

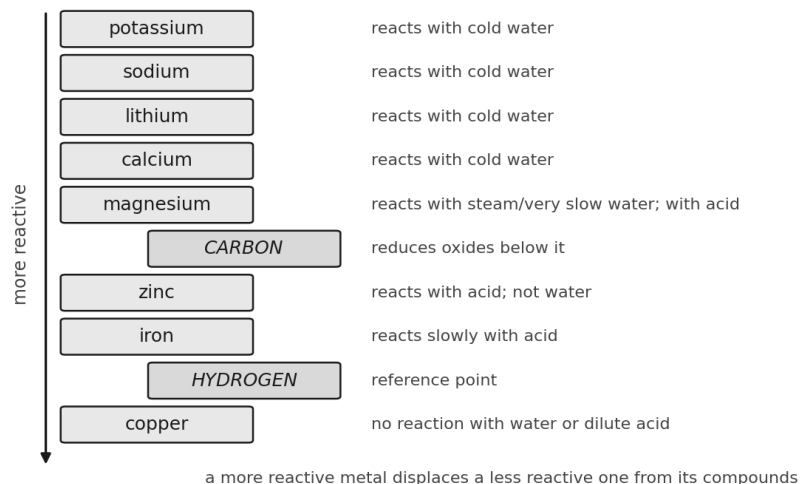
Exercise walk-through

4.2

Reactions of acids and making salts (4.4.2.1–4.4.2.6)

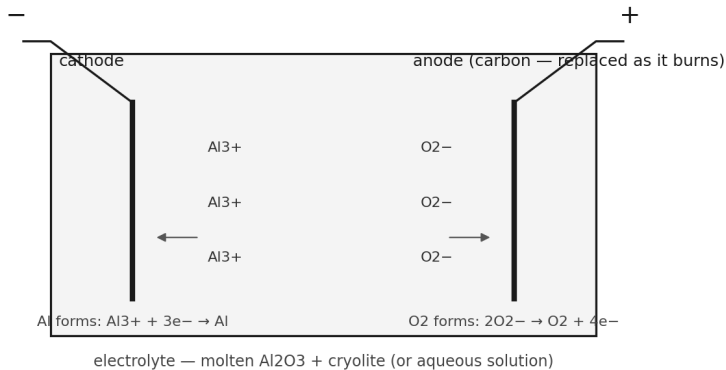
AQA · GCSE · Chemistry

The reactivity series



- K, Na, Li, Ca, Mg, (C), Zn, Fe, (H), Cu — learn the order.
- Water reactions fade down the series; acids react from Mg up.
- More reactive metal displaces a less reactive one.

Electrolysis



- Molten or dissolved — ions free to move to the electrodes.
- Cathode collects the metal or hydrogen; anode the non-metal.
- Aluminium — cryolite mixture; carbon anode burns away.

Exercises 2.1·2.3

2.1 Name the salt formed from sulfuric acid and potassium hydroxide. [1]

2.2 Write the ionic equation for neutralisation. [1]

2.3 (*HT*) Give one example each of a strong acid and a weak acid. [2]

Exercises 2.1·2.3

2.1 Name the salt formed from sulfuric acid and potassium hydroxide. [1]

2.1 Potassium sulfate.

2.2 Write the ionic equation for neutralisation. [1]

2.2 $\text{H}^+ + \text{OH}^- \rightarrow \text{H}_2\text{O}$.

2.3 (*HT*) Give one example each of a strong acid and a weak acid. [2]

2.3 Strong – hydrochloric/nitric/sulfuric acid; weak – ethanoic/citric/carbonic acid.

Exercises 3.1-3.3

3.1 Copper oxide reacts with dilute nitric acid. Write the word equation and describe how pure dry crystals of the salt are separated. [6]

3.2 A student claims both an acid and the water added to dilute it contain H^+ ions, so

3.3 (*HT*) Explain why 0.1 mol/dm^3 ethanoic acid has a higher pH than 0.1 mol/dm^3 hydrochloric acid. [3]

Exercises 3.1·3.3

3.1 Copper oxide reacts with dilute nitric acid. Write the word equation and describe how pure dry crystals of the salt are separated. [6]

3.1 Copper oxide + nitric acid → copper nitrate + water. Warm the dilute nitric acid; add copper oxide until no more dissolves – excess proves all the acid has reacted; filter off the excess black solid; evaporate the filtrate to the crystallisation point and allow it to cool/crystallise; dry the crystals between filter paper/in a warm oven.

3.2 A student claims both an acid and the water added to dilute it contain H^+ ions, so

3.2 Dilution lowers the concentration of H^+ ions – the same amount of acid in more

3.3 (*HT*) Explain why 0.1 mol/dm^3 ethanoic acid has a higher pH than 0.1 mol/dm^3 hydrochloric acid. [3]

3.3 Ethanoic acid is a weak acid – only partially ionised in water; so its H^+ concentration