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Master Thesis “Modelling and optimization of a glass manufacturing process”

In glass manufacturing energy accounts for a significant share of production costs. Improving energy efficiency thus is a major topic in the glass industry. Often an optimization of single components rather than the integrative optimization of the overall process chain is applied. However, to leverage synergies there is the need to keep the overall perspective. In this work the process of the glass making is investigated based on a systemic approach using physical process modelling. Models of glass making are developed and optimization potentials are quantified.

This work is carried out in cooperation with the Institute of Energy Systems and Thermodynamics (Vienna University of Technology) and is supervised by Univ.-Prof. Dr. Rene Hofmann.

Description

- Literature review on glass manufacturing
- Analysis and selection of existing process models for the description of thermo-physical and -chemical phenomena in glass processing
- Implementation of models into a commercial modeling tool based on mass and energy balances
- Model-based prediction of thermal energy consumption along the process chain with varying production outputs and identification of possible optimization potentials
- Comparison and validation using process data from a commercially operated glass manufacturing process

Candidate Profile

- Master student in chemical engineering, mechanical engineering, physics or mathematics
- Experience in model building and model-based analysis of chemical processes

Please submit your application documents, including certificates, to
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