

## H<sub>2</sub>-INDUSTRIES and the Leibnitz-Institute for Catalysis Joined Venture to Develop new Catalysts for LOHC Energy Storage Technologies, to Accelerate the Energy Turnaround

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**H<sub>2</sub>-INDUSTRIES AG Launches a Cooperative Strategic Partnership with the Leibnitz-Institute for Catalysis (LIKAT, Rostock) in the Field of Catalyst Research for the Development of Cost-Efficient High Performance Catalysts, Applied in the LOHC-based Hydrogen Storage and Release Processes. Hence, a Cost-Efficient Storage of Power in Large Quantities Becomes Feasible in the Near Future, Accelerating the Realization of the Energy Turnaround.**

H<sub>2</sub>-INDUSTRIES offers a variety of energy storage solutions, based on the conversion of electrical energy to hydrogen and its storage in an organic liquid, the so-called *liquid organic hydrogen carrier* (LOHC). Sustainable produced hydrogen binds LOHC molecules in a catalytic reaction (hydrogenation). Re-conversion of the LOHC to power after a long-term stable storage or a transportation is achieved by a catalytic process (dehydrogenation).

Prof. Dr. Matthias Beller, director of LIKAT, appreciates the cooperation agreement with H<sub>2</sub>-INDUSTRIES: **“This cooperation is a great incentive for us, to continue on our path to develop technologies by chemical research within distinct partnerships, in order to firmly establish these technologies on the market.”**

CEO and founder of H<sub>2</sub>-INDUSTRIES, Dipl.-Ing. Michael Stusch, welcomes the imminent partnership as well: **“We are really looking forward to the exclusive cooperation with the world leading research institute for applied catalysis, realizing the next milestone in the catalyst development for our LOHC-based energy storage technology. This will be a decisive step, pushing our LOHC storage technology from research to industrialization.”**

In October 2014 a global master contract was agreed. The contract covers the exclusive cooperation in the field of heterogeneous catalysis for hydrogenation and dehydrogenation of homocyclic aromatic compounds, particularly the development of highly effective catalysts for LOHC hydrogenation and dehydrogenation cycles, with the primary aim of increasing the catalyst performance and reaction kinetics of known and novel catalysts as well as a cost-reduction through the lowering and optimization of new metal content and usage of applied support-material for catalyst.

Dipl.-Ing. Stephan Möller, CTO at H<sub>2</sub>-INDUSTRIES, is anticipating an exciting future:

**We are very happy to embark on new paths together with the internationally recognized scientists of the LIKAT. In order to make our 19”-based 66 kW units, the so-called eRACKS, more efficient and reliable, we will integrate improved catalysts. With our newly built technical laboratories in Teterow (Rostock) we are in the close proximity of the University of Rostock, the LIKAT, the Fraunhofer Institute for Production Engineering IPA (Rostock) as well as companies, we need for the realization**

of our ambitious goals.”

Both companies appreciate, that the federal state of Mecklenburg-Vorpommern supports joint research projects between industry and research institutes. Especially the field of energy storage plays a key role concerning the expansion of wind power and is an important module of the energy turnaround.

## Contact

H<sub>2</sub>-INDUSTRIES AG  
Sihleggstrasse 23  
8832 Wollerau  
Switzerland

+49 89 21 55 43 80 | [contact@h2-industries.com](mailto:contact@h2-industries.com) | [www.h2-industries.com](http://www.h2-industries.com)

## About H<sub>2</sub>-INDUSTRIES:

H<sub>2</sub>-INDUSTRIES develops energy storage solutions, which store power effectively in a liquid form. This liquid can be transported by conventional infrastructure under ambient conditions and can be locally reconverted to power.

The company was founded by entrepreneur Dipl.-Ing. Michael Stusch in 2011 and is headquartered in Wollerau, Switzerland. Production and R&D are located in Teterow near Rostock, Germany (Mecklenburg-Vorpommern) and the product management and marketing are located in Graz, Austria.

**The LOHC-Technology allows H<sub>2</sub>-INDUSTRIES to store electrical energy unlimited. As a result, renewable energy become accessible 24/7 and the German energy turnaround could be realized without grid expansion.**

Based on the storage medium LOHC, wherein hydrogen is bonded, stored, transported and released hazard-free under ambient conditions, H<sub>2</sub>-INDUSTRIES offers a variety of products and solutions in the field of energy storage. Beyond that thermal energy, a by-product within the storage and release process of hydrogen can be used for seawater desalination and for the production of cold.

Furthermore solutions for a CO<sub>2</sub> neutral yacht- and ship industry and for large-scale stationary storage applications (GW range) are designed and realized.

H<sub>2</sub>-INDUSTRIES goal is the industrialization of the LOHC storage technology and the establishment of hydrogen as safe energy carrier for the future. Due to missing storage technologies, hydrogen as energy carrier were heavily discussed in the past. With the LOHC technology, the energy storage is not limited anymore. LOHC enables the storage and release of locally produced electricity by renewables, whenever and wherever it is needed.

**Owing to H<sub>2</sub>-INDUSTRIES stored power can be transported with existing infrastructure and provided location-independently.**

## About LEIBNITZ-INSTITUTE for CATALYSIS e.V. (LIKAT):

The Leibniz-Institute for Catalysis (LIKAT) is the largest publicly-funded research institute in Europe in the area of applied catalysis. It was founded in 1952 being the first research institute in Europe to be dedicated solely to catalysis.

The LIKAT, attached to the University Rostock, is located in a new building, inaugurated in 2013 on the campus of the University Rostock. Its areas of expertise are arranged both according to the various methods employed and according to the materials being studied. The following three points of emphasis in the program define the institute's research activity particularly: Applied sustainable processes of catalysis, Innovative methods and technologies for catalysis, - Molecularly-defined catalysis – special (metal)organic syntheses and catalysis.

Nowadays LIKAT is placed between knowledge base and application. In addition to the University and the MPG, the institute defines main tasks in the field of application related fundamental research and supports industrial adoptions. The development of catalysis research for future-oriented economical sectors should be co-determined and novel catalytic applications should be promoted. In this context especially knowledge and new processes in the field of life-science, sustainable chemical production processes and in the field of materials and energy are of basic interest.

**The strategic goals of LIKAT are to define and shape the development of relevant catalysis research for areas of economic activity, which hold potential for the future, and to put into effect new catalysis-based applications in these areas.**