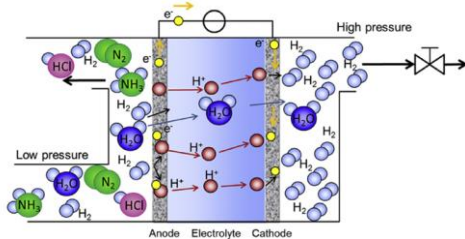
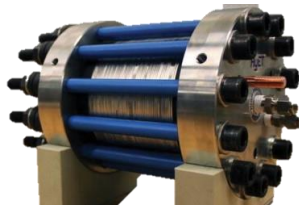


Construction Electrochemical Hydrogen Compression Cell test bench / Material selection for EHC



Schorer et al.: Membrane based purification of hydrogen system (MEMPHYS).
International Journal of Hydrogen Energy (2019)



Source: HyET

Description

The electrochemical hydrogen compression (EHC) is a promising technology for an effective compression up to 1000 bar and additional hydrogen purification within one assembly. In order to further develop the relatively new technology, reduce material costs and improve durability, a novel prototype of an EHC will be designed. One crucial part is an adequate selection of the used membrane capable of an effective ion transportation, high stability properties at elevated differential pressures and acting as a barrier for impurities such as N_2 , CH_4 or CO_2 . Various proton (PEM) and anion exchange membranes (AEM) will be evaluated regarding degradation, permeation coefficients, humidification, etc.

Content

- Literature research and requirement analysis (1 month)
- Design and development of adequate membrane test bench (2 months)
- Testing and evaluation of various membranes (2 months)
- Creation of written master thesis in english or german (1 month)

Start 05/2020

Duration ca. 6 months

Compensation € 2.600

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