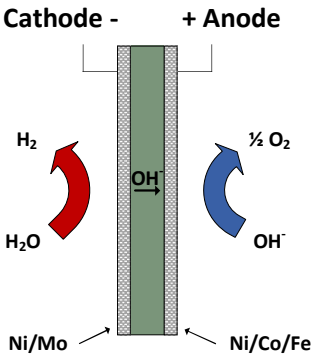
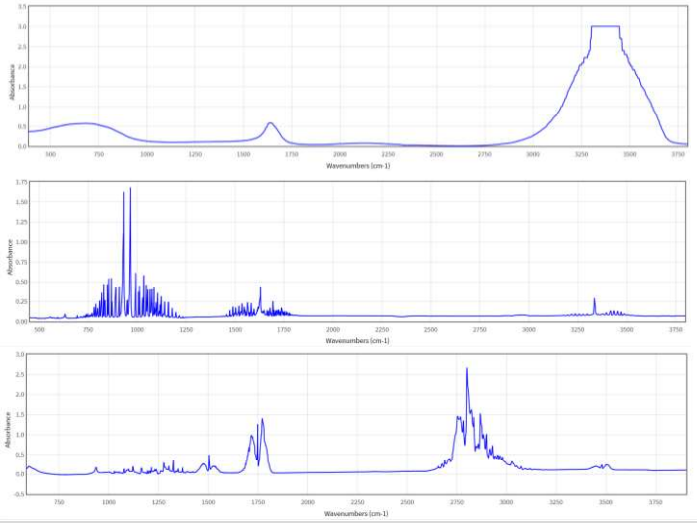
Development of hydrogen purification system in the cathode path of alkaline water electrolysis





Description:

Water electrolysis is a key technology for hydrogen production and, therefore, storage of electricity from renewable resources. An in-house developed test bench allows for testing and characterization of electrolyser single cells and short stacks with the aim of developing more economic and efficient electrolysers. In order to expand the scope of the research, a hydrogen purification system should be implemented in the test bench. The goal of this thesis is the conceptioning and installation of a purification system in the hydrogen production stream in order to ensure high gas quality at the system boundary. The **hydrogen drying unit** should comprise a cold trap and a adsorption unit. In order to validate the functional capability of the setup path, **gas analysis** will be employed to determine residual impurities and humidity in the product gas. Additionally, the condensate of the cold trap will be analysed for impurities.

Content:
- Literature research and requirement analysis (1 month)
- Conceptioning, ordering and installation (2 months)
- Testing and validation of function of the purification path (Test bench operation and gas analysis) (2 month)
- Creation of written master thesis in English or German (1 month)

Start: from now
Duration: approx. 6 months
Compensation: € 2.600

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