

AQA Chemistry GCSE Required Practical 4 - Temperature Changes Flashcards

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How could you investigate the temperature change when different volumes of NaOH are added to HCI?







How could you investigate the temperature change when different volumes of NaOH are added to HCI?

- Measure 25cm³ of HCl into a polystyrene cup
- Measure the starting temperature of HCI
- Add 5cm³ of NaOH to the cup
- Then stir the mixture and measure the maximum temperature reached. Record it in a table
- Repeat the experiment with increasing volumes of NaOH: 10cm³, 15cm³, 20cm³...







Why might calculated energy values be different to a databook?







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Energy gets lost to the surroundings







If a reaction is exothermic, will the thermometer record an increase or decrease in temperature?







If a reaction is exothermic, will a thermometer record an increase or decrease in temperature?

The thermometer will record an increase in temperature as energy will have been transferred to the surroundings







How could you reduce the amount of heat energy lost to the surroundings?







How could you reduce the amount of heat energy lost to the surroundings?

- Mix the reactants in a polystyrene cup
- Place the polystyrene cup in a beaker of cotton wool
- Lid on the cup to reduce energy lost by evaporation







When investigating the temperature change between two chemicals, why should the chemicals both start at the same temperature?







When investigating the temperature change between two chemicals, why should the chemicals both start at the same temperature?

They need to be the same temperature so that their individual temperatures do not have an effect on the temperature recorded once combined







How could you ensure that two reactants in separate test tubes were the same starting temperature?







How could you ensure that two reactants in separate test tubes were the same starting temperature?

Place the test tubes in a water bath at 25°C.

Use a thermometer to ensure the reactants are the same temperature.







Why is it important to stir the mixture when taking a temperature reading?







Why is it important to stir the mixture when taking a temperature reading?

To ensure the temperature measured is consistent throughout the mixture.

To ensure the reactants have fully reacted.







Initially, a solution is 25°C. Another reactant is added and the temperature decreases. Is this reaction endothermic or exothermic?







Initially, a solution is 25°C. Another reactant is added and the temperature decreases. Is this reaction endothermic or exothermic?

Endothermic







How could the temperature be measured more precisely and more reliably?







How could the temperature be measured more precisely and more reliably?

More precise: Use a digital thermometer

More reliable: Repeat the experiment and calculate a mean temperature measurement







How could you test the effect of acid concentration on the energy released in a neutralisation reaction?







How could you test the effect of acid concentration on the energy released in a neutralisation reaction?

- Place both reactants in a water bath so they are the same temperature. Record the initial temperature.
- Add the alkali to the acid and record the final temperature
- Calculate the temperature change
- Repeat the process using different concentrations of acid
- Record the results for each concentration in a table



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What must be controlled when testing the effect of acid concentration in a neutralisation reaction?







What must be controlled when testing the effect of acid concentration in a neutralisation reaction?

- Alkali concentration
- Alkali volume
- Acid volume
- Initial temperatures of each reactant
- External temperatures







How do you know when a reaction is complete?







How do you know when a reaction is complete?

Mass of reaction mixture/ volume of gas/ colour remains the same



