Master Thesis

Development of a stackable CO₂-Electrolyzer

Motivation
Electrolysis for production of formic acid from CO₂ is a subject of active academic research with main focus on the development of new catalysts. Suitable reactor design is further required for scale-up and industrialization. A flow-through cell for laboratory investigations is developed and built in the precedent project. As a next step a stack of repeating units must be created.

Tasks
In this master thesis a laboratory electrolyser consisting of ca. 10 stackable units, each with active area of 100 cm² must be developed for energy efficient production of formic acid from CO₂. Low ohmic resistance and use of novel cathode flow-field lay in focus of the new design.

- Concept development and designing of a stackable electrolyzer;
- Investigating an influence of the pressing force and the manifold design for optimizing energy efficiency of the electrolyzer;
- Possible design improvements.

Qualifications & Skills
- Matriculation in process engineering, chemistry or similar
- Motivation to designing and building reactors, as well as to the experimental work in the lab

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