Powerfuel: Discovering the fuels of the future

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Umwelt

The ’powerfuel’ theme island is located in the Road Transport Hall at the Swiss Museum of Transport.

Together with its partners Avenergy Suisse and Hyundai, Empa is presenting a new permanent exhibition on sustainable fuels of the future at the Swiss Museum of Transport starting in March 2021. Among other things, the focus is on the question: How does green electricity get into the tank? And: Which fuel makes sense for which purpose? In an

interactive game, visitors can even virtually produce hydrogen themselves.

Individual mobility is in a constant state of flux, moving toward ever more energy-efficient solutions. And with it, the associated infrastructure, including filling stations, is also changing. Because with the goal of reducing CO_2 emissions based on technical developments, a diversification of fuels is required. What about hydrogen mobility? How does a fuel cell vehicle work? How are liquid synthetic fuels produced? Where does Switzerland get its fuel from? The new "Powerfuel" theme island in the Road Transport Hall of the Swiss Museum of Transport provides answers to all these questions. The first hydrogen rail vehicles and aircraft can be admired on an XXL screen.

On a 4 x 6 meter interactive play area, young and old can use their bodies to fuel a vehicle with climate-neutral hydrogen by splitting virtual water molecules into hydrogen and oxygen with their feet. They can also take a step into the fuel future. A Hyundai NEXO Fuel Cell vehicle will be on hand, and a simulator will allow visitors to try out the refueling process. The Hyundai NEXO is an electric passenger car powered by hydrogen.

To produce CO_2-neutral fuels, surplus electricity from renewable energy sources must be used: for example, from solar plants, wind farms or run-of-river hydroelectric plants. This CO_2-neutral electricity is used to produce hydrogen, which is then processed together with CO_2 to produce gaseous and liquid fuels

- so-called synfuels. These have the advantage that they can be easily stored. Synfuels can power conventional diesel and gasoline engines. Empa is realizing and investigating such concepts in its mobility demonstrator "move" in Dübendorf and is testing the production and use of these sustainable fuels in everyday life.

Links

- EMPA, Eidgenössische Materialprüfungs- und Forschungsanstalt
- Science Wire
- Neues aus dem Labor - news.myScience