

Section 21.3 Electrolysis

In your textbook, read about reversing redox reactions and electrolysis.

In the space at the left, write the word or phrase in parentheses that correctly completes the statement.

- _____ 1. When a battery is being recharged, its redox reaction is reversed and energy is (absorbed, released) by the battery.
- _____ 2. The use of electrical energy to cause a chemical reaction is called (combustion, electrolysis).
- _____ 3. An electrochemical cell in which electrolysis is occurring is called an (electrolytic, exothermic) cell.
- _____ 4. In a Down's cell, sodium metal and chlorine gas are produced from (molten, solid) sodium chloride.
- _____ 5. The electrolysis of brine involves applying current to an aqueous solution of (hydrochloric acid, sodium chloride).
- _____ 6. The commercially important products of the electrolysis of brine are hydrogen gas, chlorine gas, and (oxygen gas, sodium hydroxide).

In your textbook, read about the purification of metallic ores, electroplating, and aluminum manufacture.

Answer the following questions.

7. Copper can be produced by heating Cu_2S in the presence of oxygen. Why must the copper then be subjected to electrolysis?
- _____
- _____
8. When an object is electroplated with silver, what is the anode and what is the cathode?
- anode _____
- cathode _____
9. The manufacture of aluminum begins with the electrolysis of aluminum oxide, Al_2O_3 . What half-reaction occurs at the cathode?
- _____
- _____
10. Why are plants that produce aluminum often built close to large hydroelectric power stations?
- _____
- _____