

# Where is chemical energy found

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Chemical energy is one of the various forms energy can take, including kinetic energy, mechanical energy, and thermal energy. It is energy stored in the bonds of chemical compounds, such as sugar and gasoline. It is one of the most convenient forms we have for storing energy. Chemical energy comes in different forms and may be released during a chemical reaction, usually in the form of heat.

Fossil fuels such as gas and methane are some of the most important forms of chemical energy in the world's economy. All you need to do is provide a source of ignition to the fuels. This will instantly transform the liquid fuels from their chemical state, generating a massive amount energy in the process.

There are numerous ways to harness that energy, especially for the purposes of transportation. For instance, when you step on your car's accelerator, the gas is transformed into mechanical energy. The mechanical energy subsequently sets your car in motion, which then generates kinetic energy.

The sun provides solar energy for plants to grow. The energy is then converted into chemical energy in the plant tissues. When you cook food, some of the energy is released from the food's chemical bonds due to heat energy being applied. Once you eat the food, the digestive process further converts the chemical energy into a form that your body can utilize.

Explosives also store chemical energy. Their molecules are composed of atoms that can reorganize themselves into other molecules, which have much less energy. When that happens, the excess is released as heat and light.

Today's explosives are normally nitrated organic compounds. Namely, they're carbon-hydrogen compounds with nitrogen-oxygen groups added to them. This results in a relatively unstable structure. What does that mean?

The existing bonds would break with just a small stimulus. The atoms will then rearrange themselves into molecules with much less energy. The light and heat released, along with the rapid transformation of a substance into gases, generates a ferocious explosion.

While atoms of some elements can easily donate electrons, others like to receive electrons. This is the concept under which batteries function. Namely, two different substances can be arranged in such a way that electrons flow from one substance to the other when they're connected in a circuit, producing an electric current.

A vast range of different materials can be used to transform chemical energy into electricity in this way. This is why we have various types of batteries that can be used to power different types of gadgets and electronics, including phones, computers, drones, cameras etc.

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Plants harvest solar energy from the sun and convert it into chemical energy through a process known as Photosynthesis. This process involves chemical reactions where the solar energy is tapped by the plant molecule before being transformed into chemical energy. Eventually, the chemical energy is consumed in the form of glucose.

When you consume plant material, the glucose molecules are broken down to produce water and carbon dioxide. Carbon dioxide and water, together, have much less energy compared to sugar. Hence, the excess energy is released.

The released energy is stored in a molecule known as adenosine triphosphate (ATP). This is done by adding a phosphate group to another molecule known as adenosine diphosphate (ADP). The energy can be released again when needed. How is that done?

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