



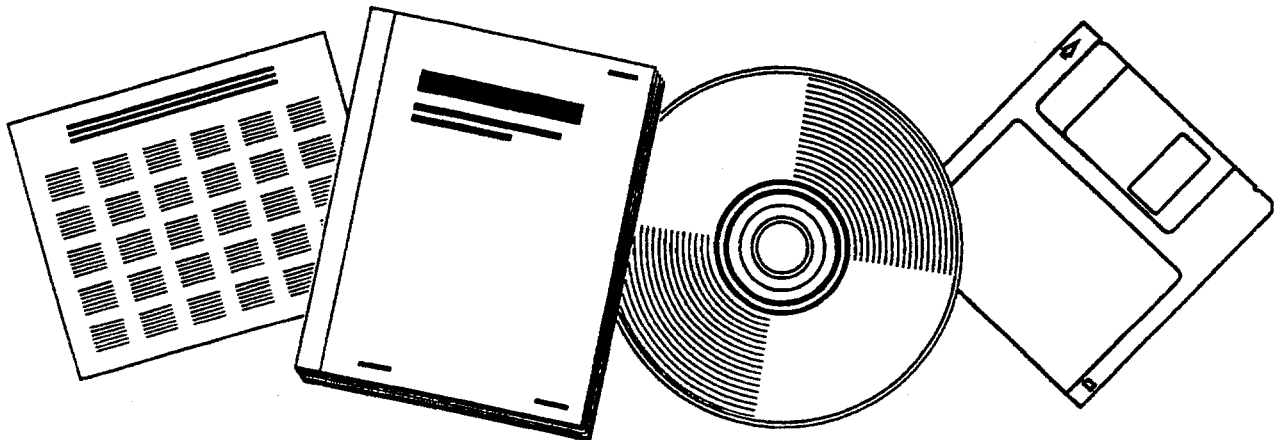
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TECHNO-ECONOMIC ASSESSMENT OF THE MOBIL TWO-STAGE SLURRY FISCHER-TROPSCH/ZSM-5 PROCESS

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A Techno-Economic Assessment of the Mobil Two-Stage Slurry Fischer-Tropsch/ZSM-5 Process

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ABSTRACT

A techno-economic assessment of the Mobil Two-Stage Slurry Fischer-Tropsch reactor system was carried out. Mobil bench-scale data were evaluated and scaled to a commercial plant design that produced specification high-octane gasoline and high-cetane diesel fuel. Comparisons were made with three reference plants--a SASOL (U. S.) plant using dry ash Lurgi gasifiers and Synthol synthesis units, a modified SASOL plant with a British Gas Corporation slagging Lurgi gasifier (BGC/Synthol) and a BGC/slurry-phase process based on scaled data from the Koelbel Rheinpreussen-Koppers plant.

A conceptual commercial version of the Mobil two-stage process shows a higher process efficiency than a SASOL (U.S.) and a BGC/Synthol plant. The Mobil plant gave lower gasoline costs than obtained from the SASOL (U.S.) and BGC/Synthol versions. Comparison with published data from a slurry-phase Fischer-Tropsch (Koelbel) unit indicated that product costs from the Mobil process were within 6 percent of the Koelbel values. A high-wax version of the Mobil process combined with wax hydrocracking could produce gasoline and diesel fuel at comparable cost to the lowest values achieved from prior published slurry-phase results.

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