

GCSE Chemistry B (Twenty First Century Science)

J258/03 Breadth in chemistry (Higher Tier)

Question Set 12

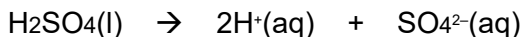
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Sulfuric acid is used in car batteries.

Mia has a sample of car battery acid that is diluted to 1/100 of its original concentration.

She measures the concentration of this acid by titration.

- (a) This equation shows what happens when pure sulfuric acid is mixed with water.



Explain how this equation shows that sulfuric acid is a **strong** acid. [1]

- (b) Mia does a titration.

She puts the sulfuric acid in a burette.

She measures out 25.0 cm³ of 0.100 mol / dm³ NaOH.

- (i) She wants to measure the 25.0 cm³ of NaOH as accurately as possible.

Which piece of apparatus should Mia use?

Put a ring around the correct answer.

conical flask

100 cm³ measuring cylinder

volumetric pipette

volumetric flask

[1]

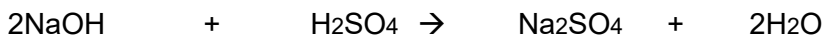
- (ii) Calculate the number of moles in 25.0 cm³ of 0.100 mol / dm³ NaOH.

Use the equation:

$$\text{concentration (mol / dm}^3\text{)} = \text{number of moles of solute} \div \text{volume (dm}^3\text{)}$$

Number of moles = mol [3]

- (iii) This is an equation for sulfuric acid reacting with NaOH.



Mia finds that 24.5 cm³ of H₂SO₄ reacts exactly with the NaOH.

Calculate the concentration of the sulfuric acid in the burette in mol / dm³.

Use the equation:

$$\text{concentration (mol / dm}^3\text{)} = \text{number of moles of solute} \div \text{volume (dm}^3\text{)}$$

Give your answer to 2 significant figures.

Concentration = mol / dm³ [3]

Total Marks for Question Set 12 : 8

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