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INSTITUTE OF ENERGY PROCESS ENGINEERING AND CHEMICAL ENGINEERING

PROFESSORSHIP OF ENERGY PROCESS ENGINEERING

InnoTeam Bio2H_2

Production and Storage of hydrogen from biogenic residues and waste materials

CHALLENGE

The challenge is to develop an efficient and cost-effective method for producing hydrogen from biogenic residues and waste materials. The resulting synthesis gas is then used for indirect hydrogen storage in iron-based storage systems. This requires close collaboration between various disciplines, such as chemistry, thermodynamics, and materials science.

OUR PROJECT

InnoTeam Bio2H_2 is an interdisciplinary research project focused on developing a thermochemical conversion route for the production of hydrogen-rich synthesis gas from biogenic residues and waste materials. We are working on the development of a process that enables the gasification of sewage sludge and other biogenic residues and waste materials, and the use of the resulting synthesis gas for indirect hydrogen storage in an iron-based storage. Additional valuable materials, such as phosphorus, can also be separated. The project includes the identification of a suitable thermochemical conversion route, the development of a process for gas purification and synthesis gas utilization, the further development of the iron-based storage system, and the execution of experiments and simulations to optimize the efficiency and cost of the process. Through close collaboration between disciplines and cooperation with our partners, we want to develop an efficient and marketable process for the production and storage of hydrogen from biogenic residues and waste materials.

PARTNER

- DBI-Virtuhcon GmbH
- AMBARtec AG
- MiViA GmbH

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