

CHAPTER OVERVIEW

9: Electrochemistry

Electrochemistry deals with chemical reactions that produce electricity and the changes associated with the passage of electrical current through matter. The reactions involve electron transfer, and so they are oxidation-reduction (or redox) reactions. Many metals may be purified or electroplated using electrochemical methods. Devices such as automobiles, smartphones, electronic tablets, watches, pacemakers, and many others use batteries for power. Batteries use chemical reactions that produce electricity spontaneously and that can be converted into useful work. All electrochemical systems involve the transfer of electrons in a reacting system. In many systems, the reactions occur in a region known as the cell, where the transfer of electrons occurs at electrodes.

[9.1: Balancing Oxidation-Reduction Reactions](#)

[9.2: Galvanic Cells](#)

[9.3: Standard Reduction Potentials](#)

[9.4: The Nernst Equation](#)

[9.5: Batteries and Fuel Cells](#)

[9.6: Corrosion](#)

[9.7: Electrolysis](#)

[9.E: Electrochemistry \(Exercises\)](#)

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