

Alkali Solution Based Carbon Dioxide Utilization Technologies

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Since industrial revolution in 18th century, amount of energy required by human beings have been greatly increased. Most of the energy was came from fossil fuels, from which carbon dioxide gas was produced when it was combusted. This resulted greenhouse effect and global warming by breaking heat equilibrium of surface of the earth. To prevent these problems, carbon dioxide reduction technologies are being conducted. In this study, 15 vol% of simulated flue gas was captured using various types of alkali solution including NaOH, KOH, MEA, DEA, and MDEA. After absorption step, calcium ions were added to each saturated absorbent solutions. As a result precipitated calcium carbonate (PCC) salts were produced. Also, absorption characteristics and the properties of PCC were dealt in this research. XRD (X-Ray diffraction) and SEM (Scanning Electron Microscope) was used to determine the crystal structure of formed PCC.