mass (M_r) of the acid to give
the value in g/dm^3

