

CO based Fischer–Tropsch Synthesis Catalyst Supported on Hydrotalcite with Bimodal Pore Structure

주가영, 정재선, 양은혁, 홍기훈, 노영수, 박지인,

Janardhan L. Hodala, 문동주<sup>†</sup>

KIST

(djmoon@kist.re.kr<sup>†</sup>)

The selection of the support for a Co 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 support for FTS. The HT-based catalyst have been recently reported for several process in the energy field, such as hydrogen production from the reforming process.

In this work, the Co based catalyst supported on HT with different pore size were prepared to develop highly active and selective bimodal pore-structured catalyst. It was found that the HT based support with higher contents of kaolin lead to make bimodal pore structure, which have higher conversion/C5+ selectivity. It was considered that bimodal pore structure provided facile mass-transfer of heavy hydrocarbons due to the maintained Co dispersion and enhanced porosity.