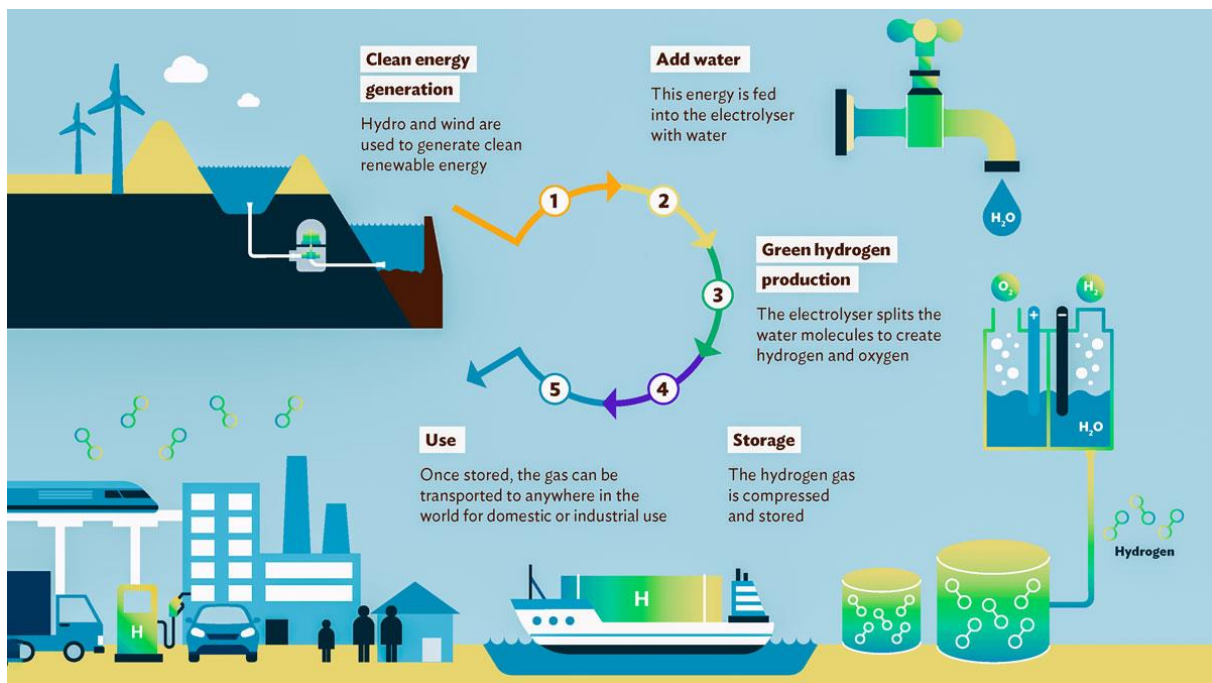


HyCARE: we care about a renewable hydrogen future!



1) How to produce green hydrogen... at home!

The Experiment: Electrolysis of water

We need **1 glass** and some tap **water**. We simulate a renewable energy source with a **9V battery** that has enough potential difference for the reaction to take place.

We connect the two poles of the battery with **metal wires** (**clips** can also be used) and wrap a small **aluminum** foil at the bottom on one side (at the negative pole), which has a lot of area, to more easily observe the hydrogen that will be produced.

We have thus created electrodes that we can insert into water by pinching them on the edge of the glass with **2 clips**. In this way, the current supplied by the battery will split the water (chemical formula H_2O) into its constituent elements: hydrogen (H_2) and oxygen (O_2), as can be seen from the formation of bubbles near the electrode with aluminum.



2) HydroCar - A revolutionary energy technology!



About HydroCar

Hydrocar shows us how a car can run on 100% clean fuel produced from a reversible renewable energy source. The fuel cell converts water into hydrogen using energy captured from the sun. To help improve the quality of our environment, reduce the impact of rising energy costs and decrease our dependence on imported oil, now is the time to delve into and understand the benefits of hydrogen-based technologies and fuel cells.

Around the world, scientists and researchers are trying to find new ways to meet our growing energy needs without further damaging our environment or endangering our planet. An alternative is hydrogen, which can be created using clean and renewable sources such as wind and solar energy. Using a device called electrolyser, water can be used to produce hydrogen. A fuel cell can then convert hydrogen into electrical energy to power anything from vehicles to electronic devices.

Why Hydrogen?

We consume carbon-based fossil fuels 100000 times faster than they are made available, raising many questions about global supplies and whether they can meet the rapidly growing global demand for energy. With geopolitical uncertainties in oil-producing countries and insufficient oil refining

capacity, our global economy is already under significant pressure. Oil is critical to the well-being of entire nations, so new technologies that can reduce dependence on imported oil are becoming strategic. National security concerns are now encouraging scientists around the world to develop new energy technology solutions such as hydrogen fuel cells.

An even bigger problem has to do with the consumption of oil itself. Fossil fuels contain carbon, and the burning of gasoline in our vehicles creates toxic air pollution in our cities and contributes to the release of huge amounts of carbon dioxide into our atmosphere. The accumulation of carbon dioxide is the cause of greenhouse effects and global warming. For more than 100 years, humans have been burning huge amounts of carbon-based fuels, causing our atmosphere to warm. Global warming can now be witnessed by increasingly violent storms, desertification, shrinking mountain glaciers, melting polar ice caps, changing ocean currents, and rising sea water levels. We are just starting to notice the effects.

Our society needs a new and renewable fuel, and hydrogen is the best long-term solution as an efficient energy vector.



In fact, hydrogen is the most abundant element in our universe and carries a lot of energy per unit of weight. This carbon-free fuel and energy carrier can be produced using traditional or renewable energy sources such as solar or wind power. Once captured, hydrogen can be converted back into usable energy in a variety of applications, including vehicles. This means that our daily fuel can be produced locally and in unlimited quantities. When consumed in the fuel cell, the result is electricity and water. This water can then be used to produce hydrogen and oxygen, making the cycle continuous and natural, without toxic emissions. There are many challenges to make it a reality, but it's only a matter of time.

Several "Hydrogen Highway" projects are being developed around the world and over 200 hydrogen filling stations have already been built to serve the first fuel cell vehicles.

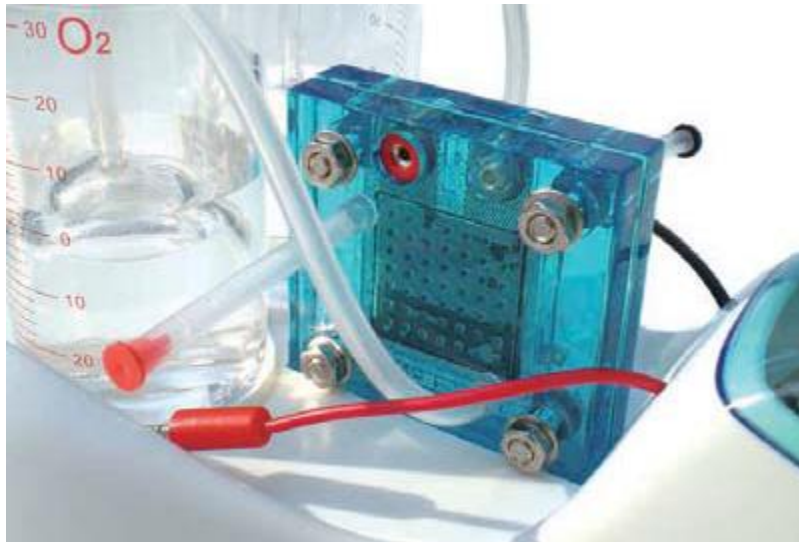
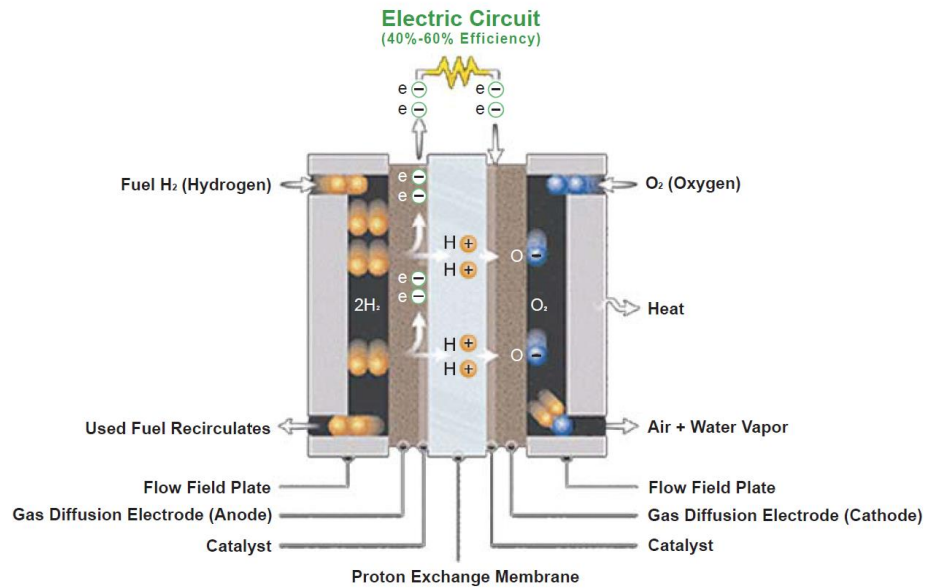
What is a fuel cell and how does it work?

A fuel cell is a device capable of converting hydrogen into usable electrical energy. The fuel cell is a set of layers of advanced materials in which hydrogen and oxygen react with each other to generate electricity and water, without any combustion.

The serious interest in fuel cells did not begin until the 1960s, when they were used to produce energy for man's first missions to the moon. Although fuel cells still provide electricity and water for today's space missions, this unique technology now aims to promote a global transition to renewable energy sources. Fuel cell vehicles that use hydrogen as their fuel are called "zero emission vehicles". If fuel cell vehicles used hydrogen produced from renewable energy sources such as solar or wind energy, our fuel supply would be unlimited, and the consumption of hydrogen through fuel cells would create neither waste nor air pollution.



The Hydrocar uses a reversible fuel cell with a proton exchange membrane (PEM). Generates electricity by consuming hydrogen located in the onboard hydrogen storage cylinder which reacts with oxygen, which is also created and stored on board the kit.



How a fuel cell works:

https://www.youtube.com/watch?v=0PN4XaMcrTQ&feature=emb_title