

24 Electrolysis – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	Write it 3 times (English)
Electrolysis	_____
electrolyte	_____
cathode	_____
anode	_____

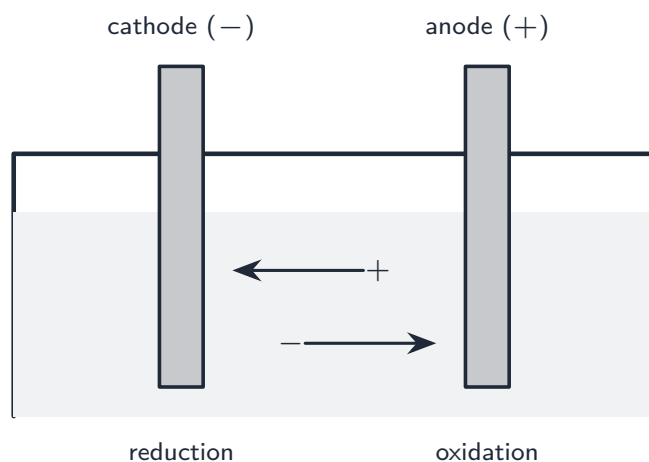
Recall

Electrolysis uses electricity to break down a molten or aqueous **electrolyte**.

New ideas

Read these first, then do the Practice.

■ 1 The cell



- at the **cathode** (negative), positive ions gain electrons (reduction);
- at the **anode** (positive), negative ions lose electrons (oxidation).

■ 2 Predicting products

molten
metal at cathode
non-metal at anode

aqueous
also contains water,
so H₂ or O₂ may form

A *molten* electrolyte gives the metal at the cathode and the non-metal at the anode. An *aqueous* one also contains water, so hydrogen or oxygen may form instead.

Watch out: the *cathode* is *negative* and is where *reduction* happens (positive ions gain electrons); the *anode* is positive, where oxidation happens. In an *aqueous* electrolyte, water may be discharged (giving H₂ or O₂) instead of the ions you expect.

Practice

Try these in order.

24.1 What is *electrolysis*?

[1]

24.2 What happens at the *cathode*?

[1]

24.3 What happens at the *anode*? [1]

24.4 What does a *molten* electrolyte give at the cathode? [1]

24.5 Why can an aqueous electrolyte give different products? [1]

24.6 Challenge. In the electrolysis of *molten* lead(II) bromide (PbBr_2), name the product at each electrode, and write the half-equation at the cathode. [3]
