

# Notice for Bachelor's/Master's thesis on the topic *Thermodynamic modeling of hydrate formation from fruit juices*

**Language:** German or English

Within the scope of a project for the concentration of liquid food (juices), a new technology using gas hydrates is to be investigated. For the process design, however, the stability limits must be known. These can be determined experimentally, but this is linked with a high measuring effort.

In the frame of this thesis a thermodynamic model for the prediction of hydrate equilibrium curves is to be developed. This model will first be validated using the CO<sub>2</sub>-water-hydrate system, and in further steps it will be extended by juice specific components.

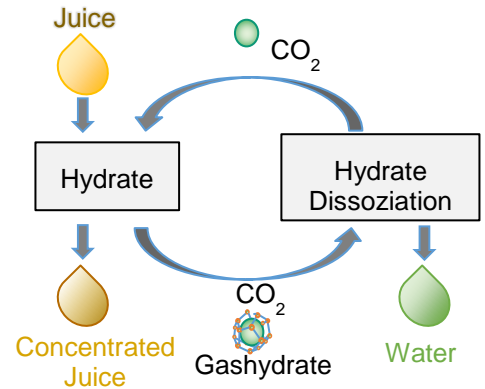


Figure 1: Process overview

## Tasks:

- Modeling of the CO<sub>2</sub>-Water system
- Extension by Hydrate-Phase
- Extension by sugar components
- Abstraction of juice components
- Validation with literature data

## Your Profile:

Ideally, you are a student of process engineering or similar and have good knowledge in some of the following areas:

- Interest in thermodynamic modeling
- Thermodynamic, Phase change and Mass transfer
- UNIQUAC/ UNIFAC/ PR EOS
- Matlab
- You have a pronounced ability to work independently

Start: **Immediately**

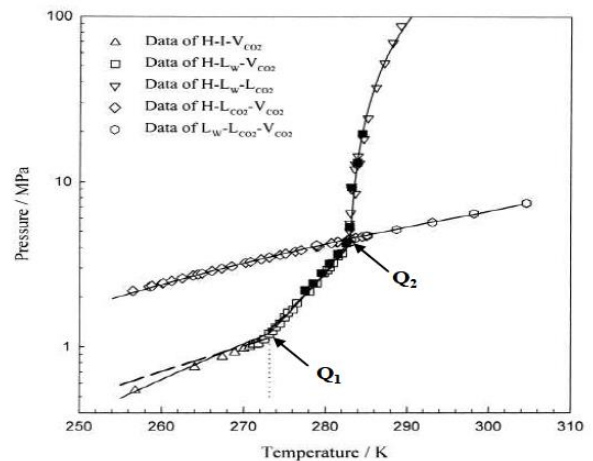


Figure 2: Hydrate Equilibrium (Sabil 2009)

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