AQA Chemistry A-Level

RP8 - Measuring EMF of an electrochemical cell

Flashcards

What is an electrochemical cell?

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- Two different half-cells are connected by a salt bridge, with their electrodes connected to a voltmeter (measures EMF/cell potential). This allows the flow of electrons.
- The electrical energy generated is from chemical redox reactions.

What does an electrochemical cell look like as a diagram?

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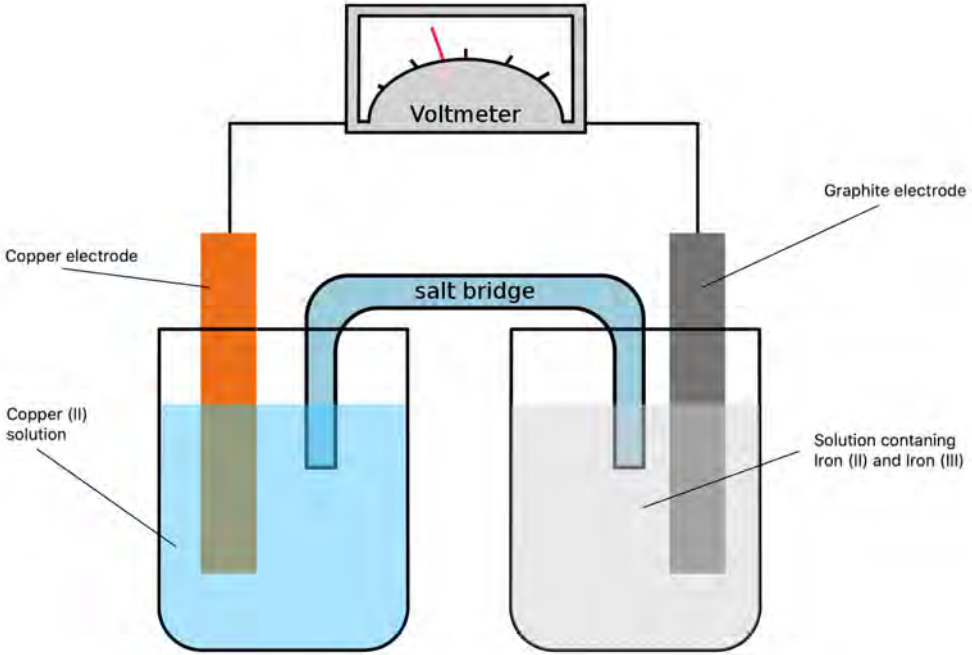

What does a half-cell consist of?

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- Half-cells are usually metal/metal ion (metal electrode in the metal ion solution) or ion/ion (ions that are the same element but with different oxidation states, in solution).
- Each half cell will contain the chemical species from one half of a redox reaction (redox half equation).

What is a salt bridge?

What is a salt bridge?

- A salt bridge allows the transfer of ions.
- It is typically a concentrated solution of an electrolyte i.e. $KNO_{3(aq)}$ that doesn't react with either half cell solution.

Why may a graphite or platinum electrode be used?

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They are very unreactive- i.e. will not react with the half cell solutions and will not affect the voltmeter readings. Usually used in ion/ion half cells.

How do you measure comparative electrode potentials of different metals?

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- File a piece of copper using emery paper and connect it to the positive voltmeter terminal.
- Cut a piece of filter paper, saturate with KNO_3 solution and place on top of the copper.
- Connect the voltmeter to another piece of metal.
- Hold the metal against the filter paper and record the voltmeter value.
- Repeat with different metals and record the results in a table.

Why do you need to file/sand away the outer layer of the metal?

Why do you need to file/sand away the outer layer of the metal?

It removes the oxide layer on the outside of the metal.