

Highly effective cobalt catalyst for wax production in Fischer–Tropsch synthesis

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Considering the heat and mass transfer limitations in the cobalt catalyst, a Co-foam catalyst with an inner metallic foam frame and an outer cobalt catalyst was developed. SEM-EDS Co-mapping revealed the cobalt atoms to be distributed equally over the surface of the Co-foam catalyst. The Co-foam catalyst was only active toward liquid hydrocarbon production and the liquid hydrocarbon productivity was $52.5 \text{ ml}\cdot\text{kg}_{\text{cat}}^{-1}\cdot\text{h}^{-1}$, which is higher than that by the Co-pellet. In addition, the chain length probability, α , by the Co-foam catalyst was 0.923 and wax formation was especially favored.