

University of Stuttgart
Germany

Institute of Combustion and Power Plant Technology
Prof. Dr. techn. G. Scheffknecht

Announcement

Bachelor Thesis

Literature study on the Calcium Looping process for post-combustion CO₂ capture

Background

The Calcium Looping technology (CaL) is a post-combustion, high temperature process based on the reversible calcination and carbonation of a calcium based sorbent, typically limestone (CaCO₃).



The CO₂ contained in the power plant flue gas enters the carbonator and reacts with lime (CaO) at temperatures between 600-700°C. The carbonated solids are then directed to the regenerator, where limestone is calcined to lime at temperatures between 900-950°C. The regenerated solids are then directed back to the carbonator, closing the solid loop. The heat demand in the calciner is supplied by the oxy-combustion of coal and other fuels at temperatures close to 900°C. This enables the production of a flue gas stream containing over 90 vol% of CO₂, ready for storage after purification and compression.

Objective

The objective of this work is to elaborate, compile and present the state of the art of the Calcium Looping process. The student is expected to critically review the theory which will be needed for the analysis of the results, as well as to use the results of previous research to identify a promising direction for future research. Therefore, the thesis should enable an improved comprehension of the topic, and has to create any novelty.

Approach and tasks

1. General and specific literature search
2. General and specific literature review
3. Evaluation and interpretation of the results
4. Assessment and compilation of the results

Requirements

- Good literature searching abilities
- Good critical analysis skills
- Good communication/writing skills

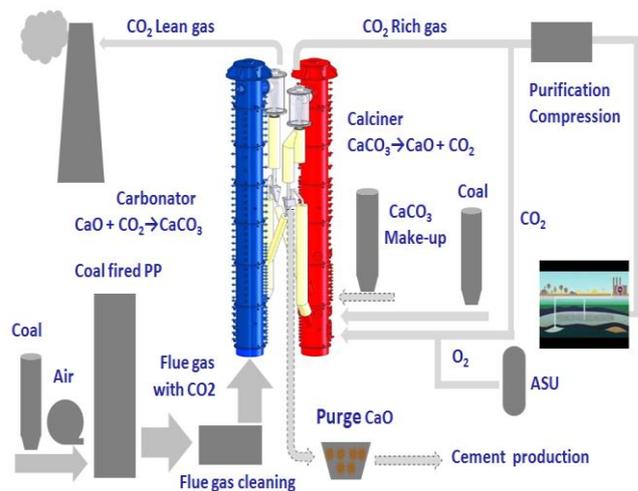
Start date: immediately!

A student assistant job may be offered.

Interested students please contact

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