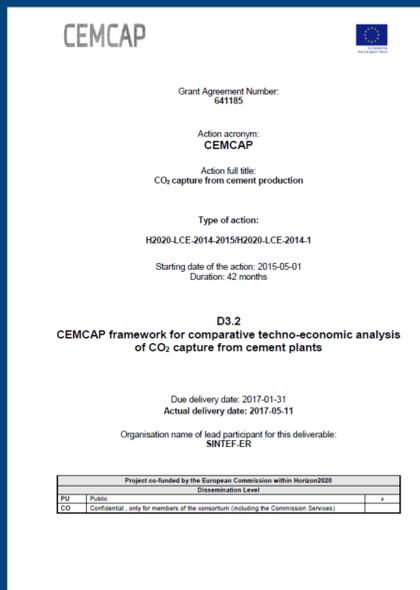


CEMCAP

CEMCAP is a Horizon 2020 project with the objective to prepare the grounds for cost- and resource-effective CCS in European cement industry.



Available at: <https://zenodo.org/communities/cemcap/>

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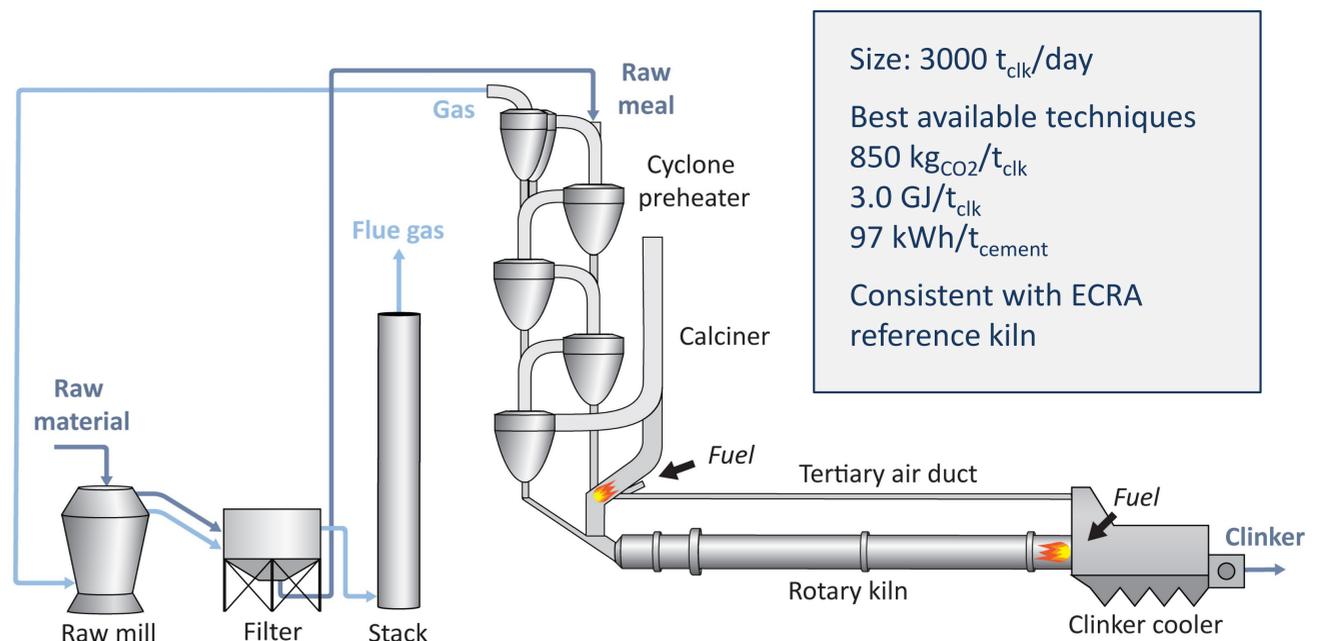
CEMCAP framework

– for project consistency

Framework contents

- Reference cement kiln
 - Process unit specifications
 - CO₂ specifications
 - Utilities – cost and climate impact
 - Economic parameters
 - Key performance indicators
- Steam
 - Electricity
 - Integrated power generation
 - Oxygen supply
 - Refrigeration

Reference cement kiln



Consistent process evaluation

- Specific primary energy consumption for CO₂ avoided (*SPECCA*)
- Cost of clinker (*COC*)
- Cost of CO₂ avoided (*CAC*)

$$SPECCA = \frac{\overbrace{(q_{clk} - q_{clk,ref})}^{\text{Added direct primary energy consumption}} + \overbrace{\frac{1}{\eta}(P_{el,clk} - P_{el,clk,ref})}^{\text{Added indirect primary energy consumption}}}{\underbrace{(e_{clk,ref} - e_{clk})}_{\text{Direct CO}_2 \text{ emissions avoided}} - \underbrace{e_{el}(P_{el,clk} - P_{el,clk,ref})}_{\text{Added indirect CO}_2 \text{ emissions}}}$$

$$CAC = \frac{COC - COC_{ref}}{(e_{clk,ref} - e_{clk}) - e_{el}(P_{el,clk} - P_{el,clk,ref})}$$