

모듈형 GTL (Gas-to-liquids) 기술 개발을 위한 금속 구조체 F-T (Fischer-Tropsch) 합성 촉매

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The term GTL is most often used to describe the use of Fischer-Tropsch synthesis (FTS) technology for the conversion of natural gas into synthetic liquid oil products like ultra-clean, high-performance gasoil and naphtha. Several gas-to-liquids (GTL) technologies have proven their ability to be used in large scale operations, and also new small-scale technologies are on their way to fruition. At this point in time, the existing GTL projects are Bintulu, Mossel Bay, Oryx GTL, and Pearl GTL. Furthermore, the new projects of Escravos are currently in progress. In this study, the FTS reaction was carried out using a novel system consisting of a cobalt metallic structured catalyst and heat-exchanger type reactor. Finally, the goal of this study was to concretize the ideal reactor concept and to develop a novel reactor system without the heat and mass transfer limitations which are the major obstacles to the commercialization of reactors for the FTS reaction. The system showed highly desirable results not only in terms of its low CH₄ and CO₂ selectivities, but also its high C₅+ liquid oil productivity, because of its enhanced heat and mass transfer properties in the reaction.