Karlsruher Institut für Technologie

Karlsruher Flüssigmetalllabor

Institut für Thermische Verfahrenstechnik

Direct dehydrogenation of methanol to formaldehyde – Evaluation of CAPEX/OPEX

Direkte Dehydrierung von Methanol zu Formaldehyd — Bestimmung von CAPEX/OPEX

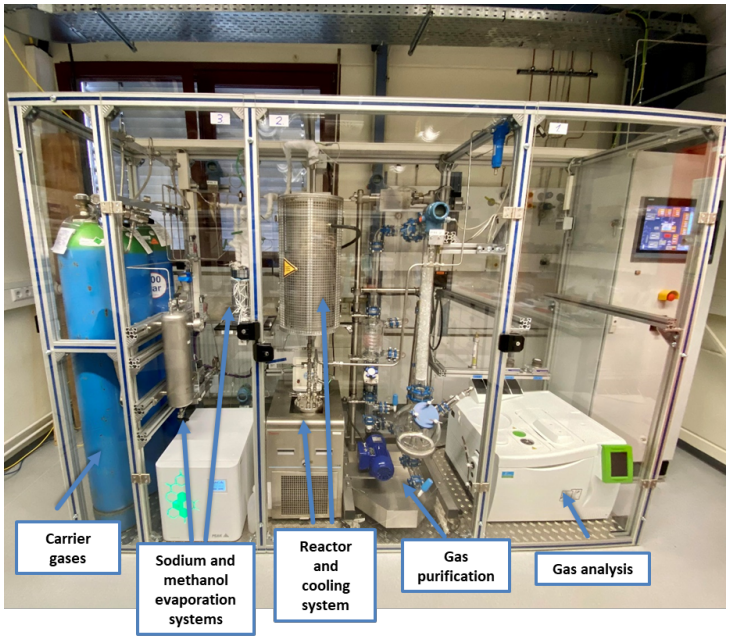
Hiwi/ Master thesis (theoretical)

Beginn: immediately

Chemieingenieurwesen/Verfahrenstechnik, Maschinenbau

Themenstellung:

This work will be carried out as part of the NAMOSYN project, in which an experimental setup for anhydrous formaldehyde production is being designed and built. The dehydrogenation of methanol to formaldehyde takes place in the gas phase using sodium vapour as the catalyst. The water-free formaldehyde can then be used for the production of OME (oxymethylene ether), an alternative to diesel.



MEDENA mini-plant (Photo: M. Kamienowska)

Following tasks should be dealt with:

- Scale-up proposal for existing MEDNEA mini-plant
- An economic evaluation should be carried out for the production of 2 Mt/year Formaldehyde
- Estimation of the necessary investments to obtain sufficient capacity - Capital expenditures (CAPEX)
- Estimation of production costs and day-to-day expenses - Operating expenses (OPEX)
- Analysis of CAPEX and OPEX – Discussion of arguments for and against a scale-up

The content and scope of the tasks and the wishes of the student can be discussed with the supervisors.

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