

Carbon Fixation and Utilization Using Concentrated Seawater Based on the Alkanolamine Solution and Rate Promoters

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CCS technologies are based on the “Storage” of captured carbon dioxide. In other words, stable and safe storage was the most important thing to be achieved. However, some nations in European continent and Korea are not seemed to be suitable for the storage due to geographical properties. Hence, the technologies of CCU (Carbon Capture and Utilization) has been developed. With this CCU technology, CO<sub>2</sub> emitted from industrial flue gas can be converted to useful inorganic substances which can be applied in many industrial fields. In this research, carbon dioxide was captured by aqueous absorbent solution based on alkanolamine type solvent and rate promoters. Monoethanolamine (MEA), Diethanolamine (DEA), and Methyldiethanolamine (MDEA) was used and piperazine (PZ) was used for the rate promoters. As a result, it showed high CO<sub>2</sub> absorption performances compared to previous research and precipitated calcium carbonate (PCC) salt was produced. Using final product, Scanning Electron Microscopy (SEM), X-Ray Diffraction (XRD), and Thermogravimetric Analysis (TGA) were performed and the properties of them were suggested.