

초중질 원유의 경질화 공정을 위한 코크스 가스화 특성 연구

서명원^{1,2}, 광영태¹, 구건희¹, 라호원¹, 윤상준¹, 김용구¹,
이재구^{1,*}, 노남선¹, 김상돈³

¹한국에너지기술연구원; ²과학기술연합대학원대학교;

³한국과학기술원

(jaegoo@kier.re.kr*)

The upgrading technology of heavy oils and residue can be classified into three processes, which are hydroprocessing, carbon rejection process, and gasification. The extra-heavy oil fractions upgrading process, which consists of a rapid thermal pyrolyzer (RTP) of extra-heavy oil and gasifier of RTP residue to produce syngas as well as supply heat to the pyrolyzer are developed in KIER. For the RTP residue gasifier design, parameters such as reactor temperature, ER(Equivalence Ratio), and steam/fuel ratio should be determined. In this study, the continuous fluidized bed reactor (0.05 m I.D. x 1.2 m high) was constructed for petroleum coke/sand gasification. The air and steam were used as gasifying agents. The gasification performances such as product gas composition, carbon conversion, heating value of product gas are determined. In air-blown gasification, the HHV of product gas ranges from 450 to 1200 kJ/m³ which is lower than that of typical gasification. On the other hand, steam gasification shows better performance without nitrogen dilution and enhanced steam-carbon gasification reaction.