

CO Hydrogenation of Iron-based Catalysts for the Production of Light Hydrocarbons in a Fluidized Bed Reactor

강석환, 우광재, 배종욱, 김효식, 전기원*
한국화학연구원
(kwjun@kriect.re.kr*)

With the increase in the cost of petroleum products due to depletion of oil reserves, alternative methods for synthesizing hydrocarbon fuels such as the Fischer-Tropsch Synthesis (FTS) have again received considerable attention. FTS is an important technology in the production of liquid fuels and chemicals from syngas derived from the gasification of coal, the reforming of natural gas or other carbon-containing materials. In FTS processes, the reactors are chosen according to the production desired (light olefin, gasoline & diesel, or heavy hydrocarbons such as wax etc.), and also the choice of catalyst preparation depends on the type of reactor such as plug flow reactor (fixed bed or supercritical), fluidized bed and slurry bubble column reactor. In this work, FTS with iron-based catalysts for the production of light hydrocarbons from syngas was carried out in a bubbling fluidized bed reactor (BFBR). The Iron-based catalysts (Fe-Cu-K-Al) were prepared by the conventional wet-impregnation over supports such as γ -Al₂O₃ or SiO₂, and by the coprecipitation with sodium carbonate as precipitate.