

Techno-economic analysis of CO<sub>2</sub> mineralization process using aqueous NaOH

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CO<sub>2</sub> mineralization is one of the prospective CO<sub>2</sub> utilization methods, which intends to convert CO<sub>2</sub> to more stable and valuable form. An idea of conversion of CO<sub>2</sub> to sodium bicarbonate (NaHCO<sub>3</sub>) using aqueous sodium hydroxide (NaOH) was suggested earlier by Skyonic Corporation. The overall process is composed of chlor-alkali process, CO<sub>2</sub> absorption process, and product recovery process (crystallization and drying). However, its economic feasibility hasn't been proved yet. In this study, the mineralization process is designed on reference to the Skyonic's process using AspenPlus<sup>TM</sup>. Additionally, techno-economic analysis is carried out in comparison with a conventional NaHCO<sub>3</sub> production process (Solvay process) to discuss the economic feasibility.