

Morgan, Michael A. (me)
Andrews, Frank C. (Partner)
Period 2
September 22, 2015

Determination of an Electrochemical Series

Purpose

To determine an electrochemical (activity) series.

Prelab Questions

- 1) A net ionic equation is an equation that shows only the species that are changed in a chemical reaction. Spectator ions are omitted.
- 2) Spectator ions are unchanged in a chemical reaction.
- 3) Cu is a solid metal. Cu^{2+} has lost two electrons and is an ion in solution.
- 4) If there are positive ions in a solution that must be an equal amount of negative ions also.
- 5) Chlorine is un-ionized and diatomic, chloride is ionized and in solution.

Procedure

I followed the procedure on the handout called "Determination of an Electrochemical Series" distributed by Mr. Morgan on September 1, 2015. No changes were made.

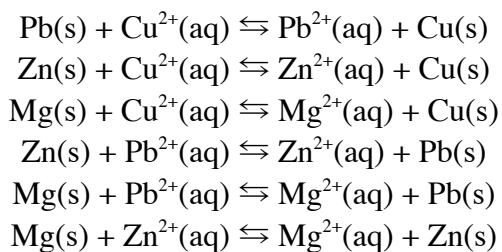
Data

	Cu^{2+}	Pb^{2+}	Zn^{2+}	Mg^{2+}
Cu	X	No Reaction	No Reaction	No Reaction
Pb	Reacts	X	No Reaction	No Reaction
Zn	Reacts	Reacts	X	No Reaction
Mg	Reacts	Reacts	Reacts	X

Post Lab Questions

- 1) An activity series is a ranking of the reactivity of a certain group of elements.

2)



3) The order in decreasing ease of oxidation is: $\text{Mg} > \text{Zn} > \text{Pb} > \text{Cu}$

4)

Pb Oxidized Cu^{2+} Reduced

Zn Oxidized Cu^{2+} Reduced

Mg Oxidized Cu^{2+} Reduced

Zn Oxidized Pb^{2+} Reduced

Mg Oxidized Pb^{2+} Reduced

Mg Oxidized Zn^{2+} Reduced

5)

Pb Reducing Agent Cu^{2+} Oxidizing Agent

Zn Reducing Agent Cu^{2+} Oxidizing Agent

Mg Reducing Agent Cu^{2+} Oxidizing Agent

Zn Reducing Agent Pb^{2+} Oxidizing Agent

Mg Reducing Agent Pb^{2+} Oxidizing Agent

Mg Reducing Agent Zn^{2+} Oxidizing Agent

Conclusion

The activity series for the metals was: $\text{Mg} > \text{Zn} > \text{Pb} > \text{Cu}$

References:

Ellerby, H. Michael "General Chemistry", Worth Publishers, 1987 Page 34 was used to help me understand electrochemical series as a term.