

## Reflections on Working with Heinz Heinemann: Studies of Fischer-Tropsch Synthesis

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### Abstract

After his retirement from Mobil Corporation in 1978, Heinz Heinemann joined the Lawrence Berkeley National Laboratory as a Senior Staff Scientist. In this capacity, he initiated several research efforts, one of which was in collaboration with me in the area of Fischer-Tropsch synthesis. The objectives of our work were to obtain the kinetics of hydrocarbon synthesis under conditions similar to those found in a slurry bubble column and to then develop a reactor model that could be used to predict the performance of both slurry bubble column reactors. The experimental work was carried out using Fe and Ru catalysts operated in a 1-in diameter column filled with paraffin wax. The rate expression developed from these data was then used in a model of the slurry bubble column. This model took into account the effects of dispersion in both the gas and liquid phases, and the kinetics of the water gas shift reaction. The resulting model was found to describe the performance of our laboratory reactor, as well as a pilot plant reactor operated by Mobil at its laboratory in Paulsboro, NJ. Subsequent work was undertaken to examine the consequences of changing operating conditions on the conversion of synthesis gas and the distribution of hydrocarbon products. A summary of the findings reported in Ref. [1-6] will be presented.

### References

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