

Activity Series Laboratory: Tom Pratuch

Students' Guide

Goals

- To learn about the activity series of metals
- To make small scale batteries which give off currents

The Laboratory

You will make little batteries from metals immersed in their ionic solutions, and connected by salt bridges. You will measure which connections yield electricity and construct from this the electrochemical series, which you will compare to the literature.

Materials for Each Group

- Well plate
- Filter paper and scissors
- Solid metals: Cu, Pb, Mg, Al, Ni, Zn, Fe, and carbon as electrodes
- Ionic solutions of these metals (~0.5 M is sufficient)
- Quinone in 1M HCl for the carbon electrode
- Ampermeter/multimeter and crocodile wires

SAFETY

Wear goggles, aprons, and gloves at all times.

Some of the metals are harmful—do not touch with bare hands.

Dispose of all metal solutions into appropriate chemical waste container for safe removal.

Instructions

1. Pour some of each metal solution into a separate well in a well plate.
2. Cut out a salt bridge from filter paper so that it dips into all wells.



3. Connect crocodile wires to a multimeter and put it on the mA scale.
4. ONLY when you're ready to measure, put the same solid metal into each metal solution.

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5. Measure the current between all metals and record your results in the following table:

Cu	Pb	Mg	Al	Ni	Zn	C(H ₂)	Fe
Cu							
Pb							
Mg							
Al							
Ni							
Zn							
C(H ₂)							
Fe							

6. Every time you get current flow between the metals, count it as a reaction. How many reactions do you have for each metal?

Cu	Pb	Mg	Al	Ni	Zn	C(H ₂)	Fe

Write the metals from the most active to the least active: _____

Summary

Refer to the list of electric potentials of metals in your textbook. Is there a correlation between your results and the list of potentials of the metals? _____

Are there any discrepancies? If there are, discuss them, and explain: _____
