

**TECHNOLOGY DEVELOPMENT FOR IRON
FISCHER-TROPSCH CATALYSIS**

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Final Report

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U.S. Department of Energy
Federal Energy Technology Center
FETC Project Manager: Richard E. Tischer
P. O. Box 10940
Pittsburgh, PA 15236-0940

Submitted By

Project Manager: Burtron H. Davis
University of Kentucky Research Foundation
Kinhead Hall
Lexington, KY 40506-0057

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Abstract

The goal of the proposed work described in this Final Report was the development of iron-based Fischer-Tropsch catalysts that combined high activity, selectivity and life with physical robustness for slurry phase reactors that will produce either low-alpha or high-alpha products. The work described here has optimized the catalyst composition and pretreatment operation for a low-alpha catalyst. In parallel, work has been conducted to design a high-alpha iron catalyst that is suitable for slurry phase synthesis. Studies have been conducted to define the chemical phases present at various stages of the pretreatment and synthesis stages and to define the course of these changes. The oxidation/reduction cycles that are anticipated to occur in large, commercial reactors have been studied at the laboratory scale. Catalyst performance has been determined for catalysts synthesized in this program for activity, selectivity and aging characteristics.

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