Proper Coal Selection for Hot Gas Desulfurization & Fisher-Tropsch Processes Using Commercial Simulator

박영철*, 조성호, 류호정, 윤상준, 이창근
한국에너지기술연구원
(youngchp@kier.re.kr*)

As the world seeks alternatives and better ways to meet demands of reliable energy supply, coal-to-liquids (CTL) technology is increasingly being recognized. In CTL technology, the key process is the Fisher-Tropsch process that is a catalyzed chemical reaction in which CO and H_2 are converted into liquid hydrocarbons of various forms. Typical catalysts used are based on iron and cobalt which could be seriously contaminated by H_2S. The raw gas which is containing CO and H_2 is produced by coal gasification process. The CO/H_2 ratio and the amount of H_2S in the raw gas significantly affect both hot gas desulfurization and Fisher-Tropsch processes. In this study, a commercial simulator, Aspen Plus is used to select a proper coal to produce an adequate CO/H_2 ratio for Fisher-Tropsch process and a low amount of H_2S in the raw gas for reducing energy requirements of hot gas desulfurization process.