

Some Aspects for Methanol and CO₂

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Abstract

In general, there are 2 possibilities to convert CO₂ in Methanol plants One is, together with Syngas preferentially to increase capacity or second, convert CO₂ directly with Hydrogen to Methanol. For the first case as an example, the CO₂-emission free Methanol process is presented. The basis for this process and the CO₂ only based process is a deep knowledge about the kinetics. A kinetic model and the application ASPEN+ process calculation is the next bullet point of the presentation. The CO₂ for the Methanol-synthesis may come from very different sources. A source for CO₂ to green Methanol is CO₂ coming as an off - gas from fermentation. The specification and the needs for purification and process to make it usable for MeOH synthesis are presented. For the CO₂ to Methanol process, the lack of heat of reaction, makes it necessary to generate additional steam for the distillation to pure Methanol. A concept to provide to generate this additional steam is presented. This steam generation is included in the thermosyphon system of the Methanol synthesis reactor. The presentation ends with an overview of the energy consumption of a CO₂ based Methanol plant with Hydrogen from electrolyzer.

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Poster

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