
Sample Assignment: Unit 12 Electrons in Action

ASSIGNMENT BRIEF

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| Unit Name: Electrons in Action | Unit Number: 12 |
| Assignment Title: Copper Plating | Assignment Number: 12.2 |
| Date Set: | Due Date: |
| Assessment Objective(s): AO2 b, AO3 a b c (AO1 b part) | |
| Brief: <p>The cost of energy is rising very rapidly. A company whose business is the copper plating of objects such as mugs and vases wants to reduce its energy costs.</p> <p>The company commissions research to find out if a change in the conditions used to plate the objects could reduce the electrical power required whilst still maintaining the standard of the copper plating.</p> | |
| Assignment: <p>You are the spokesperson for the team of scientists who have carried out the research. You are to provide a report which shows that the following tasks have been done.</p> Task 1 (AO1 b) <p>Carry out research into:</p> <ul style="list-style-type: none">• The theory of electrolysis and electroplating• Standard experimental methods of investigating electroplating. <p>Produce a presentation of your work.</p> | |

Task 2 (AO3 a)

Complete a detailed risk assessment for the experimental method selected.

Adapt the method so that conditions are changed.

Carry out the experiments.

Supply full practical details used with your report and include:

- The solutions needed
- Measurement taken
- Information on which conditions you changed and how you did it.

Produce evidence that the experimental work has been completed.

For MB3 you need to include further information of any practical techniques you used which improved your results.

Task 3 (AO3 b)

Record all the data collected from your experimental work in suitable ways.

Present it with your final report.

Task 4 (AO2 b)

Calculate the power needed to deposit a known mass of copper using the experimental data.

Produce evidence of all your calculations for the final report.

Task 5 (AO3 c)

- Analyse the results
- Make conclusions that relate to the energy requirements and the standard of plating under different conditions
- Discuss the accuracy of the experimental method
- Suggest possible alternative methods.

Present this work together with evidence from the other tasks, in a suitable form, to give to the Copper Plating company.

The complete portfolio work for A03 is made up of 2 assignments each can be marked out of 26 and the total divided by 2.

Max marks possible for this task: 50

Resources:

- Chemistry text books
- Guidelines for Copper Plating assignment.