

Exercise walk-through

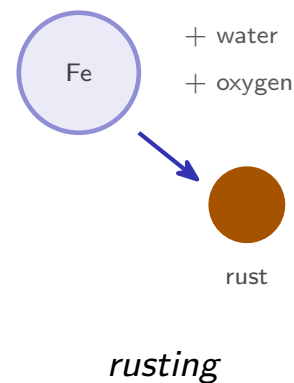
9.2

Uses of metals

IGCSE Chemistry

What we will cover

- 1 Properties & uses
- 2 Alloys
- 3 The reactivity series
- 4 Rusting & its prevention
- 5 Extraction of metals
- 6 The blast furnace



Properties and uses

metals

good conductors; **mal-
leable** & **duc-
tile** ; high melting points

non-metals

poor conductors; **brit-
tle** ; low melting points

Uses follow properties: **aluminium** is light (aircraft, cables); **copper** conducts & is ductile (wiring).



Aluminium is light and resists corrosion

The physical properties that decide a metal's use

electrical conductivity

metals: **good**. Non-metals: poor, **except** graphite

melting and boiling point

metals: usually **high**. Non-metals: usually low

malleability and ductility

metals can be hammered into shape and drawn into wires

copper

electrical wiring – good conductivity *and* ductility, so it can be drawn into wire

aluminium

aircraft and drinks cans – low density and corrosion-resistant

alloys

harder than the pure metal, because different-sized atoms stop the layers sliding

Give the property **and** the use it explains. “Copper conducts” is half a mark; “so it is drawn into wiring” completes it.

Exercises 2.1-2.2

2.1 State why copper is used for electrical wiring.

[1]

2.2 State why aluminium is used to build aircraft.

[1]

Exercises 2.1·2.2

2.1 State why copper is used for electrical wiring.

[1]

2.1

- copper is a **good electrical conductor** (and ductile)

2.2 State why aluminium is used to build aircraft.

[1]

2.2

- aluminium has a **low density** (it is light)

Exercise 3.1

3.1 Aluminium is used for overhead power cables mainly because it is:

[1]

☐

A very dense

B low density and a good conductor

C magnetic

D very reactive

Exercise 3.1

3.1 Aluminium is used for overhead power cables mainly because it is:

[1]

☐

A very dense

B low density and a good conductor

C magnetic

D very reactive

3.1 B

- overhead cables need **low density and good conductivity**
- A, C and D are not why aluminium is chosen

Exercise 3.2 (a)

3.2 A metal is needed for food and drink cans.

(a) Name a suitable metal.

[1]

Exercise 3.2 (a)

3.2 A metal is needed for food and drink cans.

(a) Name a suitable metal.

[1]

(a)

- **aluminium**

Exercise 3.2 (b)

3.2 A metal is needed for food and drink cans.

(b) State the property that makes it suitable.

[1]

Exercise 3.2 (b)

3.2 A metal is needed for food and drink cans.

(b) State the property that makes it suitable.

[1]

(b)

- it **resists corrosion**

Exercise 3.3

3.3 Explain why copper, rather than aluminium, is normally chosen for the wiring inside a house. [2]

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3.3

- copper is a **better electrical conductor** than aluminium
- and it is **ductile**, so it can be drawn into wires