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THE TEXAS COMPANY

REFINING DEPARTMENT

TECHNICAL & RESEARCH DIVISION

REPORT ON

RUNS 46, 47 AND 48

MONTEBELLO REACTOR NO. 3

PERSONAL AND
CONFIDENTIAL

Laboratory MONTEBELLO

Report No. TDC-802-33-P

Date AUGUST 17, 1950

BRIEF OF PARTIAL REPORT

Laboratory Montebello
Date Approved August 17, 1950
Work Completed June 20, 1949

Experiment No. TDC-802
Partial Report No. 33
Subject: Hydrocarbon Synthesis

Subject: Runs 46, 47, and 48 - Montebello Reactor No. 3.

Object: To obtain yield data from the operation of Montebello Reactor No. 3 under conditions comparable to those planned for the Carthage Hydrocol synthesis unit at Brownsville, Texas.

History: Previous work with the Montebello Reactor No. 3 was done at 300 psig pressure using catalyst derived from mill scale.

Experimental Results: Changes in the generator and synthesis system were made to allow synthesis operation at 400 psig in order to conform with Brownsville design conditions. The work reported herein was conducted with promoted Brownsville magnetite catalyst at 650°F., 400 psig, and 1:1 recycle ratio. A combined-feed inlet linear velocity of one-foot-per-second was maintained in the reactor.

Conclusions:

1. When the Montebello Reactor No. 3 was operated with a 10 to 12-foot bed of magnetite catalyst under flow conditions comparable to Brownsville design, the yield of C_3 and heavier hydrocarbons was only about 75 per cent of that expected at Brownsville which will operate at a bed height of approximately 20 feet.

2. The C_{3+} yield increased with bed height.

3. It was not possible to operate the Montebello Reactor satisfactorily with extremely finely-ground magnetite catalyst (98.8 per cent through 325-mesh).

STRICTLY CONFIDENTIAL

HYDROCARBON SYNTHESIS

PARTIAL REPORT NO. 33

Montebello Laboratory — Experiment No. TDC-802
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RUNS 46, 47, AND 48
MONTEBELLO REACTOR NO. 3

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