고정층 가스화장치를 이용한 무연탄가스화 특성 연구

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Gasification technology is considered as the distinguished coal utilization application due to energy efficiency and international environment regulations. It involves the conversion of the carbon of various solid materials to clean synthesis gas which is a mixture of hydrogen (H2) and carbon monoxide (CO). To analyze the application possibility of industrial furnaces with synthesis gas, a dry ash fixed gasifier was designed and manufactured and gasification of anthracites experiments were performed. The experimental anthracites were China, Vietnam, Jangsung, and Kyungdong. To predict the gasification results, coal properties were analyzed and the reactivity of each coal was measured with thermogravity analyzer (TGA, Cahn TG-2171). Synthesis gas concentrations of China coal experiments in fixed gasifier were between 30 and 40 and calorific values were over 1,200kcal/Nm3. Though ash content of domestic anthracites (Jangsung and Kyungdong) were higher than that of China coal and calorific value of those were less than that of China coal, the gasification application to domestic anthracites might be possible with utilization of operation know-how acquired in this experiments and improvements of the fixed gasifier.