

Edexcel Chemistry IGCSE

2.21 - Reactivity Series

Investigate reactions between dilute hydrochloric and sulfuric acids and metals

Flashcards

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What are the two products produced when a metal reacts with an acid?



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Salt

Hydrogen



What is the type of reaction that occurs when a metal reacts with an acid? Why does this reaction occur?



What is the type of reaction that occurs when a metal reacts with an acid? Why does this reaction occur?

Displacement reaction:

The metal is more reactive than hydrogen so will displace hydrogen and combine with the chloride or sulfate ion



Write the word equation for the reaction between metals and hydrochloric acid



Write the word equation for the reaction between metals and hydrochloric acid

metal + hydrochloric acid \rightarrow metal + hydrogen chloride



Write the word equation for the reaction
between metals and sulfuric acid



Write the word equation for the reaction between metals and sulfuric acid

metal + sulfuric → metal + hydrogen
acid sulfate



How does the position of a metal in the reactivity series affect whether it will react with a dilute acid?



How does the position of a metal in the reactivity series affect whether it will react with a dilute acid?

If a metal is above hydrogen in the reactivity series will react with dilute hydrochloric or sulfuric acid to form a salt and hydrogen



Why will metals lower than hydrogen in the reactivity series not react with dilute hydrochloric or sulfuric acid?



Why will metals lower than hydrogen in the reactivity series not react with dilute hydrochloric or sulfuric acid?

They are less reactive than hydrogen so are unable to displace hydrogen from the acid to form a salt



How could you compare how different metals react with an acid?



How could you compare how different metals react with an acid?

- Pour the chosen acid into a conical flask
- Add the metal
- Record any observations (including the rate at which bubbles are produced)
- Repeat with different metals and compare



When comparing how metals react with an acid, what should be controlled to make it a valid test?



When comparing how metals react with an acid, what should be controlled to make it a valid test?

- Concentration of acid
- Volume of acid
- Surface area of metal
- Temperature of the environment and reactants



Is the reaction of magnesium and dilute acid exothermic or endothermic?



Is the reaction of magnesium and dilute acid exothermic or endothermic?

Exothermic - the reaction mixture gives out heat



What would you observe when magnesium is added to dilute acid?



What would you observe when magnesium is added to dilute acid?

- Reacts quickly
- Bubbles of gas produced
- Magnesium disappears
- Colourless solution
- Temperature increases (exothermic)



What would you observe when zinc is added to dilute acid?



What would you observe when zinc is added to dilute acid?

- Reacts more slowly than magnesium
- Bubbles of gas
- Zinc disappears
- Colourless solution



What would you observe when iron is added to dilute acid?



What would you observe when iron is added to dilute acid?

- Reacts more slowly than zinc and magnesium
- Bubbles of gas
- Iron disappears
- Pale green solution formed



Write the chemical equation for the reaction between magnesium and dilute hydrochloric acid



Write the chemical equation for the reaction between magnesium and dilute hydrochloric acid



Write the chemical equation for the reaction between zinc and dilute sulfuric acid



Write the chemical equation for the reaction between zinc and dilute sulfuric acid



What two products are produced in the reaction between iron and hydrochloric acid?



What two products are produced in the reaction between iron and hydrochloric acid?

Iron(II) chloride (FeCl_2)

Hydrogen (H_2)

