In Situ Observation of High-Temperature CO_2 Capture Over $NaNO_3$ Promoted Magnesium Oxide

전형빈, 서정길†
명지대학교
(jgseo@mju.ac.kr†)

$NaNO_3$ as a promoter can dissociate into Mg^{2+} and O^{2-} in the MgO-based adsorbent and improve the adsorption capacity of CO_2. Hydrotalcite is a skeleton to form $MgCO_3$, which can further enhance the CO_2 adsorption capacity and stability of MgO. Although the basic principles and mechanisms of CO_2 adsorption of these adsorbents have been found in many studies, much research has not been conducted on the real-time observation of CO_2 adsorption systems. In this study, $NaNO_3$-MgO-Al_2O_3 adsorbents were prepared by mixing $NaNO_3$ and Hydrotalcite. In order to clarify the CO_2 adsorption phenomenon, in-situ transmission electron microscopy (TEM) was used to observe. In this study, we will discuss in detail the information about the whole adsorption system based on the real-time structural change of $NaNO_3$-MgO-Al_2O_3 during adsorption and adsorption and regeneration mechanism of adsorbent as well as real-time observation information. This work was supported by the National Research Foundation of Korea (NRF) funded by the Ministry of Science, ICT and Future Planning (NRT-2016R1C1B2008694).