# WP5
# Process modelling and integration

CLEAN clinKER by calcium looping for low-$CO_2$ cement

CLEANKER

*CLEANKER is a Horizon 2020 project with the ultimate objective of demonstrating the applicability of the calcium looping (CaL) process to the cement production.*


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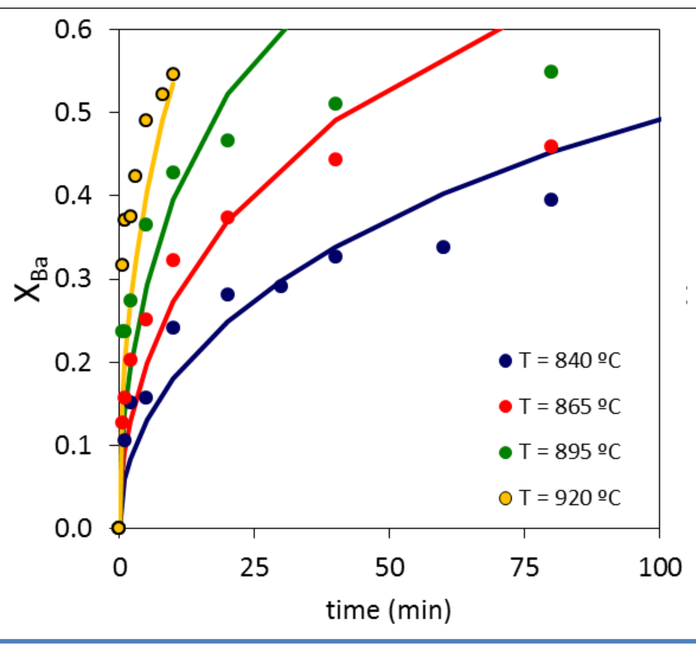
## Objectives

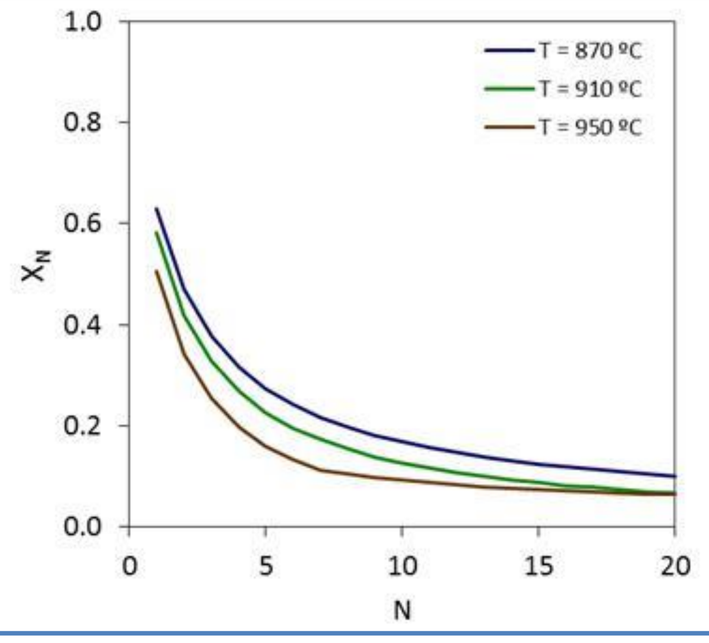
1. To evaluate through process simulation the performance of full-scale cement kilns with integrated CaL process.
2. To develop validated 1D and 3D entrained flow CaL reactor models for adequate interpretation of experimental results and for scale-up purposes.
3. To optimize the design of $CO_2$ purification unit with different target purities and taking into account the variable air in leakages in the plant.
4. To develop kinetic sub-models to account for the effect of calcination conditions on raw meal properties as $CO_2$ sorbent.

## WP5 research: 1st year activities

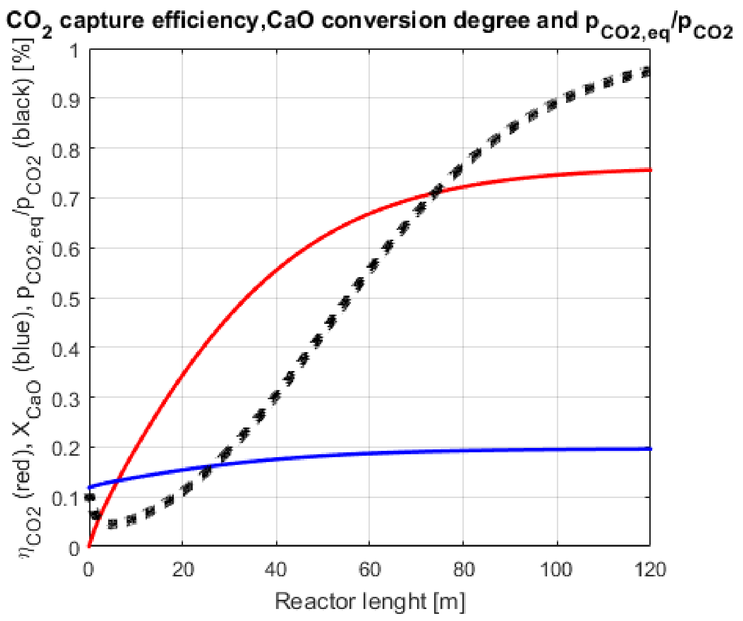
*Modelling of CaO conversion to Belite at calcination temperature*



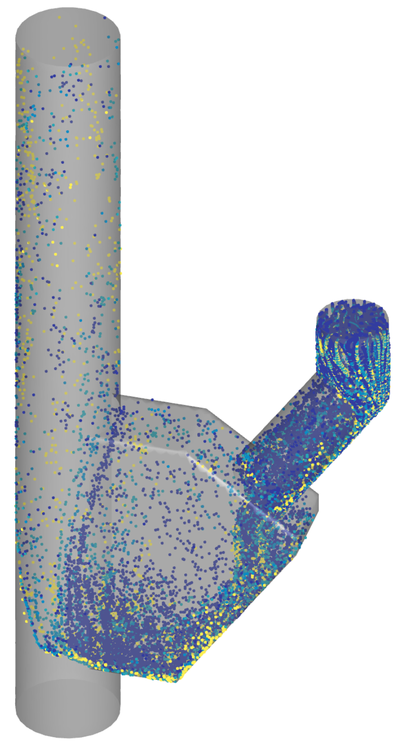

*Modelling of sorption capacity decay of CaO in raw meal*



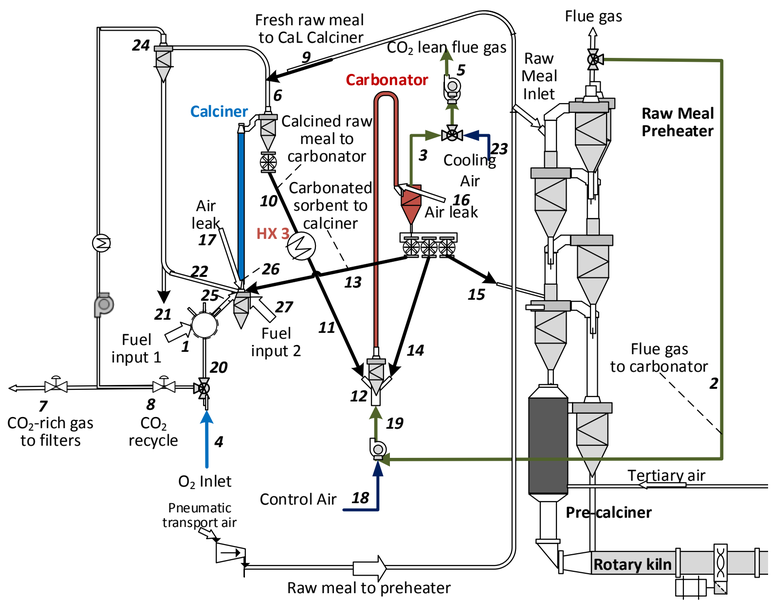

*1D modelling of the Vernasca pilot carbonator*




*CFD modelling to support the design of the Vernasca pilot plant*



*H&M balance of the Vernasca CaL pilot plant*




*3D flow and process modelling*