

Electricity from chemicals

Introduction

Students record the electromotive force produced when various pairs of metals are placed in sodium chloride solution.

Equipment

Apparatus

- Eye protection
- Beaker, 100 cm³
- Galvanometer or voltmeter (0–3 V)
- Wires x2
- Crocodile clips x2

Chemicals

- Sodium chloride solution

Access to strips or rods of various metals, including:

- Zinc
- Copper
- Iron
- Lead
- Magnesium

Health, safety and technical notes

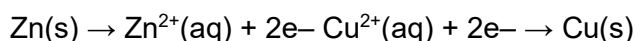
- Read our standard health and safety guidance here <https://rsc.li/3EL43JQ>
- Always wear eye protection.
- Always wash hands after handling lead.
- Zinc is flammable and dangerous to aquatic life, see CLEAPSS Hazcard [HC107](#).
- Lead is a reproductive toxin, see CLEAPSS Hazcard [HC056](#).
- Magnesium is flammable, and reactive with water, see CLEAPSS Hazcard [HC059a](#).

Notes

Data logging sensors and software can be used in this experiment to provide a large screen display of the voltage changes. Connect a voltage sensor across the electrodes and get the software to show the reading using a meter or graph.

Metals high in the reactivity series have a tendency to release electrons to form ions. Metals low in the series do not readily form ions, and their ions easily form metal atoms.

With zinc and copper:



Answers

1. Magnesium, zinc, iron, lead, copper