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Batteries store energy chemically

Overview

How do batteries store energy?

Batteries are valued as devices that store chemical energy and convert it into electrical energy. Unfortunately, the standard description of electrochemistry does not explain specifically where or how the energy is stored in a battery; explanations just in terms of electron transfer are easily shown to be at odds with experimental observations.

What is a battery and how does it work?

A battery for the purposes of this explanation will be a device that can store energy in a chemical form and convert that stored chemical energy into electrical energy when needed. These are the most common batteries, the ones with the familiar cylindrical shape.

How is chemical energy stored in batteries?

Chemical energy is stored in batteries through a process called electrochemical reactions. In this process, electrons are transferred between two electrodes, one made of metal and the other of carbon. The reactions occur in an electrolyte solution that contains ions.

Why are batteries important?

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What type of energy storage device is a battery?

Batteries are a type of electrical energy storage device. They store chemical energy in chemical energy, which can be converted back into electrical energy. The most common type of battery is the lead-acid battery, which contains lead and sulfuric acid.

What makes a battery unique?

Batteries are unique because they store energy chemically, not mechanically or thermally. This stored chemical energy is potential energy—energy waiting to be unleashed. Inside a battery, this energy is stored in the chemical bonds of the materials in its electrodes.

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