

Chemguide – questions

GROUP 2: REACTIONS WITH ACIDS

- Describe the reaction between magnesium and dilute hydrochloric acid.
 - Write the equation for this reaction.
 - How does the reactivity towards dilute hydrochloric acid vary as you go down the group?
- The reaction between magnesium and dilute sulphuric acid looks exactly the same as the one between magnesium and dilute hydrochloric acid. However, the rest of the group from calcium down to barium behave differently. Explain why that is.
- The formation of a metal ion from a metal is an example of oxidation – a loss of electrons. With dilute hydrochloric acid and sulphuric acid, the electrons are given to hydrogen ions to reduce them to hydrogen gas. But with nitric acid, the electrons can also be used to reduce the nitrate ions. What happens depends on the concentration of the nitric acid.
 - Give the formulae of two gases which can be formed by reducing nitrate ions.
 - What will be the major gaseous product if you react magnesium with very dilute nitric acid?
 - What is the major gaseous product if you react magnesium with moderately concentrated nitric acid?
 - What is the major gaseous product if you react magnesium with concentrated nitric acid?
 - Choose one of the reactions in (c) or (d) and write the equation for it.