

Episode 15 - The Busy Electron

1. What general definitions are given for oxidation and reduction?
2. What is different about the oxidative coating on bronze and aluminum?
3. In the reaction between copper and zinc, which species are oxidized and reduced?
4. How are charges kept in balance in an electrochemical cell?
5. An electrochemical cell converts _____ energy to _____ energy.
6. What is the advantage to lithium cells?
7. For what application is the lithium cell an advantage?
8. What is one major difference about the lead storage cell?
9. Why are electrodes kept apart in electrolysis?
10. What is formed at the electrodes in the production of aluminum?

Answer Key

1. What general definitions are given for oxidation and reduction?

Oxidation is the loss of electrons; reduction is the gain.

2. What is different about the oxidative coating on bronze and aluminum?

They provide a protective coating.

3. In the reaction between copper and zinc, which species are oxidized and reduced?

Zinc is oxidized and copper ion is reduced.

4. How are charges kept in balance in an electrochemical cell?

Salt bridge

5. An electrochemical cell converts chemical energy to electrical energy.

6. What is the advantage to lithium cells?

They produce more energy and last longer.

7. For what application is the lithium cell an advantage?

Heart pacemakers.

8. What is one major difference about the lead storage cell?

The reaction is easily reversed.

9. Why are electrodes kept apart in electrolysis?

To keep the species formed from recombining.

10. What is formed at the electrodes in the production of aluminum?

Al is formed at the cathode. Oxygen is formed at the anode. The oxygen reacts with the carbon anode to eventually form carbon dioxide.