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A study on carbon dioxide desorption in amino acid salt

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The indoor carbon dioxide concentration in the domestic liquor factory working environment is over 20,000 ppm. So, in order to maintain the indoor carbon dioxide standard value of 5,000 ppm or less, the outside air is introduced. A very large energy loss occurs in order to maintain the room temperature changed by the inflowed of outside air. In order to minimize energy loss and provide a pleasant work environment to the workers, we intend to secure indoor comfort while enhancing energy efficiency through the removal of carbon dioxide, which is a pollutant in the mainstream plant and indoor air circulation. In this study, the regeneration efficiency of the amino acid salt absorbent which can be applied to carbon dioxide absorption/regeneration process was confirmed. The regeneration efficiency has a great influence on the economical judgment of the process. So, continuous regeneration experiment was conducted to establish economical process. The amino acid salts used in the experiments are potassium L-lysinate and potassium L-alaninate. Each amino acid and Potassium Hydroxide (KOH) was mixed at a 1:2 molar ratio. In order to confirm the regeneration efficiency of the absorbent, carbon dioxide was absorbed in two materials and the carbon dioxide desorption experiment was carried out by heating. The initial reaction rate was L-alanine was faster. Over time, L-lysine, desorption higher concentrations of carbon dioxide. L-lysine showed higher regeneration efficiency than L-alanine, (L-alanine 47.26% and L-lysine 62.11%). As a result of the continuous regeneration experiment using the L-lysine having good absorption and regeneration efficiency, it was confirmed that the regeneration efficiency decreases as the number of regeneration increases.

Biography

Jae Gang Kim has his research in environment. He mainly conducts his research on air pollutant removal, carbon dioxide capture and utility and waste resources. He is conducting experiments on a new clean, reusable method that does not generate secondary pollutants.

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