

Required Practical Electrolysis

GCSE Chemistry · Written to the shared content for AQA, Edexcel and OCR

Name _____ Class _____ Date _____

1. Worked example

Explain why graphite (carbon) rods are used electrodes. (2 marks)

Step 1 · Property 1

Graphite conducts electricity (it has delocalised electrons).

Step 2 · Property 2

It is inert: it does not react with the electrolyte or the products, so it does not change the results.

Answer: Conducts and is inert

Check: Copper electrodes would take part in the reaction with copper sulfate.

2. Now try one with the steps

Describe the tests for the three gases that may form in this practical. (3 marks)

Step 1 · Hydrogen

Step 2 · Oxygen

Step 3 · Chlorine

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. State why inert electrodes are used. [1]

2. State why a low-voltage direct current (d.c.) supply is used. [1]

3. Describe the test for hydrogen. [1]

4. Describe the test for oxygen. [1]

5. Describe the test for chlorine. [1]
6. Predict what is seen at each electrode when copper(II) chloride solution is electrolysed. [2]
7. Explain why the practical should be done in a well-ventilated room. [1]
8. Identify the independent variable in this practical. [1]
9. Describe how to collect the gas produced at an electrode. [1]
10. 12.0 cm³ of hydrogen is collected in 5.0 minutes. Calculate the mean rate in cm³/min. [2]
11. Suggest one improvement so that gas volumes can be compared more accurately. [1]
12. Explain why slightly less chlorine than hydrogen is collected when sodium chloride solution is electrolysed. [1]
13. The cathode gains 0.32 g of copper in 10 minutes. Calculate the mean rate of copper deposition in g/min. [1]
14. Explain why the cathode is dried before weighing in question 13. [1]

4. Before you hand it in

Using a glowing splint to test for hydrogen

Hydrogen: LIGHTED splint, squeaky pop. Oxygen: GLOWING splint, relights.

Letting the electrolysis run for a long time

Run for just long enough to observe and test the products.

Forgetting to label which electrode is which

Connect and label: cathode to the negative terminal, anode to the positive.