Study on the CO_2 Fixation using the Industrial Byproducts through the Dissolution of Ca Component and Liquid Carbonation

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Although CCS for greenhouse gas reduction has been advanced in many technical areas, final treatment is of significant matter. Wet or dry mineral carbonization can be one of plausible concepts in the view of economic feasibility and industrialization. CCUS(carbon capture, utilization and storage) includes capture and fixation of CO_2. The present study utilized a shuttle mechanism of wet chemical absorption using MEA. It does not use conventional processes of high temperature and pressure, but leads a very rapid transport mechanism of carbonate ions to metal cations such as Ca_2^+. Thereby energy consumption could be minimized. This work using wet MEA absorption process obtained 94% of recovery from CO_2 flow at the utilized, so that can be said an environmentally-friendly process. The sludge could fix 0.175 mg-CO_2/mg-sludge; the final product, precipitated calcium carbonate, would be a valuable material.

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