Supplementary Materials

## Phase evolution and textural changes during the direct conversion and storage of CO<sub>2</sub> to produce calcium carbonate from calcium hydroxide

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The contents of the supporting information are listed below:

- Figure S1. Determination of the weight change in calcium hydroxide using thermogravimetric analyses (TGA).
- Figure S2. Changes in the characteristic peaks of Ca(OH)<sup>2</sup> (*d* = 4.90 Å, *q* = 1.28 Å<sup>-1</sup>, h k l: (0 0 1)) and the integrated peak intensity are represented in (a) and (b) respectively [40]. The relative integrated intensity of calcium hydroxide represented in (b) is the integrated intensity of the characteristic peak at a given temperature normalized to the integrated intensity at 30 °C. Vertical bars in (b) represent estimated 5% standard deviation uncertainties.



Figure S1. Determination of the weight change in calcium hydroxide using thermogravimetric analyses (TGA).



**Figure S2.** Changes in the characteristic peaks of Ca(OH)<sub>2</sub> (d = 4.90 Å, q = 1.28 Å<sup>-1</sup>, h k l: (0 0 1)) and the integrated peak intensity are represented in (**a**) and (**b**) respectively [40]. The relative integrated intensity of calcium hydroxide represented in (**b**) is the integrated intensity of the characteristic peak at a given temperature normalized to the integrated intensity at 30 °C. Vertical bars in (**b**) represent estimated 5% standard deviation uncertainties.