

Exercise walk-through

Oxides ■ 7.2

eXercise

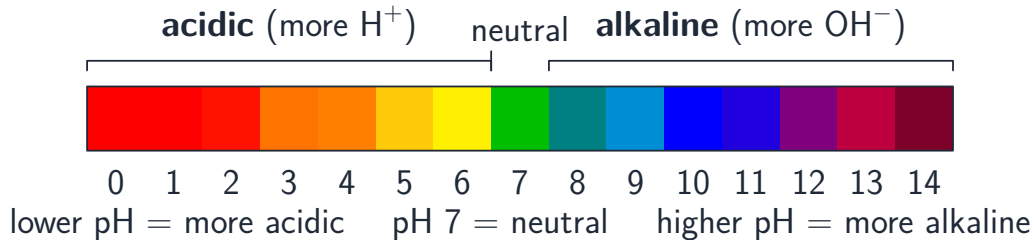
You must be able to

- classify metal oxides as basic and non-metal oxides as acidic
- recognise amphoteric oxides (Al_2O_3 , ZnO)
- predict reactions with acids/bases

Method — Classifying oxides

- **acidic oxides:** non-metal oxides (SO_2 , CO_2).
- **basic oxides:** metal oxides (CuO , CaO).
- **amphoteric:** react with both acids and bases (Al_2O_3 , ZnO).

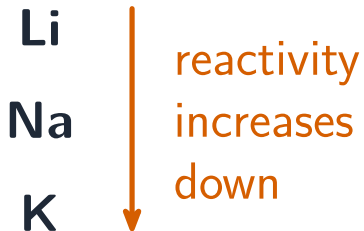
Method — Classifying oxides



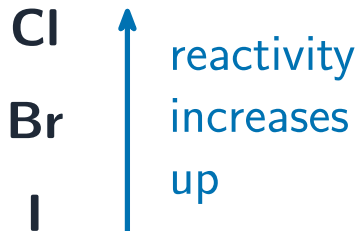
The pH scale

Method — Classifying oxides

Group I



Group VII



Oxide character changes across a period

Practice 2.1 ■ 1 mark

State whether copper(II) oxide is acidic or basic.

Solution 2.1

Method: Classifying oxides

Worked steps

basic **B1**.

Practice 2.2 ■ 1 mark

Name one amphoteric oxide.

Solution 2.2

Method: Classifying oxides

Worked steps

aluminium oxide (Al_2O_3) or zinc oxide (ZnO) **B1**.

Exam-style 3.1 ■ 1 mark

Which oxide is acidic?

A CaO

B Na₂O

C SO₂

D CuO

Solution 3.1

Method: Classifying oxides

A CaO

B Na₂O

C SO₂



D CuO

Worked steps

C. SO₂ is a non-metal oxide — acidic.

Exam-style 3.2 ■ 1 mark

Aluminium oxide is amphoteric.

- (a) State what 'amphoteric' means.
- (b) State the type of substance you would react it with to show its acidic behaviour.

Solution 3.2

Method: Classifying oxides

Worked steps

- (a) it reacts with both acids and bases (to form a salt and water) **B1**.
- (b) a base (or alkali) **B1**.

Exam-style 3.3 ■ 3 marks

Predict whether magnesium oxide is acidic or basic, and write the product when it reacts with hydrochloric acid.

Solution 3.3

Method: Classifying oxides

Worked steps

magnesium oxide is basic (it is a metal oxide) **M1**; it reacts with HCl to form magnesium chloride and water **M1 A1**.