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THE TEXAS COMPANY

REFINING DEPARTMENT
TECHNICAL & RESEARCH DIVISION



REPORT ON
RUNS 39 THROUGH 43 WITH
THE STRATCO REACTOR

PERSONAL AND
CONFIDENTIAL

Laboratory MONTEBELLO

Report No. TDC-802-31-P

Date APRIL 15, 1950

STRICTLY CONFIDENTIAL

BRIEF OF PARTIAL REPORT

Laboratory Montebello
Date Approved April 15, 1950
Work Completed July 23, 1948

Experiment No. TDC-802
Partial Report No. 31
Subject: Hydrocarbon
Synthesis

Subject: Runs 39 through 43 with the Stratco Reactor.

Object: To determine whether the Stratco Reactor employing a mechanically agitated powdered catalyst might possess any advantages over the conventional fluid bed reactors for the hydrocarbon synthesis process.

History: All previous synthesis work at Montebello had been done in the conventional type of fluid reactors in which suspension of the powdered catalyst had been maintained entirely by the upflow of the gaseous reactants and products. Beacon had successfully employed a laboratory scale stirred reactor differing somewhat, however, from the Stratco unit.

Experimental Results: After an extended shakedown and personnel training period during which many mechanical difficulties were experienced, the Stratco Reactor was operated satisfactorily at 300 pounds pressure with mill scale catalyst promoted with 1.0 per cent K₂O.

Conclusions:

1. There was no indication that the stirred-bed Stratco Reactor possessed any advantages over a conventional fluid type such as the Montebello Tubular Reactor.
2. The net yield of methane from the reactor remained practically constant over a wide range of methane content of the fresh feed, when other variables were held constant.
3. When other conditions remained the same, a drop in feed rate accompanied by an increase in recycle ratio produced higher yields of C₃+ and better conversion of H₂ + CO.

HYDROCARBON SYNTHESIS

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