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| Nota di contenuto | Intro -- Acknowledgement -- Abstract -- Kurzfassung -- Contents -- List of symbols -- List of subscripts -- List of elements and molecules -- List of acronyms -- List of figures -- List of tables -- 1 Introduction -- 1.1 CO2 capture from cement plants -- 1.2 Motivation and objectives -- 1.3 Previously published results -- 2 State of the art -- 2.1 Cement clinker manufacturing process -- 2.2 Carbon capture and storage technologies -- 2.3 Calcium looping CO2 capture -- 2.3.1 Development of calcium looping CO2 capture -- 2.3.2 The calcium looping CO2 capture process -- 2.3.3 Carbonation reaction -- 2.3.4 Calcination reaction -- 2.3.5 Sorbent activity -- 2.4 Reactor design -- 2.4.1 Carbonator design, active space time approach -- 2.4.2 Calciner design, active space time approach -- 3 Calcium looping CO2 capture for clinker manufacturing -- 3.1 Back-end calcium looping option using fluidised bed reactors -- 3.2 Integrated calcium looping option using entrained flow reactors -- 4 Methodology -- 4.1 Sorbent characterisation and sorbent screening -- 4.2 Fluidised bed calcium looping CO2 capture -- 4.2.1 Fluidised bed pilot facility (MAGNUS) -- 4.2.2 Analysis of sorbent samples collected within the fluidised bed calcium looping experiments -- 4.3 Entrained flow calcium looping CO2 capture -- 4.3.1 Entrained flow reactor (DIVA) -- 4.3.2 Conduction of entrained flow calcination experiments -- 4.3.3 Analysis of sorbent samples collected within the entrained flow experiments -- 5 Results - |

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