

Development of Fischer-Tropsch catalyst for the application to multi-channel fixed-bed reactor

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Fischer-Tropsch Synthesis (FTS) is getting more attraction as an alternative promising process to convert coal, natural gas or biomass to the environmentally benign fuels and useful chemicals. A significant progress has been made in Gas-to-Liquids (GTL) process in terms of improved design of reactors using efficient cobalt-based catalysts and optimization of a fully-integrated GTL process for commercial scale application. In general, the reaction rate with a high exothermicity on FTS is accelerated by the hot-spot formation in catalyst-bed with a concomitant increase of byproduct formation. In the present investigation, the efficient reactor type and scale-up methodology using a multi-channel fixed-bed reactor to minimize a hot-spot formation has been investigated by applying a properly selected FTS catalyst.