

Edexcel Chemistry A-Level

Core Practical 01 - Finding molar volume of a gas

Flashcards

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What is Avogadro's law?



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Equal volumes of gases at the same temperature and pressure will contain an equal number of molecules.



How can you measure the volume of gas released from a reaction?



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- Using a gas syringe connected to a bung (via a tube) which stoppers the conical flask containing the reactants.
- As gas is released it pushes the syringe outwards.



What is the weighing by difference method?



What is the weighing by difference method?

- It is a method to weigh materials accurately.
- $\text{Mass of substance} = \text{Mass of weighing dish and substance} - \text{Mass of dish after substance has been transferred.}$



How would you carry out an experiment to measure the molar volume of a gas?



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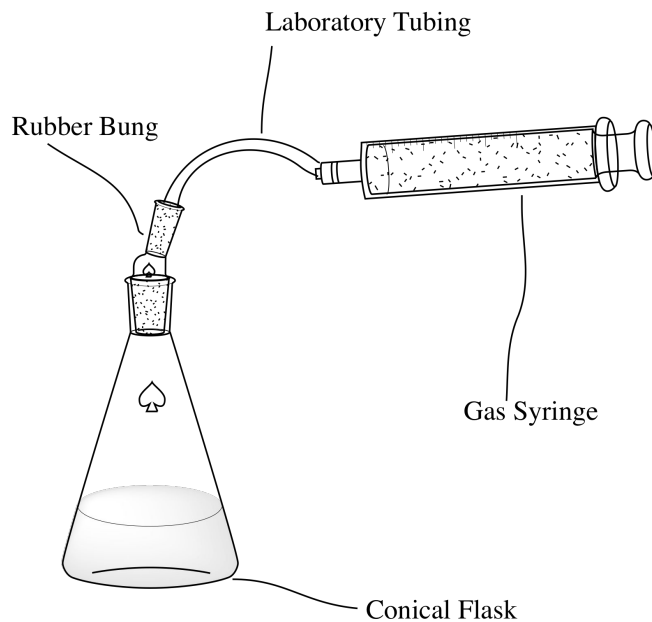
- React ethanoic acid and solid calcium carbonate together.
- Using a gas syringe, measure the volume of gas released.
- Repeat for increasing masses of CaCO_3 .



What should the set up for this experiment look like?



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What are some issues with this experiment?



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- Some gas may escape before the bung is added.
- A solid reactant may be of different mass, surface area etc. for each repeat which will affect the rate of reaction.
- CO_2 is slightly soluble in water, so the exact volume is not measured as some may dissolve in solution.



How do you prevent gas escaping?



How do you prevent gas escaping?

Place the solid reactant upright inside a sample tube in the conical flask, tipping the tube over by moving the conical flask around to start the reaction.



How would you analyse this data?



How would you analyse this data?

- Plot a graph of mass of CaCO_3 (x-axis) against volume of CO_2 collected (y-axis).
- Draw a line of best fit that passes through the origin.
- In this reaction, CaCO_3 to CO_2 is a 1:1 ratio. You could calculate the number of moles of CaCO_3 in 0.25g and use this to calculate the volume of 1 mol of carbon dioxide gas in dm^3 .

