Brownsville Data

Seventeen runs have been made at Brownsville. The first of any consequence so far as the reactor is concerned was Run #5. No data were worked up for Run #7. A general description of each run with causes of shutdown etc., is periodically made up by Carthage in N.Y. and is called "Summary of Operations". Our copy of this summary with supplementary notes is included in the appendix.

The following Table B is a list of Runs 5 to 17 inclusive showing the dates of the runs, their duration and the catalysts used. It will be noted that all runs except #8 were less than 2 weeks long and all but four were of 10 days or less. Run #10 was the first run made with well reduced catalysts and Run #11 was the first made with the fine grind catalyst now being used.

TABLE B

BROWNSVILLE REACTOR RUNS

Run No.	Start	End	Days	Reactor Used	Catalyst Tons	Catalyst Type	Catalyst % Fe	Catalyst Red'n. Temp.
5	1/16/51	1/25/51	9		140	Used AW & MS*	72.3	
					80	Fresh MS Added	90	770
6	3/11/51	3/20/51	9		170	Fresh MS	88	750
					100	Fresh MS Added	90	
7	4/8/51	4/13/51	6		Run Not Used. Data unavailable			
8	4/21/51	5/15/51	24		160	Used in Run 7	73.7	
					194	Fresh MS Added	90	
9	6/5/51 8 PM	6/9/51 3:15 PM	4	B	126	Used in Run #8	74	
					57	Fresh Added	88	
10	7/20/51 11 AM	8/1/51 12:35 AM	11	B	240	Fresh	95+	
					43	Fresh Added	97	
11	11/11/51 6 AM	11/20/51 10:15 AM	10	A	248	Fresh	96	725
					61	Fresh Added	97	
12	11/28/51 11 PM	12/7/51 12 N	9	A	214	Used in Run 11	79.3	
					82	Fresh Added	96.6	725
13	12/21/51 5 PM	1/2/51 9:13 AM	13	B	130	Used	80.9	
					127	Fresh	97.3	
					60	Fresh Added	97	725
					49	Fresh Added**	96.2	
14	1/9/52 5 PM	1/22/52 11 AM	14	B	207	Used	80.7	
					55	Fresh Added	95.3	775
15	2/2/52 9:30 AM	2/11/52 4:30 PM	10	A	79	Used	77.7	
					121	Fresh	94.8	
					13	Used Added	77.7	
					42	Fresh Added**	95.5	810
16	2/19/52 12:30 PM	2/22/52 9:30 AM	4	A	104	Used	78.2	
					24	Fresh**	96	825
					71	Fresh	95	810
17	3/4/52 9:13 AM	3/13/52 2 PM	10	A	130	Used	80.3	
					6	Fresh	95	
					55	Fresh Added	80.3	
					31	Fresh Added	87	

* AW = Allan Wood used only in Run #5 and before all other runs used Mill Scale MS. Where so noted the catalyst was added during the run.

** These batches were reduced and precarbided before adding to reactor. In addition in situ carbiding was practiced in the reactor before the beginning of Runs 15, 16 & 17.

The stock room at Brownsville works up a daily (6 AM to 6 AM) statement of reactor operations using 24 hr. averages of meter readings, temperature and pressure measurements with averages of three mass spectrometer analyses on the fresh feed and two on the recycle.

In this calculation, because there is no direct measure of the fresh feed to the reactor, the fresh feed is found by balance in which the output is made up of:

1. Absorber tail gas - metered and analyzed.
2. Raw Primary Oil - gaged when treating unit not running, otherwise metered.
3. Water Soluble Chemicals - obtained from Stanolind.
4. Water make - obtained from Stanolind.

The absorber tail gas is adjusted to remove metered aeration gas (Nat. Gas) and the total output weight is then used together with fresh feed analysis to calculate the fresh feed rate and input of each fresh feed component.

A check against this calculated rate can be obtained by subtracting from the metered rate of the combined fresh feed and part of the recycle on the fresh feed compressor discharge (preheater outlet), the rate of recycle to the fresh feed compressor which is measured by a pitot venturi not considered reliable enough to use for the daily calculations. The remainder of the recycle, that going thru the recycle compressor, is metered separately.

An additional check on the calculated reactor fresh feed rate is obtained by comparing with the syn. gas generator output which in turn is calculated by carbon balance around the generator.

The accuracy of the reactor calculation is also noted daily by comparing the calculated argon input with that leaving the system which is calculated by difference as outlined above. We have made spot checks on all these calculated rates and found them reasonably reliable.

The above method of calculation applies to all runs which were made since March 1951 after Run #5. Run #5 was calculated separately but in a similar manner.

These stock room data do not agree exactly with those reported in the teletypes because the teletypes are based on spot 6 AM readings using midnight sample analyses and short-cut calculations.

At the end of each run the daily stock room data are tabulated to form what is called the run "Operating and Yield Summary" which is sent to New York and copies of which are included in the appendix.*

The data from the run summaries, supplemented by a few additional data, were tabulated and recalculated for correlation purposes and are included in Tables I & II in the appendix as referred to above.