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## HyCentA - Hydrogen Center Austria

<http://www.hycenta.at/>



**HyCentA - Hydrogen Center Austria**  
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### Products / Applications References

HyCentA focuses exclusively on research and development of hydrogen and shows a wide range of expertise on production, storage and application issues. Furthermore, the HyCentA has specific know-how in security and approval matters of hydrogen applications and was a consultant for the European Commission for the approval of hydrogen-powered vehicles.

HyCentA has an outstanding and well-equipped testing infrastructure and acts as a focal point and information platform for hydrogen-related research and development activities. The research facility of the hydrogen test center consists of: a refueling station for 350 bar gaseous hydrogen (Austria's first hydrogen filling station), the most advanced fuel cell system integration test bed in Europe, a 1000 bar high-pressure test bed for gaseous hydrogen and two test rooms for gaseous and liquid hydrogen for experiments with components and systems.

**Activities:**

- Customer-specific hydrogen test setups and experiments with hydrogen
- Expertise in questions of safety, standards and regulations
- Economic and environmental analyses Thermodynamic analysis of processes and systems
- Research and development of PEM fuel cell systems and electrolyzers
- Conceptual design of compressed hydrogen gas-systems
- Conceptual design, development and construction of power-to-gas plants with different electrolysis technologies
- Scientific research, lectures and publications

**HyCentA facilitates** the use of hydrogen as a renewable energy source and the development of electrochemical systems and peripherals, both as independent research projects, as well as in cooperative projects with academic institutions, industrial companies and international partners.

**New product development:**

Highly integrated fuel cell analysis infrastructure: HIFAI

**References:**

- HIFAI-RSA:  
Highly Integrated Fuel Cell Analysis Infrastructure (2014-2018) Funded by the Federal Ministry of Science, Research and Economy. Project partners: HyCentA Research GmbH and AVL List GmbH
- W2H:  
Conversion of renewable electricity into hydrogen for storing and transportation in the natural gas grid (2014-2018) Funded by the Austrian Klima- und Energiefonds in Vienna. Project Partners: OMV Refining & Marketing, EVN AG, Fronius International GmbH, HyCentA Research GmbH, Energy Institute at the Johannes Kepler University in Linz
- FC REEV:  
Development of an electrically powered shuttles people using a fuel cell for zero-emission range increase (2013-2016). Funded by the Federal Ministry for Transport, Innovation and Technology. Project Partners: MAGNA Steyr Engineering AG & Co KG, Proton Motor Fuel Cell GmbH, Institute for Powertrains and Automotive Technology at the Technical University of Vienna and HyCentA Research GmbH.

- **FCH Media:**  
Dynamic gas conditioning and flow measurement for fuel cell test beds (2014-2016). Funded by the Federal Ministry for Transport, Innovation and Technology. Project Partners: HyCentA Research GmbH, AVL List GmbH and the Institute of Mechanics and Mechatronics at the Technical University of Vienna.
- **E-LOG-BioFleet:**  
Fuel Cell Range Extender  
Application in Bio-Hydrogen Powered Warehouse Truck Fleet (2010-2013). Funded by the Austrian Klima- und Energiefonds in the Electromobility's Technical Beacons program. Project partners: Fronius International GmbH, HyCentA Research GmbH, Joanneum Research Forschungsgesellschaft mbH, Linde Fördertechnik GmbH and OMV Refining & Marketing.  
References:  
Striednig M.; Brandstätter S.; Sartory M.; Klell M.: Thermodynamic real gas analysis of a tank filling process. in Int J of Hydrogen Energy 39 (2014), pp 8495-8509
- **HyCar1::**  
Modification of a CNG vehicle (Mercedes Benz E 200 NGT) for the operation with mixtures of methane and hydrogen (2009-2010)  
References:  
Klell, M.; Eichlseder, H.; Sartory, M.: Variable Mixtures of Hydrogen and Methane in the Internal Combustion Engine of a Prototype Vehicle - Regulations, Safety and Potential. International Journal of Vehicle Design, Vol. 54, No. 2, S. 137 - 155, 2010  
ScienceDirekt  
Eichlseder, H.; Klell, M.; Schaffer, K.; Leitner, D.; Sartory, M.: Potential of Synergies in a Vehicle for Variable Mixtures of CNG and Hydrogen. SAE paper 2009-01-1420 in: Hydrogen IC Engines, SP-2251, SAE International 2009
- Fully automated functional testing of cryogenic tank systems for liquid hydrogen, designed by MAGNA STEYR Fahrzeugtechnik for the BMW Hydrogen 7 (2006-2008)

**Homepage:** <http://www.hycenta.at/>



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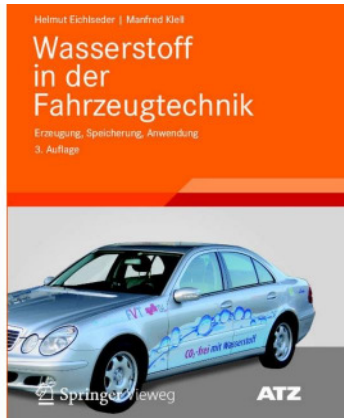
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## Products / Applications

### Scientific research, lecturing and publications



Reference:  
Eichlseder, H.; Klell, M.: Wasserstoff in der Fahrzeugtechnik. Erzeugung, Speicherung, Anwendung 3rd edition published by Springer Vieweg Wiesbaden, 2012

### Test beds



Custom-specific test bed setups and experiments

Example: RSA-HIFAI, a Highly Integrated Fuel Cell System Analysis Infrastructure

## Engineering services



Engineering services for PEM-electrolyser, power-to-gas plants, fuel cell systems and hydrogen infrastructure

Example: Power-to-gas plant wind2hydrogen in Auersthal for production and storage of hydrogen in the natural gas grid

## Hydrogen refueling



Refueling of hydrogen powered vehicles up to 350 bar (planned expansion to 700 bar)

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