

## Process Optimization for Synthesized Gas Production of GTL Pilot Demonstration Plant

한자령, 정종태<sup>†</sup>, 이종열, 모용기  
한국가스공사 DME기술연구센터  
(jtchung@kogas.or.kr<sup>†</sup>)

1bbd/day GTL Pilot plant was constructed for Fischer-Tropsch synthetic oil production from natural gas. While implementing process optimization for each process unit, the process for synthetic gas production with an endothermic reforming reaction requires large amount of energy and therefore the process design has been studied to improve the process efficiency focusing on the optimum conditions for the operation. The process simulation was carried out for the tri-reformer with the production capacity of 70m<sup>3</sup>/hr. Optimum composition of tri-reformer feed gas was calculated, which can offer an isothermal environment for the tri-reformer and reduce carbon deposits and maintain desired H<sub>2</sub>/CO ratio.

In this study, process simulation was carried out for the cost savings and process optimization. From the simulated feed gas composition under high temperature isothermal conditions, the optimum CH<sub>4</sub> conversion and CO<sub>2</sub> consumption were calculated to maintain H<sub>2</sub>/CO ratio at 2.0 which is optimal for the FT reaction.