

Hydrotalcite supported Co catalyst with bimodal structure for Fischer–Tropsch Synthesis

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Stranded gas fields have received much attention as attractive resources to produce the liquid fuels by GTL–FPSO process due to the high oil prices and limited petroleum reservoirs. The selection of the support for a cobalt catalyst has considerable influence on FTS due to its physicochemical properties. Especially the support with bimodal structure has taken advantages for FTS, since the pore was in the macropore to enhance mass transfer and the other was in the mesopore to maintain higher surface area. The hydrotalcite(HT)–like compound posing have bimodal structure was proposed as a new kind of support for FTS in this studies. The HT–based catalyst have been recently reported for several process in the energy field, such as hydrogen production. But the none study reported upto for using of HT with bimodal structure as support, in which the cobalt is dispersed on the HT surface for FTS. The aim of this work is to examine these aspects, in the case of Co/HT with different pore size was prepared for FTS. It was found that the bimodal structure of support maintained the surface area of meso–pore and enhanced the porosity from macro–pore, which provided facile mass–transfer of heavy hydrocarbons.