

Table C-1
First-Stage Fischer-Tropsch Slurry Reactor
Operating Conditions and Material Balances
 (Based on Inter-Reactor Sample)
 (Run CT-256-2)

(Nitrogen-Free Basis)	2- 1	2- 2	2- 3	2- 7	2- 15	2- 16
M.B. No.	0.9	1.9	2.9	6.9	14.8	15.8
Days On-stream						
First-Stage Conditions:						
Charge H ₂ /CO (Molar)	0.687	0.684	0.682	0.683	0.672	0.673
Temperature, °C	260	259	259	258	262	262
Pressure, MPa	1.136	1.136	1.136	1.473	1.480	1.825
Feed Sup. Vel., cm/s	3.266	4.120	4.063	3.612	3.430	3.439
Space Vel., NL/gFe-hr	1.461	1.914	1.906	2.281	2.208	2.705
N ₂ in Feed, Mol %	9.0	5.6	4.6	3.9	4.1	5.0
Conversions, Mol % :						
H ₂	60.56	69.04	75.23	77.32	81.35	84.33
CO	71.57	75.10	87.02	89.17	89.44	89.10
H ₂ +CO	67.09	72.64	82.24	84.36	86.19	87.18
Yields, Wt % of Products :						
Hydrocarbons (1)	17.48	16.87	21.88	20.30	19.87	19.22
CO ₂	52.91	57.85	65.53	67.86	69.27	68.68
H ₂ O (1)	0.00	0.00	0.00	0.89	0.89	1.07
H ₂	1.90	1.46	1.08	1.02	0.79	0.72
CO	27.70	23.82	11.51	9.92	9.19	10.30
Total	100	100	100	100	100	100
Bal Recovery, Wt % of Charge:	97.73	99.56	107.37	103.93	109.61	100.88
gHC/Nm ³ (H ₂ +CO) conv.:	197	179	222	194	198	174
(H/C) Atomic Ratio in HC :	2.20	2.22	2.20	2.23	2.27	2.25
Selectivities, Wt % of HC :						
Methane	6.69	7.11	6.34	7.24	8.55	7.92
Ethene	3.31	3.01	1.97	1.93	1.75	1.94
Ethane	2.57	2.75	2.66	3.36	3.88	3.48
Propene	8.20	8.57	7.32	8.40	9.32	8.76
Propane	1.33	1.51	1.46	1.96	2.47	2.25
Butenes	6.52	7.02	6.02	6.79	7.57	7.06
i-Butane	0.07	0.06	0.05	0.09	0.00	0.00
n-Butane	1.16	1.41	1.35	1.87	2.28	2.16
C ₅ - C ₁₁ (2)	15.10	16.49	14.08	17.76	12.05	11.68
Light Hydrocarbons (3)	20.49	17.44	21.98	19.06	18.54	19.22
Heavy Hydrocarbons (4)	20.42	25.55	30.14	27.37	31.08	33.47
Slurry Rx.-Wax	13.60	8.43	6.28	3.74	1.78	1.24
Total	100	100	100	100	100	100

- (1) Including Oxygenates
- (2) In Gas Phase Only
- (3) Collected in Chilled and Ambient Condenser
- (4) Collected in Hot Condenser

Table C-2
Composition of Hydrocarbon Products from
First-Stage Slurry F-T Reactor

(Based on Inter-Reactor Sample)
(Run CT-256-2)

M.B. No. Days On-stream	2-1 0.9	2-2 1.9	2-3 2.9	2-7 6.9	2-15 14.8	2-16 15.8
METHANE	6.69	7.11	6.34	7.24	8.55	7.92
ETHENE	3.31	3.01	1.97	1.93	1.75	1.94
ETHANE	2.57	2.75	2.66	3.36	3.88	3.48
PROPENE	8.20	8.57	7.32	8.40	9.32	8.76
PROPANE	1.33	1.51	1.46	1.96	2.47	2.25
I-BUTANE	0.07	0.06	0.05	0.09	0.00	0.00
1-BUTENE+2-METHYLPROPENE	6.21	6.67	5.63	6.25	6.80	6.44
N-BUTANE	1.16	1.41	1.35	1.87	2.28	2.16
TRANS-2-BUTENE	0.11	0.12	0.15	0.21	0.35	0.25
CIS-2-BUTENE	0.20	0.23	0.25	0.33	0.43	0.37
3-METHYL-1-BUTENE	0.34	0.35	0.26	0.34	0.34	0.31
I-PENTANE	0.18	0.21	0.14	0.21	0.27	0.23
1-PENTENE	4.66	5.17	4.32	4.54	4.73	4.48
2-METHYL-1-BUTENE	0.21	0.21	0.17	0.18	0.21	0.18
N-PENTANE	0.90	1.12	1.08	1.43	1.65	1.51
TRANS-2-PENTENE	0.09	0.10	0.12	0.16	0.21	0.14
CIS-2-PENTENE	0.11	0.13	0.14	0.18	0.20	0.13
2-METHYL-2-BUTENE	0.00	0.00	0.01	0.01	0.00	0.02
HEXENES + ISO-HEXANES	0.71	0.68	0.63	0.75	0.34	0.31
2-METHYLPENTANE	0.00	0.05	0.00	0.00	0.00	0.00
3-METHYLPENTANE	0.00	0.06	0.00	0.00	0.00	0.00
1-HEXENE	3.20	3.61	2.85	2.84	2.40	2.28
N-HEXANE	0.67	0.84	0.78	1.01	0.91	0.84
HEPTENES + ISO-HEPTANES	0.61	0.66	0.54	0.64	0.00	0.24
1-HEPTENE	1.71	1.86	1.42	1.40	0.57	0.63
N-HEPTANE	0.39	0.47	0.44	0.58	0.23	0.24
C8-OLEFINS + ISO-P	0.32	0.24	0.30	0.44	0.00	0.04
1-OCTENE	0.63	0.51	0.48	0.58	0.00	0.04
N-OCTANE	0.18	0.16	0.20	0.34	0.00	0.00
C9-OLEFINS + ISO-P	0.07	0.04	0.11	2.12	0.00	0.05
1-NONENE	0.11	0.04	0.10	0.00	0.00	0.00
DIMETHYL ETHER	0.00	0.00	0.00	0.00	0.31	0.29
ACETONE	0.53	0.65	0.35	0.44	0.15	0.25
I-PROPANOL	0.00	0.00	0.00	0.00	0.28	0.27
UNKNOWN LITE HYDRO-CARB LIQ (1)	20.49	17.44	21.98	19.06	18.54	19.22
UNKNOWN HVY HYDRO-CARB LIQ (2)	20.42	25.55	30.14	27.37	31.08	33.47
SLURRY REACTOR-WAX	13.60	8.43	6.28	3.74	1.78	1.24

(1) Collected in Chilled and Ambient Condensers

(2) Collected in Hot Condenser

Table C-3
Second-Stage Fixed-Bed ZSM-5 Reactor
Operating Conditions and Material Balances
 (Run CT-256-2)

(Nitrogen-Free Basis)						(1)	
M.B. No.	2- 1	2- 2	2- 3	2- 4	2- 5	2- 6	2- 7
Days On-stream	0.9	1.9	2.9	3.9	4.9	5.8	6.9
First-Stage Conditions:							
Charge H ₂ /CO (Molar)	0.687	0.684	0.682	0.753	0.681	0.673	0.683
Temperature, °C	260	259	259	257	259	256	258
Pressure, MPa	1.136	1.136	1.136	1.136	1.136	1.480	1.473
Feed Sup. Vel., cm/s	3.260	4.095	4.064	3.985	4.120	4.031	3.617
Space Vel., NL/gFe-hr	1.461	1.914	1.906	1.878	1.934	2.506	2.281
N ₂ in Feed, Mol %	8.8	5.1	4.6	4.6	6.0	5.1	4.0
Second-Stage Conditions:							
Temp., Inlet, °C	284	284	291	295	306	322	330
Outlet, °C	333	332	333	336	343	369	376
Pressure, MPa	1.129	1.129	1.136	1.136	1.136	1.467	1.453
GHSV, 1/hr	2450	2851	2661	2615	2573	3252	2909
Days On-stream	0.9	1.9	2.9	3.9	4.9	5.8	6.9
Conversions, Mol % :							
H ₂	59.23	64.83	75.23	76.34	79.52	78.68	77.31
CO	69.76	72.99	85.92	85.55	91.04	85.55	89.00
H ₂ +CO	65.47	69.68	81.59	81.59	86.38	82.79	84.26
Yields, Wt % of Products :							
Hydrocarbons	16.31	20.35	19.66	20.86	21.19	21.60	20.91
CO ₂	51.05	51.43	65.82	64.93	68.93	62.71	66.84
H ₂ O	1.24	0.95	0.95	0.88	0.97	1.23	1.12
H ₂	1.97	1.65	1.08	1.09	0.90	0.97	1.03
CO	29.44	25.62	12.49	12.24	8.02	13.49	10.10
Total	100	100	100	100	100	100	100
Bal Recovery, Wt % of Charge:	97.80	100.39	107.38	111.91	106.47	102.04	103.67
gHC/Nm ³ (H ₂ +CO) conv.:	189	228	201	215	203	208	200
(H/C) Atomic Ratio in HC :	2.25	2.20	2.20	2.23	2.26	2.22	2.24
Selectivities, Wt % of HC :							
Methane	7.81	5.81	7.48	6.78	7.51	5.88	7.20
Ethene	0.47	0.55	0.54	0.57	0.61	0.67	0.69
Ethane	2.74	2.06	3.02	2.72	3.27	2.81	3.43
Propene	1.44	1.94	2.11	2.29	2.46	2.78	2.45
Propane	5.20	3.04	4.52	3.72	4.40	5.07	6.38
Butenes	2.81	4.57	4.23	5.73	5.43	5.11	3.90
i-Butane	7.95	4.51	6.21	5.27	6.01	7.05	8.19
n-Butane	5.92	3.96	5.18	4.99	5.30	5.69	6.07
C ₅ - C ₁₁	49.68	61.49	57.78	59.33	56.88	58.79	55.51
C ₁₂ + (Excl. Rx.-Wax)	2.28	3.63	2.65	2.71	3.00	2.34	2.53
Slurry Rx.-Wax	13.60	8.43	6.28	5.88	5.13	3.81	3.74
Total	100	100	100	100	100	100	100
i-C ₄ /(C ₃ = + C ₄ =) Molar :	1.63	0.61	0.85	0.58	0.67	0.77	1.12
(C ₃ /C ₃ =) Molar Ratio :	3.45	1.49	2.04	1.55	1.71	1.74	2.49
Alkylate, Wt % of HC :	9.14	8.86	11.76	10.36	11.72	13.43	13.57
Cat-Poly, Wt % of HC :	0.00	2.16	0.79	2.93	2.17	1.51	0.00
C ₅ - C ₁₁ PONA, Wt % :							
Paraffins	52.65	48.48	(2)	49.57	49.03	46.96	44.63
Olefins	8.64	26.92	(2)	23.95	27.73	23.83	19.22
Naphthenes	7.37	5.09	(2)	5.60	4.12	5.58	6.43
Aromatics	31.34	19.51	(2)	20.87	19.11	23.63	29.73

(1) All MB's adjusted for Inter-Reactor sampling except MB # 6

(2) Not available

Table C-3 (cont'd)
 Second-Stage Fixed-Bed ZSM-5 Reactor
 Operating Conditions and Material Balances
 (Run CT-256-2)

(Nitrogen-Free Basis)							
M.B. No.	2- 8	2- 12	2- 13	2- 14	2- 15	2- 16	2- 17
Days On-stream	7.9	11.9	12.9	13.8	14.8	15.8	16.8
First-Stage Conditions:							
Charge H ₂ /CO (Molar)	0.679	0.679	0.679	0.671	0.672	0.673	0.675
Temperature, °C	259	261	262	262	262	262	262
Pressure, MPa	1.136	1.136	1.480	1.480	1.480	1.825	1.825
Feed Sup. Vel., cm/s	4.105	3.538	3.407	3.412	3.459	3.382	3.392
Space Vel., NL/gFe-hr	1.998	1.693	2.180	2.209	2.208	2.705	2.854
N ₂ in Feed, Mol %	6.0	7.2	4.7	3.6	4.9	3.4	3.3
Second-Stage Conditions:							
Temp., Inlet, °C	331	342	348	352	343	343	350
Outlet, °C	376	388	394	403	390	390	401
Pressure, MPa	1.136	1.136	1.480	1.480	1.480	1.825	1.825
GHSV, 1/hr	3025	2218	2689	2819	2847	3281	3479
Days On-stream	7.9	11.9	12.9	13.8	14.8	15.8	16.8
Conversions, Mol % :							
H ₂	67.24	85.94	81.26	80.10	80.24	80.20	75.56
CO	77.06	90.13	89.97	88.56	90.48	89.27	84.11
H ₂ +CO	73.09	88.43	86.45	85.16	86.37	85.62	80.66
Yields, Wt % of Products :							
Hydrocarbons	19.80	22.62	22.82	21.16	21.62	20.43	20.13
CO ₂	58.01	67.27	66.46	67.28	68.37	67.82	63.16
H ₂ O	0.74	0.90	0.78	0.70	0.78	0.99	0.95
H ₂	1.40	0.60	0.83	0.84	0.84	0.88	1.10
CO	20.04	8.61	9.10	10.03	8.38	9.87	14.66
Total	100	100	100	100	100	100	100
Bal Recovery, Wt % of Charge:	109.05	109.24	104.93	108.81	108.24	103.58	103.31
gHC/Nm ³ (H ₂ +CO) conv.:	230	218	216	212	212	193	201
(H/C) Atomic Ratio in HC :	2.24	2.30	2.25	2.28	2.28	2.26	2.27
Selectivities, Wt % of HC :							
Methane	7.20	8.65	7.41	7.99	8.06	7.61	7.60
Ethene	0.98	0.98	0.90	0.94	0.87	0.89	0.99
Ethane	3.17	4.03	3.54	3.81	3.77	3.48	3.32
Propene	3.65	3.38	2.94	3.02	2.96	3.18	3.61
Propane	5.78	7.51	7.69	8.49	7.77	7.37	7.04
Butenes	5.94	4.97	4.10	4.16	4.42	4.90	5.88
i-Butane	7.91	8.83	8.69	9.43	8.81	8.39	8.28
n-Butane	5.92	7.15	7.05	7.53	7.26	7.09	7.03
C ₅ - C ₁₁	54.18	49.30	51.72	50.33	51.73	54.42	54.32
C ₁₂ + (Excl. Rx.-Wax)	1.37	1.79	3.41	2.23	2.58	1.43	0.88
Slurry Rx.-Wax	3.92	3.41	2.55	2.07	1.78	1.24	1.05
Total	100	100	100	100	100	100	100
i-C ₄ /(C ₃ = + C ₄ =) Molar :	0.71	0.90	1.05	1.11	1.02	0.89	0.75
(C ₃ /C ₃ =) Molar Ratio :	1.51	2.12	2.50	2.68	2.50	2.21	1.86
Alkylate, Wt % of HC :	15.11	16.46	15.35	15.66	16.04	15.70	15.74
Cat-Poly, Wt % of HC :	2.38	0.72	0.00	0.00	0.00	0.78	2.03
C ₅ - C ₁₁ PONA, Wt % :							
Paraffins	42.57	48.55	45.28	43.97	45.89	46.41	45.46
Olefins	26.29	15.60	16.26	17.98	17.36	17.68	20.87
Naphthenes	5.88	7.47	7.80	7.61	7.19	7.05	7.44
Aromatics	25.26	28.38	30.66	30.44	29.56	28.86	26.23

Table C-4
Composition of Hydrocarbon Products from
Two-Stage Slurry F-T/ZSM-9 Syn gas Conversion
(Run CT-256-2)

M.B. No.	2-1	2-2	2-3	2-4	2-5	2-6	2-7	2-8
Days On-stream	0.9	1.9	2.9	3.9	4.9	5.9	6.9	7.9
METHANE	7.81	5.81	7.48	6.78	7.51	5.88	7.20	7.20
ETHENE	0.47	0.55	0.54	0.57	0.61	0.67	0.69	0.98
ETHANE	2.74	2.06	3.02	2.72	3.27	2.81	3.43	3.17
PROPENE	1.44	1.94	2.11	2.29	2.46	2.78	2.45	3.65
PROPANE	5.20	3.04	4.52	3.72	4.40	5.07	6.38	5.78
1-BUTENE	7.95	4.51	6.21	5.27	6.01	7.05	8.19	7.91
1-BUTENE+2-METHYLPROPENE	1.56	2.80	2.61	3.46	3.30	3.04	2.28	3.57
N-BUTANE	5.92	3.96	5.18	4.99	5.30	5.69	6.07	5.92
TRANS-2-BUTENE	0.83	1.07	0.97	1.35	1.27	1.22	0.90	1.41
CIS-2-BUTENE	0.43	0.70	0.65	0.91	0.85	0.86	0.52	0.97
3-METHYL-1-BUTENE	0.04	0.09	0.08	0.13	0.12	0.12	0.08	0.11
1-PENTANE	6.84	4.75	4.91	5.78	5.33	6.41	5.91	6.05
1-PENTENE	0.05	0.12	0.09	0.16	0.14	0.16	0.09	0.14
2-METHYL-1-BUTENE	0.32	0.85	0.62	1.11	0.94	0.85	0.50	0.80
N-PENTANE	4.05	3.76	3.62	4.88	4.25	4.60	3.90	3.94
TRANS-2-PENTENE	0.20	0.55	0.38	0.73	0.62	0.58	0.35	0.54
CIS-2-PENTENE	0.09	0.26	0.18	0.34	0.29	0.28	0.17	0.26
2-METHYL-2-BUTENE	0.16	2.58	1.70	3.19	2.67	2.18	1.30	1.97
UNKNOWN C5-MONOLEFINS	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,2-DIMETHYLBUTANE	0.02	0.03	0.03	0.04	0.03	0.05	0.03	0.06
CYCLOPENTANE	0.07	0.07	0.03	0.09	0.05	0.10	0.08	0.12
HEXENES + ISO-HEXANES	0.03	0.21	0.23	0.29	0.21	0.09	0.02	0.09
2,3-DIMETHYLBUTANE	0.15	0.12	0.06	0.17	0.11	0.15	0.17	0.13
2-METHYLPENTANE	3.02	3.35	2.28	3.88	2.95	3.43	2.80	2.57
3-METHYLPENTANE	1.11	1.10	0.69	1.29	0.95	1.30	1.12	0.99
HEXENES	0.24	1.17	0.00	0.84	1.12	0.88	0.52	0.49
1-HEXENE	0.00	0.00	0.00	0.00	0.00	0.12	0.08	0.12
N-HEXANE	1.85	2.93	1.81	3.58	2.89	2.97	2.44	2.23
2,4-DIMETHYLPENTANE	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.00
METHYLCYCLOPENTANE	0.55	0.46	0.21	0.57	0.41	0.77	0.79	0.76
3,3-DIMETHYLPENTANE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CYCLOHEXANE	0.02	0.02	0.00	0.02	0.02	0.03	0.03	0.02
HEPTENES + ISO-HEPTANES	0.44	1.02	0.91	1.54	0.87	0.84	0.46	0.67
1-HEPTENE	0.00	0.00	0.00	0.00	0.06	0.00	0.09	0.13
2-METHYLHEXANE	1.13	1.80	0.66	1.66	1.34	1.32	1.19	0.97
2,3-DIMETHYLPENTANE	0.16	0.13	0.01	0.15	0.08	0.15	0.18	0.14
3-METHYLHEXANE	1.02	1.46	0.47	1.34	1.05	1.15	1.08	0.87
1-CIS-3-DIMETHYL-N5	0.27	0.24	0.06	0.27	0.17	0.31	0.34	0.31
1-TRANS-3-DIMETHYL-N5	0.19	0.16	0.00	0.19	0.12	0.22	0.24	0.15
1-TRANS-2-DIMETHYL-N5	0.20	0.21	0.08	0.24	0.15	0.12	0.12	0.27
N-HEPTANE	0.73	2.24	0.80	2.25	2.00	1.68	1.51	1.49
C7-OLEFINS	0.40	1.78	0.00	1.09	1.74	1.23	0.94	0.79
METHYLCYCLOHEXANE	0.25	0.36	0.11	0.38	0.31	0.33	0.24	0.23
C8-OLEFINS + ISO-P	0.11	1.65	1.24	1.44	0.99	1.19	0.91	1.37
MONOMETHYL-ISO-C8-P	1.26	1.59	0.00	0.95	1.30	0.98	1.07	0.70
OTHER ISO-C8-P	0.15	0.13	0.00	0.13	0.09	0.13	0.15	0.11
C8-OLEFINS	0.98	3.59	0.00	1.97	3.79	2.10	1.59	1.67
C8-NAPHTHENES (N5+N6)	1.45	1.08	0.00	1.02	0.72	1.05	1.38	0.96
N-OCTANE	0.36	1.08	0.13	0.94	1.16	0.87	0.78	0.77
C9-OLEFINS + ISO-P	0.00	1.03	0.71	0.41	0.38	2.30	2.63	4.22
1-NONENE	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00
MONOMETHYL-ISO-C9-P	0.69	0.96	0.00	0.51	0.79	0.52	0.58	0.41
OTHER ISO-C9-P	0.24	0.20	0.00	0.15	0.15	0.20	0.19	0.14
C9-OLEFINS	0.55	1.88	0.00	1.08	2.05	1.17	0.95	0.98
C9-NAPHTHENES (N5+N6)	0.66	0.54	0.00	0.53	0.40	0.35	0.35	0.37
N-NONANE	0.12	0.43	0.00	0.13	0.53	0.28	0.35	0.24
ISO-C10-P + O + N5 + N6	3.21	3.52	0.00	1.30	2.66	1.30	1.28	1.17
BENZENE	0.32	0.49	0.22	0.63	0.46	0.65	0.57	0.60
TOLUENE	1.91	0.58	0.39	2.02	1.05	2.61	2.90	2.23
ETHYLBENZENE	0.77	1.12	0.43	0.90	0.64	1.48	1.58	1.77
P-XYLENE	0.70	0.48	0.00	0.58	0.40	0.62	0.00	0.60
M-XYLENE	2.03	1.42	0.00	1.52	1.32	1.56	2.17	1.50
O-XYLENE	0.77	0.48	0.00	0.59	0.45	0.63	0.91	0.62
ISOPROPYLBENZENE	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00
N-PROPYLBENZENE	0.27	0.25	0.00	0.20	0.23	0.20	0.25	0.19
1-METHYL-3-ETHYL-BENZENE	2.99	2.27	0.00	2.17	2.11	2.26	2.94	2.14
1,3,5-TRIMETHYL-BENZENE	0.10	0.13	0.00	0.07	0.10	0.08	0.12	0.07
1-METHYL-2-ETHYLBENZENE	0.00	0.08	0.00	0.00	0.07	0.07	0.00	0.04
ISO-C4-BENZENE	0.05	0.00	0.00	0.04	0.00	0.00	0.14	0.04
SEC-C4-BENZENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,2,4-TRIMETHYLBENZENE	1.58	1.13	0.00	1.09	0.96	1.13	1.56	1.14
1-METHYL-2-ISO-C3-BENZENE	0.07	0.07	0.00	0.03	0.05	0.06	0.05	0.04
1,3-DIETHYLBENZENE	0.78	0.81	0.00	0.57	0.72	0.58	0.00	0.52
1-METHYL-3-N-C3-BENZENE	0.14	0.27	0.00	0.15	0.25	0.19	0.70	0.14
N-C4-BENZENE	0.22	0.23	0.00	0.15	0.19	0.00	0.19	0.14
1,2,3-TRIMETHYLBENZENE	0.12	0.09	0.00	0.03	0.03	0.04	0.06	0.05
1,2-DIETHYLBENZENE	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00
1-METHYL-2-N-C3-BENZENE	0.00	0.00	0.00	0.03	0.03	0.00	0.05	0.03
C10-ALKYLBENZENES	1.17	0.96	0.00	0.70	0.79	0.70	0.92	0.67
1,2,4,5-TETRAMETHYLBENZENE	0.14	0.08	0.00	0.06	0.11	0.02	0.09	0.06
1,2,3,5-TETRAMETHYLBENZENE	0.10	0.03	0.00	0.02	0.06	0.00	0.04	0.00
1,2,3,4-TETRAMETHYLBENZENE	0.11	0.00	0.00	0.00	0.06	0.00	0.11	0.08
C11-ALKYLBENZENES	1.23	0.99	0.00	0.72	0.73	0.83	1.02	0.72
NAPHTHALENE	0.00	0.04	0.00	0.04	0.05	0.00	0.00	0.00
METHYL-NAPHTHALENES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
DIMETHYL ETHER	0.10	0.00	0.00	0.00	0.00	0.00	0.01	0.00
UNKNOWN (HC AROMATICS)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28
UNKNOWN LITE HYDRO-CARB LIQ (1)	0.00	0.00	34.66	0.00	0.00	0.00	0.00	0.00
UNKNOWN C12+	2.28	3.64	2.65	2.71	3.00	2.34	2.53	1.37
SLURRY REACTOR-WAX	13.60	8.43	6.28	5.88	5.13	3.81	3.74	3.92

(1) Collected in Chilled and Ambient Condensers

Table C-4 (cont'd)
 Composition of Hydrocarbon Products from
 Two-Stage Slurry F-T/ISM-S Syn gas Conversion
 (Run CT-256-2)

M.B. No.	2-12	2-13	2-14	2-15	2-16	2-17
Days On-stream	11.9	12.9	13.8	14.8	15.8	16.8
METHANE	8.65	7.41	7.99	8.06	7.61	7.40
ETHENE	0.98	0.90	0.94	0.87	0.89	0.99
ETHANE	4.03	3.54	3.81	3.77	3.48	3.32
PROPENE	3.38	2.94	3.02	2.96	3.18	3.61
PROPANE	7.51	7.69	8.49	7.77	7.37	7.04
1-BUTANE	8.83	8.69	9.43	8.81	8.39	8.28
1-BUTENE+2-METHYLPROPENE	2.95	2.41	2.46	2.62	2.85	3.38
N-BUTANE	7.15	7.05	7.53	7.26	7.09	7.03
TRANS-2-BUTENE	1.19	1.00	0.99	1.05	1.16	1.41
CIS-2-BUTENE	0.83	0.70	0.70	0.74	0.89	1.09
3-METHYL-1-BUTENE	0.09	0.08	0.07	0.08	0.13	0.18
1-PENTANE	6.74	6.44	6.63	6.57	6.58	6.71
1-PENTENE	0.12	0.10	0.10	0.11	0.13	0.18
2-METHYL-1-BUTENE	0.66	0.53	0.51	0.59	0.67	0.80
N-PENTANE	4.70	4.28	4.28	4.46	4.51	4.56
TRANS-2-PENTENE	0.46	0.38	0.36	0.41	0.52	0.55
CIS-2-PENTENE	0.23	0.19	0.18	0.20	0.25	0.29
2-METHYL-2-BUTENE	1.60	1.29	1.21	1.41	1.58	1.93
UNKNOWN C5-MONOLEFINS	0.00	0.00	0.00	0.00	0.00	0.00
2,2-DIMETHYLBUTANE	0.05	0.04	0.04	0.04	0.06	0.06
CYCLOPENTANE	0.21	0.24	0.24	0.18	0.18	0.18
HEXENES + ISO-HEXANES	0.10	0.02	0.03	0.02	0.04	0.03
2,3-DIMETHYLBUTANE	0.18	0.19	0.17	0.17	0.20	0.22
2-METHYLPENTANE	2.77	2.63	2.43	2.60	2.72	2.82
3-METHYLPENTANE	1.14	1.17	1.09	1.10	1.19	1.22
HEXENES	0.45	0.59	0.44	0.57	0.70	0.73
1-HEXENE	0.08	0.06	0.07	0.06	0.09	0.11
N-HEXANE	2.51	2.39	2.14	2.36	2.40	2.60
2,4-DIMETHYLPENTANE	0.01	0.01	0.01	0.00	0.01	0.01
METHYLCYCLOPENTANE	1.05	1.11	1.10	0.95	0.91	0.97
3,3-DIMETHYLPENTANE	0.00	0.00	0.00	0.00	0.00	0.00
CYCLOHEXANE	0.02	0.03	0.02	0.03	0.03	0.02
HEPTENES + ISO-HEPTANES	0.46	0.35	0.32	0.39	0.41	0.71
1-HEPTENE	0.10	0.10	0.11	0.09	0.08	0.12
2-METHYLHEXANE	0.84	0.91	0.80	0.90	0.94	1.00
2,3-DIMETHYLPENTANE	0.17	0.20	0.19	0.18	0.18	0.20
3-METHYLHEXANE	0.78	0.88	0.78	0.85	0.90	0.92
1-CIS-3-DIMETHYL-N5	0.34	0.37	0.35	0.34	0.33	0.23
1-TRANS-3-DIMETHYL-N5	0.21	0.25	0.23	0.23	0.24	0.23
1-TRANS-2-DIMETHYL-N5	0.29	0.31	0.30	0.28	0.27	0.29
N-HEPTANE	1.19	1.25	1.08	1.23	1.33	1.42
C7-OLEFINS	0.64	0.73	0.56	0.76	0.92	0.96
METHYLCYCLOHEXANE	0.20	0.20	0.19	0.19	0.21	0.23
C8-OLEFINS + ISO-P	0.56	0.60	1.64	0.46	0.72	0.50
MONOMETHYL-ISO-C8-P	0.63	0.74	0.61	0.78	0.89	0.80
OTHER ISO-C8-P	0.12	0.15	0.13	0.14	0.16	0.15
C8-OLEFINS	1.10	1.11	0.91	1.34	1.73	2.42
C8-NAPHTHENES (N5+N6)	1.02	1.18	1.08	1.16	1.25	1.16
N-OCTANE	0.47	0.57	0.44	0.56	0.72	0.09
C9-OLEFINS + ISO-P	0.55	1.68	2.12	1.69	0.57	0.78
1-NONENE	0.00	0.00	0.00	0.00	0.00	0.00
MONOMETHYL-ISO-C9-P	0.34	0.36	0.30	0.40	0.46	0.44
OTHER ISO-C9-P	0.13	0.14	0.13	0.15	0.17	0.16
C9-OLEFINS	0.60	0.60	0.45	0.80	1.11	1.05
C9-NAPHTHENES (N5+N6)	0.34	0.36	0.31	0.37	0.42	0.71
N-NONANE	0.17	0.19	0.15	0.22	0.27	0.00
ISO-C10-P + O + N5 + N6	0.88	0.87	0.70	1.01	1.53	1.30
BENZENE	0.61	0.74	0.75	0.64	0.63	0.67
TOLUENE	2.56	3.18	2.59	2.67	2.67	2.26
ETHYLBENZENE	0.95	1.59	1.67	1.43	1.09	1.02
P-XYLENE	0.74	0.84	0.87	0.85	0.82	0.75
M-XYLENE	1.91	2.03	2.10	2.01	2.14	1.90
O-XYLENE	0.84	0.86	0.92	0.88	0.90	0.81
ISOPROPYLBENZENE	0.00	0.00	0.00	0.00	0.04	0.00
N-PROPYLBENZENE	0.18	0.16	0.14	0.18	0.20	0.20
1-METHYL-3-ETHYL-BENZENE	2.25	2.42	2.29	2.53	2.62	2.44
1,3,5-TRIMETHYL-BENZENE	0.06	0.06	0.06	0.06	0.07	0.07
1-METHYL-2-ETHYLBENZENE	0.00	0.05	0.05	0.02	0.00	0.00
ISO-C4-BENZENE	0.04	0.03	0.03	0.03	0.04	0.04
SEC-C4-BENZENE	0.00	0.00	0.00	0.00	0.00	0.00
1,2,4-TRIMETHYLBENZENE	1.34	1.42	1.46	1.44	1.55	1.44
1-METHYL-2-ISO-C3-BENZENE	0.04	0.00	0.05	0.02	0.03	0.02
1,3-DIETHYLBENZENE	0.47	0.48	0.43	0.53	0.00	0.54
1-METHYL-3-N-C3-BENZENE	0.11	0.10	0.09	0.11	0.57	0.13
N-C4-BENZENE	0.13	0.12	0.00	0.13	0.14	0.13
1,2,3-TRIMETHYLBENZENE	0.09	0.03	0.03	0.04	0.05	0.04
1,2-DIETHYLBENZENE	0.00	0.00	0.06	0.00	0.13	0.00
1-METHYL-2-N-C3-BENZENE	0.00	0.00	0.00	0.03	0.04	0.03
C10-ALKYLBENZENES	0.68	0.73	0.69	0.77	0.84	0.79
1,2,4,5-TETRAMETHYLBENZENE	0.06	0.07	0.07	0.07	0.09	0.08
1,2,3,5-TETRAMETHYLBENZENE	0.04	0.00	0.00	0.00	0.00	0.04
1,2,3,4-TETRAMETHYLBENZENE	0.10	0.10	0.10	0.10	0.10	0.00
C11-ALKYLBENZENES	0.79	0.80	0.76	0.71	0.87	0.77
NAPHTHALENE	0.00	0.03	0.07	0.03	0.07	0.07
METHYL-NAPHTHALENES	0.00	0.00	0.00	0.00	0.00	0.00
UNKNOWN (HC AROMATICS)	0.01	0.00	0.01	0.01	0.00	0.00
UNKNOWN C12+	1.79	3.41	2.23	2.58	1.43	0.88
SLURRY REACTOR-WAX	3.41	2.55	2.07	1.78	1.24	1.05

Table C-5

Second-Stage ZSM-5 Reactor Raw Liquid Hydrocarbon⁽¹⁾ Properties
(Run CT-256-2)

Days On-Stream	3.9	6.9	8.9	10.9	15.8
Severity, $iC_4/(C_4^=+C_3^=)$	0.58	1.1	1.1	-	0.72
Sp. Gr.	0.740	0.776	0.764	0.764	0.754
Acid No. (unwashed), mg KOH/g	0.16	0.12	0.49	0.35	0.016
PONA, Wt %					
P	35.0	27.3	29.3	27.4	31.1
O	19.4	13.2	12.5	13.1	15.8
N	11.9	12.4	12.3	12.2	12.8
A	33.7	47.1	45.9	47.3	40.3
Total	100.0	100.0	100.0	100.0	100.0
Octane Numbers:					
R+O	92.6	93.6	93.5	94.0	91.4
M+O	76.0	80.7	81.5	80.9	81.5
ASTM Distillation, °C					
IBP	37	38	36	36	34
50 Vol %	129	126	129	130	126
90 "	188	183	186	188	185
95 "	223	221	228	224	234
EP "	257	245	252	258	243
Loss, Vol %	2.1	1.6	2.1	1.8	2.3
Residue, Vol %	0.9	1.4	0.9	1.2	1.2

(1) Collected from the ambient and chilled condensers. Hydrocarbon collected in the hot condenser was very small.

Table D-1
First-Stage Fischer-Tropsch Slurry Reactor
Operating Conditions and Material Balances
 (Second-Stage Not-operative)
 (Run CT-256-3)

	3-1	3-2	3-3	3-4	3-5	3-46	3-47	3-48	3-49	3-50
(Nitrogen-Free Basis)										
M.B. No.	3-4	4.4	5.4	6.4	7.4	48.5	49.5	50.5	51.5	52.5
Days On-stream										
First-Stage Conditions:										
Charge H ₂ /CO (Molar)	0.701	0.676	0.677	0.689	0.677	0.675	0.680	0.678	0.681	0.693
Temperature, °C	257	259	259	259	259	261	261	261	262	262
Pressure, MPa	1.480	1.480	1.480	1.480	1.480	1.480	1.494	1.501	1.487	1.487
Feed Sup. Vel., cm/s	3.652	3.713	3.696	3.719	3.918	3.210	3.131	3.149	3.176	3.230
Space Vel., NL/gFe-hr	2.373	2.402	2.394	2.404	2.541	2.101	2.068	2.088	2.082	2.120
N ₂ in Feed, Mol %	6.5	6.7	6.6	6.7	6.4	6.5	6.4	6.4	6.5	6.4
Conversions, Mol % :										
H ₂	75.36	79.19	78.59	79.53	79.53	80.37	78.82	80.02	78.53	77.56
CO	90.29	91.75	90.68	90.98	91.59	89.85	88.74	90.42	90.13	88.92
H ₂ +CO	84.14	86.69	85.79	86.30	86.72	86.03	84.73	86.22	85.43	84.27
Yields, Wt % of Products :										
Hydrocarbons (1)										
CO ₂	21.24	22.50	21.81	21.87	22.10	22.73	22.03	21.80	21.44	22.47
H ₂ O (1)	67.92	68.10	68.02	68.54	68.43	66.64	66.38	68.16	68.05	65.65
H ₂	1.07	0.82	0.94	0.79	0.86	0.71	0.78	0.38	0.72	0.87
CO	1.11	0.94	0.93	0.89	0.92	0.85	0.91	0.89	0.95	1.01
Total	8.66	7.64	8.30	7.90	7.70	9.07	9.90	8.76	8.84	10.00
	100	100	100	100	100	100	100	100	100	100
Bal Recovery, Wt % of Charge:	106.71	102.87	107.10	108.70	104.12	106.68	108.39	104.16	106.33	105.52
gHC/Nm ³ (H ₂ +CO) conv.:	207	208	212	213	207	220	219	205	208	218
(H/C) Atomic Ratio in HC :	2.19	2.20	2.20	2.12	2.20	2.24	2.25	2.28	2.25	2.24
Selectivities, Wt % of HC :										
Methane	5.69	5.85	5.85	5.86	6.15	7.59	7.86	7.88	8.20	7.97
Ethane	2.29	2.16	2.12	1.91	1.79	1.40	1.49	1.50	1.53	1.51
Ethane	2.75	2.61	2.60	2.61	2.74	2.85	2.95	3.17	3.33	3.11
Propene	7.64	7.54	7.56	7.32	7.54	7.84	8.18	8.05	8.41	8.17
Propane	1.38	1.39	1.50	1.51	1.59	1.88	1.88	2.20	2.27	1.93
Butenes	6.10	6.00	6.06	5.86	6.03	5.87	6.04	6.42	6.39	5.99
i-Butane	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
n-Butane	1.44	1.47	1.48	1.48	1.57	1.85	1.92	2.03	2.00	1.91
C ₅ - C ₁₁ (2)	14.79	15.71	15.34	14.49	14.52	8.64	9.12	7.00	9.19	8.79
Light Hydrocarbons (3)	21.15	20.42	19.90	20.63	20.60	33.34	31.02	30.12	28.96	31.90
Heavy Hydrocarbons (4)	23.82	24.17	25.54	25.85	25.69	22.23	23.29	20.62	23.62	22.75
Slurry Rx.-Max	12.76	12.34	11.89	11.75	11.14	6.42	6.18	5.97	5.85	5.76
Total	100	100	100	100	100	100	100	100	100	100

- (1) Including Oxygenates
- (2) In Gas Phase Only
- (3) Collected in Chilled and Ambient Condensers
- (4) Collected in Hot Condenser

Table D-2
First-Stage Fischer-Tropsch Slurry Reactor
Operating Conditions and Material Balances
 (Based on Inter-Reactor Sample)
 (Run CT-256-3)

(Nitrogen-Free Basis)	3-	8	3-	9	3-	11	3-	13	3-	19	3-	21	3-	22	3-	23	3-	24	
M.B. No.	10.3		11.3		13.4		15.4		20.0		22.0		23.0		24.0		25.0		
Days On-stream																			
First-Stage Conditions:																			
Charge H ₂ /CO (Molar)	0.680	0.678	0.680	0.680	0.680	0.683	0.688	0.688	0.688	0.688	0.683	0.683	0.685	0.685	0.687	0.687	0.685	0.685	0.685
Temperature, °C	259	260	260	260	260	260	259	260	259	259	260	260	260	260	259	259	260	260	260
Pressure, MPa	1.480	1.480	1.480	1.480	1.480	1.480	1.480	1.480	1.480	1.480	1.480	1.480	1.480	1.480	1.480	1.480	1.480	1.480	1.480
Feed Sup. Vel., cm/s	3.922	3.957	4.038	3.984	3.928	3.828	3.804	3.829	3.804	3.829	3.804	3.829	3.829	3.829	3.809	3.809	3.803	3.803	3.803
Space Vel., NL/gFe-hr	2.580	2.591	2.622	2.620	2.514	2.502	2.514	2.507	2.514	2.502	2.502	2.502	2.507	2.507	2.516	2.516	2.497	2.497	2.497
N ₂ in Feed, Mol %	6.3	6.7	7.4	6.3	6.3	6.4	6.4	6.3	6.4	6.4	6.2	6.2	6.6	6.6	6.3	6.3	6.2	6.2	6.2
Conversions, Mol %:																			
H ₂	79.33	79.24	79.38	79.12	79.38	79.12	80.13	79.87	79.38	79.12	79.87	79.87	78.36	78.36	81.49	81.49	78.92	78.92	78.92
CO	91.78	91.33	91.94	90.89	91.94	90.89	91.57	91.37	91.57	91.57	91.37	91.37	89.37	89.37	91.12	91.12	90.78	90.78	90.78
H ₂ +CO	86.74	86.44	86.85	86.11	86.85	86.11	86.91	86.70	86.91	86.91	86.70	86.70	84.89	84.89	87.20	87.20	85.96	85.96	85.96
ields, Wt % of Products:																			
Hydrocarbons (1)	21.91	21.37	21.87	20.77	21.87	20.77	22.15	22.08	22.15	22.15	22.08	22.08	19.43	19.43	23.94	23.94	21.78	21.78	21.78
CO ₂	68.59	68.61	68.80	69.15	68.80	69.15	68.50	68.29	68.50	68.50	68.29	68.29	69.41	69.41	66.18	66.18	68.07	68.07	68.07
H ₂ O (1)	0.92	1.03	0.71	0.87	0.71	0.87	0.89	0.94	0.89	0.89	0.94	0.94	0.78	0.78	0.88	0.88	0.79	0.79	0.79
H ₂	0.94	0.94	0.96	0.93	0.96	0.93	0.89	0.90	0.89	0.89	0.90	0.90	0.95	0.95	0.84	0.84	0.95	0.95	0.95
CO	7.64	8.04	7.66	8.28	7.66	8.28	7.58	7.80	7.58	7.58	7.80	7.80	9.43	9.43	8.16	8.16	8.42	8.42	8.42
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Bal Recovery, Wt % of Charge:	102.54	102.75	100.33	104.91	100.33	104.91	105.94	105.38	105.94	105.94	105.38	105.38	107.36	107.36	103.66	103.66	104.29	104.29	104.29
gHC/NM3 (H ₂ +CO) conv.:	202	198	197	197	198	197	210	209	210	210	209	209	191	191	221	221	205	205	205
(H/C) Atomic Ratio in HC:	2.21	2.22	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.27	2.27	2.20	2.20	2.23	2.23	2.23
Selectivities, Wt % of HC:																			
Methane	6.32	6.80	6.78	7.14	6.78	7.14	7.29	6.87	7.29	7.29	6.87	6.87	7.55	7.55	5.96	5.96	7.13	7.13	7.13
Ethane	1.64	1.64	1.58	1.39	1.58	1.39	1.45	1.45	1.45	1.45	1.45	1.45	1.64	1.64	1.30	1.30	1.54	1.54	1.54
Ethane	2.84	2.89	2.83	2.92	2.83	2.92	2.83	2.77	2.83	2.83	2.77	2.77	3.13	3.13	2.49	2.49	2.85	2.85	2.85
Propane	7.40	7.55	7.53	7.77	7.53	7.77	7.73	7.47	7.73	7.73	7.47	7.47	8.19	8.19	6.57	6.57	7.79	7.79	7.79
Propane	1.76	1.82	1.82	1.79	1.82	1.79	1.88	1.80	1.88	1.88	1.80	1.80	2.24	2.24	1.75	1.75	1.90	1.90	1.90
Butenes	5.99	5.96	6.16	6.28	6.16	6.28	6.32	6.06	6.32	6.32	6.06	6.06	6.98	6.98	5.45	5.45	6.19	6.19	6.19
i-Butane	0.00	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.06	0.06	0.07	0.07	0.07
n-Butane	1.66	1.73	1.78	1.83	1.78	1.83	1.94	1.83	1.94	1.94	1.83	1.83	2.12	2.12	1.67	1.67	1.92	1.92	1.92
C ₅ - C ₁₁ (2)	15.53	14.03	18.64	11.41	18.64	11.41	14.13	12.61	14.13	14.13	12.61	12.61	12.38	12.38	15.51	15.51	13.54	13.54	13.54
Light Hydrocarbons (3)	17.27	17.32	14.31	18.27	14.31	18.27	17.40	18.65	17.40	17.40	18.65	18.65	20.13	20.13	19.45	19.45	18.53	18.53	18.53
Heavy Hydrocarbons (4)	28.80	29.43	27.62	31.54	27.62	31.54	28.80	30.86	28.80	28.80	30.86	30.86	26.93	26.93	30.22	30.22	29.11	29.11	29.11
Slurry Rx. -Max	10.43	10.26	9.88	9.60	9.88	9.60	9.26	9.00	9.26	9.26	9.00	9.00	8.91	8.91	8.68	8.68	8.62	8.62	8.62
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

(1) Including Oxygenates
 (2) In Gas Phase Only
 (3) Collected in Chilled and Ambient Condensers
 (4) Collected in Hot Condenser

Table D-2 (cont'd)
First-Stage Fischer-Tropsch Slurry Reactor
Operating Conditions and Material Balances
 (Based on Inter-Reactor Sample)
 (Run CT-256-3)

(Nitrogen-Free Basis)	3-25	3-28	3-29	3-30	3-31	3-32	3-33	3-34	3-35	3-36
M.B. No.	26.0	29.0	30.5	31.5	32.5	33.5	34.5	35.5	36.5	37.5
Days On-stream										
First-Stage Conditions:										
Charge H ₂ /CO (Molar)	0.689	0.694	0.665	0.686	0.679	0.702	0.696	0.695	0.685	0.674
Temperature, °C	260	261	261	260	260	260	260	259	260	260
Pressure, MPa	1.480	1.480	1.480	1.487	1.480	1.480	1.446	1.480	1.494	1.487
Feed Sup. Vel., cm/s	3.734	3.658	3.599	3.617	3.496	3.496	3.544	3.481	3.444	3.462
Space Vel., NL/gFe-hr	2.489	2.388	2.343	2.373	2.282	2.279	2.253	2.273	2.267	2.275
N ₂ in Feed, Mol %	4.9	6.7	7.0	6.9	6.9	6.9	7.1	7.0	6.9	6.7
Conversions, Mol % :										
H ₂	76.49	79.28	72.98	76.71	78.91	80.46	80.51	79.89	80.45	80.93
CO	88.56	90.53	81.72	87.09	90.31	91.69	92.11	92.38	91.90	91.61
H ₂ +CO	83.64	85.92	78.23	82.87	85.70	87.06	87.35	87.26	87.24	87.31
Yields, Wt % of Products :										
Hydrocarbons (1)										
CO ₂	21.84	22.27	20.75	22.00	22.29	23.25	22.72	23.91	23.36	22.88
H ₂ O (1)	66.56	67.55	61.33	64.78	67.20	67.79	68.50	67.49	67.63	67.74
H ₂	0.51	0.77	0.35	0.58	0.79	0.54	0.83	0.84	0.86	0.72
CO	1.03	0.93	1.16	1.03	0.94	0.90	0.88	0.91	0.87	0.86
Total	10.06	8.48	16.41	11.60	8.78	7.52	7.07	6.85	7.28	7.80
Bal Recovery, Wt % of Charge:										
gHC/mm ³ (H ₂ +CO) conv.:	108.28	106.35	106.23	105.97	105.18	105.05	106.13	105.83	106.02	102.42
(H/C) Atomic Ratio in HC :	2.19	2.13	2.21	2.18	2.13	2.16	2.13	2.24	2.20	2.10
Selectivities, Wt % of HC :	2.23	2.23	2.25	2.24	2.24	2.24	2.24	2.23	2.23	2.23
Methane	6.75	7.29	8.12	7.73	7.63	7.40	7.57	7.42	7.15	7.08
Ethane	1.45	1.50	2.11	1.70	1.52	1.38	1.39	1.27	1.33	1.38
Ethane	2.76	2.85	2.94	2.93	2.97	2.86	2.91	2.74	2.71	2.70
Propene	7.32	7.86	8.43	8.05	8.01	7.70	7.92	7.77	7.47	7.53
Propane	1.90	1.92	1.96	1.98	2.02	1.93	1.99	1.74	1.86	1.87
Butenes	5.95	6.24	6.48	6.36	6.36	6.10	6.27	5.99	5.94	6.07
i-Butane	0.06	0.07	0.08	0.07	0.07	0.06	0.07	0.06	0.06	0.06
n-Butane	1.84	1.95	1.99	1.99	2.01	1.94	1.99	1.92	1.90	1.93
C ₅ - C ₁₁ (2)	13.10	13.68	13.82	15.20	15.73	14.00	14.13	12.53	12.39	15.60
Light Hydrocarbons (3)	18.30	18.67	21.67	19.07	18.12	18.25	18.05	19.78	18.70	18.32
Heavy Hydrocarbons (4)	30.01	28.62	22.89	24.95	26.21	27.33	28.76	30.27	32.07	28.94
Slurry Rx.-Max	8.54	8.46	8.45	8.84	8.30	8.99	7.97	7.66	7.63	7.47
Total	100	100	100	100	100	100	100	100	100	100

(1) Including Oxygenates

(2) In Gas Phase Only

(3) Collected in Chilled and Ambient Condensers

(4) Collected in Hot Condenser

Table D-2 (cont'd)
First-Stage Fischer-Tropsch Slurry Reactor
Operating Conditions and Material Balances
(Based on Inter-Reactor Sample)
(Run CT-256-3)

(Nitrogen-free Basis)	3-37	3-38	3-39	3-40	3-41	3-42	3-43	3-44	3-53	3-56
M.B. No.	38.5	39.5	40.5	41.5	42.5	43.5	44.5	45.5	57.5	64.5
Days On-stream										
First-Stage Conditions:										
Charge H ₂ /CO (Molar)	0.695	0.679	0.693	0.689	0.689	0.693	0.687	0.689	0.675	0.691
Temperature, °C	259	260	260	260	260	260	260	260	264	266
Pressure, MPa	1.480	1.494	1.480	1.480	1.480	1.508	1.494	1.494	1.480	1.577
Feed Sup. Vel., cm/s	3.474	3.429	3.464	3.439	3.457	3.323	3.355	3.331	3.251	2.855
Space Vel., NL/gFe-hr	2.273	2.282	2.288	2.269	2.277	2.228	2.232	2.217	2.095	2.036
N ₂ in Feed, Mol %	6.8	5.9	5.7	5.9	6.0	6.1	5.9	5.9	7.9	7.1
Conversions, Mol % :										
H ₂	80.97	81.55	80.92	79.55	78.93	77.40	77.56	75.57	79.73	72.17
CO	91.76	91.65	91.50	89.87	89.89	88.96	89.29	87.88	89.46	78.96
H ₂ +CO	87.34	87.57	87.17	85.66	85.42	84.23	84.51	82.86	85.54	76.19
Yields, Wt % of Products :										
Hydrocarbons (1)	24.28	22.99	21.92	20.55	22.10	19.77	22.89	21.61	22.15	20.15
CO ₂	66.61	67.81	68.46	66.87	66.63	67.14	65.29	65.40	66.71	60.42
H ₂ O (1)	0.88	0.74	0.76	2.34	0.75	2.08	0.91	0.75	0.55	0.16
H ₂	0.85	0.83	0.89	0.93	0.99	1.02	1.03	1.11	0.91	1.19
CO	7.38	7.63	7.96	9.31	9.53	9.99	9.88	11.12	9.69	18.08
Total	100	100	100	100	100	100	100	100	100	100
Bal Recovery, Wt % of Charge:	106.28	104.24	101.66	103.58	101.05	105.20	103.21	103.72	103.71	110.78
gHC/Nm ³ (H ₂ +CO) conv.:	228	213	198	193	203	191	217	210	210	227
(H/C) Atomic Ratio in HC :	2.22	2.22	2.24	2.24	2.23	2.25	2.22	2.24	2.25	2.32
Selectivities, Wt % of HC :										
Methane	6.64	6.87	7.57	7.83	7.36	8.10	6.94	7.67	8.21	10.77
Ethane	1.25	1.35	1.44	1.53	1.39	1.57	1.35	1.50	1.62	2.84
Ethane	2.50	2.61	2.81	2.92	2.76	3.10	2.64	2.85	3.43	4.85
Propane	7.02	7.21	7.95	8.23	7.62	8.40	7.17	7.87	8.69	11.40
Propane	1.74	1.86	1.93	2.04	1.87	2.15	1.82	1.96	2.28	2.90
Butenes	5.74	5.82	6.34	6.63	6.13	6.83	5.74	6.29	6.86	8.32
i-Butane	0.06	0.06	0.07	0.07	0.07	0.07	0.06	0.07	0.08	0.14
n-Butane	1.83	1.85	2.04	2.12	1.98	2.21	1.84	2.01	2.13	2.50
C ₅ - C ₁₁ (2)	16.09	14.58	15.83	17.37	16.73	17.64	14.26	15.52	15.36	22.38
Light Hydrocarbons (3)	19.20	21.31	18.13	22.96	17.81	18.87	21.48	17.21	17.46	14.23
Heavy Hydrocarbons (4)	29.37	28.29	27.87	20.27	28.36	23.13	29.10	29.39	28.03	14.07
Slurry Rx.-Max	7.31	7.22	6.96	6.84	6.82	6.72	6.69	6.59	4.83	3.24
Total	100	100	100	100	100	100	100	100	100	100

- (1) Including Oxygenates
- (2) In Gas Phase Only
- (3) Collected in Chilled and Ambient Condensers
- (4) Collected in Hot Condenser

Table D-2 (cont'd)
First-Stage Fischer-Tropsch Slurry Reactor
Operating Conditions and Material Balances
 (Based on Inter-Reactor Sample)
 (Run CT-256-3)

(Nitrogen-Free Basis)	3- 57	3- 58	3- 59	3- 60	3- 61	3- 62	3- 63
M.B. No.	3- 57	3- 58	3- 59	3- 60	3- 61	3- 62	3- 63
Days On-stream	66.5	68.5	70.5	72.5	74.5	76.5	78.5
First-Stage Conditions:							
Charge H ₂ /CO (Molar)	0.693	0.601	0.601	0.607	0.596	0.600	0.634
Temperature, °C	265	265	266	265	266	266	264
Pressure, MPa	1.535	1.825	2.170	2.170	2.515	2.515	2.515
Feed Sup. Vel., cm/s	2.841	2.662	2.607	2.634	2.567	2.231	1.423
Space Vel., NL/gFe-hr	1.923	2.186	2.587	2.616	3.014	2.612	1.602
N ₂ in Feed, Mol %	9.5	7.6	6.0	6.0	4.0	4.3	8.3
Conversions, Mol % :							
H ₂	85.65	84.07	82.55	81.97	79.77	89.41	92.59
CO	82.58	83.47	81.64	81.01	78.68	88.58	93.55
H ₂ +CO	83.83	83.69	81.98	81.37	79.09	88.89	93.17
Yields, Wt % of Products :							
Hydrocarbons (1)	20.66	21.17	20.08	20.37	19.87	21.07	18.88
CO ₂	62.14	62.61	61.36	60.77	59.43	67.20	74.15
H ₂ O (1)	0.05	0.04	0.09	0.08	0.05	0.05	0.09
H ₂	0.68	0.65	0.73	0.75	0.81	0.45	0.34
CO	16.47	15.54	17.74	18.03	19.84	11.23	6.54
Total	100	100	100	100	100	100	100
Bal Recovery, Wt % of Charge:	100.68	101.90	99.14	100.88	102.95	97.39	94.35
gHC/Nm ³ (H ₂ +CO) conv.:	192	209	197	205	211	188	152
(H/C) Atomic Ratio in HC :	2.25	2.26	2.26	2.27	2.30	2.25	2.28
Selectivities, Wt % of HC :							
Methane	8.95	8.45	8.46	8.64	7.90	7.76	9.11
Ethene	2.51	2.25	2.56	2.37	2.36	2.05	2.37
Ethane	3.45	3.51	3.82	3.67	3.47	3.53	4.68
Propene	9.48	9.03	9.58	9.53	8.64	8.71	0.00
Propane	2.32	2.29	2.57	2.57	2.44	2.52	0.00
Butenes	8.59	6.69	7.17	7.21	6.63	6.67	9.13
i-Butane	0.07	0.09	0.13	0.12	0.13	0.12	0.16
n-Butane	0.51	2.07	2.25	2.31	2.29	2.29	2.67
C ₅ - C ₁₁ (2)	15.25	12.72	18.40	18.64	15.11	15.82	24.03
Light Hydrocarbons (3)	20.06	23.46	20.21	19.21	22.74	22.99	13.98
Heavy Hydrocarbons (4)	23.79	25.22	18.98	19.49	22.74	20.84	19.87
Slurry Rx.-Wax	4.13	3.76	4.04	4.59	4.59	5.62	12.23
Total	100	100	100	100	100	100	100

- (1) Including Oxygenates
- (2) In Gas Phase Only
- (3) Collected in Chilled and Ambient Condensers
- (4) Collected in Hot Condenser

Table D-3
Composition of Hydrocarbon Products from
First-Stage Slurry F-I Reactor
(Run CT-256-3)

M.B.No. Days On Stream	(1)					3-19	20.0
	3-1	3-2	3-3	3-4	3-5		
METHANE	5.69	5.85	5.85	5.86	6.15	6.78	7.29
ETHENE	2.29	2.16	2.12	1.91	1.79	1.58	1.45
ETHANE	2.75	2.61	2.60	2.61	2.74	2.84	2.83
PROPENE	7.64	7.54	7.56	7.32	7.54	7.53	7.73
PROPANE	1.38	1.39	1.50	1.51	1.59	1.82	1.88
I-BUTANE	0.08	0.07	0.07	0.07	0.07	0.07	0.06
1-BUTENE+2-METHYLPROPENE	5.68	5.58	5.66	5.46	5.61	5.74	5.94
N-BUTANE	1.44	1.47	1.48	1.48	1.57	1.78	1.94
TRANS-2-BUTENE	0.16	0.16	0.15	0.14	0.15	0.16	0.14
CIS-2-BUTENE	0.26	0.27	0.26	0.26	0.27	0.26	0.24
3-METHYL-1-BUTENE	0.39	0.34	0.45	0.31	0.30	0.26	0.24
1-PENTANE	0.24	0.36	0.22	0.18	0.17	0.16	0.15
1-PENTENE	4.21	4.30	4.32	4.11	4.19	4.21	4.51
2-METHYL-1-BUTENE	0.28	0.19	0.22	0.17	0.17	0.15	0.12
N-PENTANE	1.13	1.17	1.20	1.20	1.25	1.35	1.49
TRANS-2-PENTENE	0.11	0.12	0.12	0.12	0.13	0.13	0.12
CIS-2-PENTENE	0.15	0.15	0.14	0.14	0.15	0.15	0.13
2-METHYL-2-BUTENE	0.01	0.00	0.00	0.01	0.01	0.00	0.01
CYCLOPENTANE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HEXENES + ISO-HEXANES	0.62	0.67	0.74	0.68	0.66	0.57	0.06
2,3-DIMETHYLBUTANE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-METHYLPENTANE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3-METHYLPENTANE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-HEXENE	2.61	2.99	2.85	2.70	2.67	3.03	2.79
N-HEXANE	0.77	0.93	0.88	0.87	0.90	1.15	1.02
HEPTENES + ISO-HEPTANES	0.54	0.64	0.59	0.57	0.57	0.84	0.48
1-HEPTENE	1.38	1.60	1.58	1.46	1.38	1.80	1.26
1-TRANS-3-DIMETHYL-N5	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-HEPTANE	0.49	0.56	0.54	0.55	0.54	0.51	0.54
C8-OLEFINS + ISO-P	0.45	0.33	0.35	0.31	0.31	0.22	0.23
1-OCTENE	0.60	0.63	0.55	0.53	0.52	0.35	0.40
N-OCTANE	0.28	0.29	0.24	0.27	0.25	0.19	0.24
C9-OLEFINS + ISO-P	0.26	0.16	0.15	0.11	0.16	0.26	0.14
N-NONANE	0.19	0.17	0.13	0.12	0.11	0.07	0.11
ACETONE	0.09	0.10	0.07	0.08	0.08	0.37	0.09
I-PROPANOL	0.04	0.23	0.05	0.44	0.34	0.27	0.00
N-BUTANONE	0.06	0.04	0.04	0.23	0.24	0.15	0.31
UNKNOWN LITE HYDRO-CARB LIQ (2)	0.00	0.00	0.00	0.00	0.00	0.00	0.34
UNKNOWN HVY HYDRO-CARB LIQ (3)	21.15	20.42	19.90	20.63	20.60	14.31	17.40
SLURRY REACTOR-WAX	23.82	24.17	25.54	25.85	25.69	27.62	28.80
	12.76	12.34	11.89	11.75	11.14	9.88	9.26

(1) Based on Inter-Reactor Sample
(2) Collected in Ambient and Chilled Condensers
(3) Collected in Hot Condenser

Table D-3 (cont'd)
Composition of Hydrocarbon Products from
First-Stage Slurry F-I Reactor
(Run CT-256-3)

M.B.No. Days On Stream	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	3-21	3-22	3-23	3-24	3-25	3-28	3-29	3-30		
	22.0	23.0	24.0	26.0	27.0	29.0	30.5	31.5		
METHANE	6.87	7.55	5.96	7.13	6.75	7.29	8.12	7.73		
ETHENE	1.45	1.64	1.30	1.54	1.45	1.50	2.11	1.70		
ETHANE	2.77	3.13	2.49	2.85	2.76	2.85	2.94	2.93		
PROPENE	7.47	8.18	6.57	7.79	7.32	7.86	8.43	8.05		
PROpane	1.80	2.23	1.75	1.90	1.90	1.92	1.96	1.98		
1-BUTANE	0.06	0.07	0.06	0.07	0.06	0.07	0.08	0.07		
1-BUTENE+2-METHYLPROPENE	5.59	6.44	5.14	5.84	5.63	5.89	6.23	6.06		
N-BUTANE	1.83	2.06	1.67	1.92	1.84	1.95	1.99	1.99		
TRANS-2-BUTENE	0.13	0.14	0.12	0.13	0.12	0.13	0.09	0.11		
CIS-2-BUTENE	0.21	0.23	0.19	0.22	0.20	0.21	0.16	0.19		
3-METHYL-1-BUTENE	0.22	0.25	0.20	0.22	0.21	0.22	0.26	0.24		
1-PENTANE	0.14	0.16	0.13	0.14	0.14	0.14	0.17	0.15		
1-PENTENE	4.09	4.82	3.98	4.36	4.22	4.40	4.55	4.59		
2-METHYL-1-BUTENE	0.11	0.13	0.11	0.11	0.11	0.11	0.12	0.13		
N-PENTANE	1.36	1.59	1.32	1.46	1.38	1.47	1.43	1.52		
TRANS-2-PENTENE	0.11	0.11	0.10	0.11	0.10	0.10	0.07	0.09		
CIS-2-PENTENE	0.12	0.13	0.11	0.12	0.11	0.11	0.09	0.10		
2,2-DIMETHYLBUTANE	0.00	0.00	0.04	0.00	0.05	0.00	0.00	0.00		
CYCLOPENTANE	0.00	0.09	0.09	0.00	0.07	0.00	0.00	0.00		
HEXENES + ISO-HEXANES	0.15	0.03	0.00	0.18	0.00	0.19	0.20	0.21		
2,3-DIMETHYLBUTANE	0.00	0.11	0.06	0.00	0.06	0.00	0.00	0.00		
1-HEXENE	2.35	3.27	2.62	2.61	2.55	2.66	2.81	2.91		
N-HEXANE	0.87	1.18	0.98	0.95	0.91	0.96	0.93	1.01		
HEPTENES + ISO-HEPTANES	0.33	0.09	0.69	0.40	0.38	0.40	0.35	0.43		
1-HEPTENE	1.02	0.00	1.49	1.14	1.11	1.18	1.30	1.43		
N-HEPTANE	0.39	0.00	0.64	0.48	0.47	0.48	0.47	0.56		
C8-OLEFINS + ISO-P	0.56	0.00	0.48	0.17	0.18	0.20	0.17	0.27		
1-OCTENE	0.24	0.00	0.73	0.37	0.36	0.39	0.42	0.54		
N-OCTANE	0.14	0.00	0.43	0.22	0.20	0.22	0.20	0.27		
C9-OLEFINS + ISO-P	0.28	0.00	0.77	0.37	0.29	0.23	0.10	0.39		
1-NONENE	0.14	0.00	0.00	0.00	0.00	0.00	0.12	0.20		
C9-OLEFINS	0.00	0.00	0.30	0.06	0.12	0.13	0.03	0.10		
N-NONANE	0.00	0.00	0.25	0.06	0.09	0.09	0.04	0.08		
ACETONE	0.20	0.08	0.29	0.22	0.28	0.26	0.33	0.36		
1-PROPANOL	0.25	0.05	0.24	0.28	0.25	0.34	0.38	0.38		
N-BUTANONE	0.26	0.00	0.37	0.29	0.30	0.31	0.34	0.39		
UNKNOWN LITE HYDRO-CARB LIQ (2)	18.65	20.13	19.45	18.53	18.30	18.67	21.67	19.07		
UNKNOWN HVY HYDRO-CARB LIQ (3)	30.86	26.93	30.22	29.11	30.01	28.62	22.89	24.95		
SLURRY REACTOR-MAX	9.00	8.91	8.68	8.62	8.54	8.46	8.45	8.84		

(1) Based on Inter-Reactor Sample
(2) Collected in Ambient and Chilled Condensers
(3) Collected in Hot Condenser

Table D-3 (cont'd)
Composition of Hydrocarbon Products from
First-Stage Slurry F-T Reactor
(Run CT-256-3)

M.B.No. Days On Stream	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	3-31	3-32	3-33	3-34	3-35	3-36	3-37	3-38	3-39	3-40		
	32.5	33.5	34.5	35.5	36.5	37.5	38.5	39.5	40.5	41.5		
METHANE	7.63	7.40	7.57	7.42	7.15	7.08	6.64	6.87	7.57	7.83		
ETHANE	1.52	1.38	1.39	1.27	1.33	1.38	1.25	1.35	1.44	1.53		
ETHANE	2.97	2.86	2.91	2.74	2.71	2.70	2.50	2.61	2.81	2.92		
PROPENE	8.01	7.70	7.92	7.77	7.47	7.53	7.02	7.21	7.95	8.23		
PROPANE	2.02	1.93	1.99	1.74	1.86	1.87	1.74	1.86	1.93	2.04		
I-BUTANE	0.07	0.06	0.07	0.06	0.06	0.06	0.06	0.06	0.07	0.07		
1-BUTENE+2-METHYLPROPENE	6.04	5.78	5.92	5.64	5.62	5.75	5.42	5.54	6.02	6.29		
N-BUTANE	2.01	1.94	1.99	1.92	1.90	1.93	1.83	1.85	2.04	2.12		
TRANS-2-BUTENE	0.12	0.12	0.13	0.13	0.12	0.12	0.11	0.11	0.12	0.12		
CIS-2-BUTENE	0.20	0.20	0.21	0.22	0.19	0.20	0.22	0.18	0.20	0.22		
3-METHYL-1-BUTENE	0.23	0.21	0.22	0.20	0.20	0.21	0.20	0.20	0.21	0.22		
I-PENTANE	0.15	0.14	0.14	0.14	0.13	0.14	0.13	0.13	0.14	0.15		
1-PENTENE	4.58	4.31	4.48	4.19	4.18	4.48	4.37	4.29	4.70	4.88		
2-METHYL-1-BUTENE	0.11	0.10	0.11	0.10	0.10	0.12	0.10	0.09	0.12	0.11		
N-PENTANE	1.53	1.46	1.52	1.44	1.41	1.53	1.49	1.45	1.60	1.64		
TRANS-2-PENTENE	0.10	0.10	0.10	0.10	0.10	0.10	0.09	0.09	0.10	0.10		
CIS-2-PENTENE	0.11	0.11	0.12	0.11	0.11	0.11	0.11	0.10	0.11	0.11		
2-METHYL-2-BUTENE	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00		
HEXENES + ISO-HEXANES	0.22	0.19	0.20	0.18	0.17	0.22	0.25	0.21	0.23	0.25		
1-HEXENE	2.87	2.62	2.76	2.46	2.48	2.87	3.04	2.78	3.04	3.18		
N-HEXANE	1.02	0.96	1.01	0.91	0.91	1.05	1.11	1.01	1.11	1.15		
HEPTENES + ISO-HEPTANES	0.46	0.39	0.41	0.35	0.33	0.47	0.51	0.42	0.45	0.50		
1-HEPTENE	1.44	1.19	1.22	1.03	1.05	1.44	1.57	1.35	1.41	1.68		
N-HEPTANE	0.59	0.50	0.51	0.45	0.44	0.60	0.65	0.55	0.58	0.69		
C8-OLEFINS + ISO-P	0.33	0.23	0.24	0.14	0.11	0.32	0.33	0.24	0.26	0.38		
1-OCTENE	0.63	0.45	0.39	0.31	0.30	0.60	0.67	0.53	0.58	0.66		
N-OCTANE	0.35	0.26	0.22	0.16	0.17	0.34	0.36	0.29	0.33	0.37		
C9-OLEFINS + ISO-P	0.32	0.24	0.18	0.11	0.04	0.30	0.40	0.27	0.26	0.48		
C9-OLEFINS	0.26	0.20	0.11	0.08	0.07	0.28	0.25	0.21	0.23	0.31		
N-NONANE	0.19	0.16	0.09	0.06	0.05	0.21	0.19	0.16	0.17	0.23		
N-DECANE	0.13	0.10	0.05	0.00	0.02	0.11	0.13	0.11	0.10	0.15		
N-DECENE	0.11	0.10	0.04	0.00	0.02	0.11	0.13	0.10	0.10	0.14		
ACETONE	0.31	0.30	0.29	0.24	0.21	0.32	0.42	0.31	0.33	0.37		
I-PROPANOL	0.35	0.39	0.38	0.35	0.33	0.37	0.39	0.33	0.40	0.40		
N-BUTANONE	0.38	0.29	0.32	0.25	0.25	0.35	0.42	0.33	0.34	0.41		
UNKNOWN LITE HYDRO-CARB LIQ (2)	18.12	18.25	18.05	19.78	18.70	18.32	19.20	21.31	18.13	22.96		
UNKNOWN HVY HYDRO-CARB LIQ (3)	26.21	27.33	28.76	30.27	32.07	28.94	29.37	28.29	27.87	20.27		
SLURRY REACTOR-WAX	8.30	8.99	7.97	7.66	7.63	7.47	7.31	7.22	6.96	6.84		

(1) Based on Inter-Reactor Sample
(2) Collected in Ambient and Chilled Condensers
(3) Collected in Hot Condenser

Table B-3 (cont'd)
Composition of Hydrocarbon Products from
First-Stage Slurry F-I Reactor
(Run CT-256-3)

M.B.No. Days On Stream	(1) 3-41 42.5	(1) 3-42 43.5	(1) 3-43 44.5	(1) 3-44 45.5	3-46 48.5	3-47 49.5	3-48 50.5	3-49 51.5	3-50 52.5	(1) 3-53 57.5
METHANE	7.36	8.10	6.94	7.67	7.59	7.86	7.99	8.20	7.97	8.21
ETHANE	1.39	1.57	1.35	1.50	1.40	1.49	1.52	1.53	1.51	1.62
ETHANE	2.76	3.10	2.64	2.85	2.85	2.95	3.21	3.33	3.11	3.43
PROPENE	7.62	8.40	7.17	7.87	7.84	8.18	8.13	8.41	8.17	8.69
PROPANE	1.87	2.15	1.82	1.96	1.88	1.88	2.22	2.27	1.93	2.28
1-BUTANE	0.07	0.07	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.08
1-BUTENE+2-METHYLPROPENE	5.81	6.46	5.46	5.97	5.56	5.72	5.87	6.02	5.62	6.44
N-BUTANE	1.98	2.21	1.84	2.01	1.85	1.92	1.95	2.00	1.91	2.13
TRANS-2-BUTENE	0.12	0.13	0.11	0.12	0.12	0.12	0.13	0.14	0.14	0.16
CIS-2-BUTENE	0.20	0.24	0.17	0.21	0.19	0.20	0.21	0.23	0.23	0.26
3-METHYL-1-BUTENE	0.21	0.23	0.19	0.21	0.20	0.00	0.21	0.23	0.22	0.28
1-PENTANE	0.13	0.14	0.13	0.14	0.37	0.20	0.19	0.22	0.15	0.16
1-PENTENE	4.63	5.04	4.19	4.58	0.00	0.17	3.85	3.90	3.71	4.77
2-METHYL-1-BUTENE	0.10	0.11	0.09	0.11	0.00	0.26	0.09	0.09	0.10	0.13
N-PENTANE	1.59	1.75	1.43	1.57	3.58	3.80	1.25	1.29	1.28	1.61
TRANS-2-PENTENE	0.10	0.11	0.09	0.10	0.00	0.00	0.09	0.11	0.11	0.13
CIS-2-PENTENE	0.11	0.12	0.10	0.11	0.00	0.00	0.10	0.11	0.11	0.14
2-METHYL-2-BUTENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
UNKNOWN CS-MONOOLEFINS	0.00	0.00	0.00	0.00	4.48	4.70	0.00	0.00	0.00	0.00
2,2-DIMETHYLBUTANE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14	0.00
CYCLOPENTANE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.04	0.00
HEXENES + ISO-HEXANES	0.23	0.26	0.19	0.21	0.00	0.00	0.07	0.04	0.03	0.26
ISO-C6-P+0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00
1-HEXENE	3.10	3.29	2.67	2.89	0.00	0.00	1.56	1.65	1.55	3.01
N-HEXANE	1.15	1.22	0.98	1.06	0.00	0.00	0.54	0.59	0.58	1.10
HEPTENES + ISO-HEPTANES	0.50	0.55	0.42	0.45	0.00	0.00	0.09	0.15	0.15	0.52
1-HEPTENE	1.57	1.66	1.29	1.41	0.00	0.00	0.32	0.37	0.33	1.39
N-HEPTANE	0.65	0.71	0.54	0.59	0.00	0.00	0.12	0.14	0.14	0.59
C8-OLEFINS + ISO-P	0.34	0.34	0.24	0.28	0.00	0.00	0.01	0.03	0.03	0.26
1-OCTENE	0.69	0.65	0.51	0.56	0.00	0.00	0.04	0.04	0.04	0.43
N-OCTANE	0.39	0.38	0.29	0.31	0.00	0.00	0.02	0.02	0.02	0.25
C9-OLEFINS + ISO-P	0.37	0.43	0.35	0.36	0.00	0.00	0.00	0.00	0.00	0.15
C9-OLEFINS	0.32	0.24	0.20	0.22	0.00	0.00	0.00	0.00	0.00	0.00
N-NONANE	0.24	0.19	0.15	0.17	0.00	0.00	0.00	0.00	0.00	0.00
N-DECANE	0.16	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00
N-DECENES	0.16	0.11	0.10	0.11	0.00	0.00	0.00	0.00	0.00	0.11
ACETONE	0.35	0.42	0.30	0.34	0.00	0.00	0.16	0.17	0.13	0.08
I-PROPANOL	0.37	0.35	0.29	0.36	0.00	0.00	0.00	0.00	0.00	0.33
N-BUTANONE	0.38	0.43	0.33	0.36	0.00	0.00	0.00	0.00	0.00	0.40
UNKNOWN LITE HYDRO-CARB LIQ (2)	17.81	18.87	21.48	17.21	33.34	31.02	30.13	28.96	31.90	17.46
UNKNOWN Hvy HYDRO-CARB LIQ (3)	28.36	23.13	29.10	29.39	22.23	23.29	23.73	23.62	22.75	28.03
SLURRY REACTOR-MAX	6.82	6.72	6.69	6.59	6.42	6.18	5.97	5.85	5.76	4.83

(1) Based on Inter-Reactor Sample
(2) Collected in Ambient and Chilled Condensers
(3) Collected in Hot Condenser

Table D-3 (cont'd)
Composition of Hydrocarbon Products from
First-Stage Slurry F-I Reactor
(Run CT-256-3)

M.B.No. Days On Stream	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
METHANE	10.77	8.95	8.45	8.46	8.64	7.90	7.76	9.11	3-63	3-62	3-63
ETHANE	2.84	2.51	2.25	2.56	2.37	2.36	2.05	2.37	3-62	3-62	3-63
ETHANE	4.85	3.45	3.51	3.82	3.67	3.47	3.53	4.68	76.5	76.5	78.5
PROPENE	11.40	9.48	9.03	9.58	9.53	8.62	8.71	0.00			
PROPANE	2.90	2.32	2.29	2.57	2.57	2.43	2.52	0.00			
1-BUTANE	0.14	0.07	0.09	0.13	0.12	0.13	0.12	0.16			
1-BUTENE+2-METHYLPROPENE	7.84	6.36	6.43	6.88	6.91	6.22	6.36	8.37			
N-BUTANE	2.50	0.51	2.07	2.25	2.31	2.23	2.29	2.67			
TRANS-2-BUTENE	0.16	2.11	0.09	0.09	0.10	0.08	0.11	0.29			
CIS-2-BUTENE	0.32	0.11	0.16	0.19	0.20	0.18	0.20	0.47			
3-METHYL-1-BUTENE	0.50	0.19	0.32	0.44	0.40	0.35	0.34	0.57			
1-PENTANE	0.25	0.27	0.17	0.22	0.26	0.20	0.18	0.24			
1-PENTENE	5.39	0.33	0.00	4.79	4.86	4.30	4.40	5.98			
2-METHYL-1-BUTENE	0.20	4.88	0.00	0.16	0.16	0.14	0.14	0.25			
N-PENTANE	1.85	0.13	0.00	1.66	1.71	1.58	1.64	2.09			
TRANS-2-PENTENE	0.12	1.52	0.00	0.07	0.07	0.06	0.08	0.21			
CIS-2-PENTENE	0.15	0.08	0.00	0.09	0.11	0.08	0.10	0.24			
2-METHYL-2-BUTENE	0.00	0.10	0.00	0.00	0.12	0.02	0.02	0.00			
HEXENES + ISO-HEXANES	0.46	0.28	0.00	0.38	0.37	0.29	0.33	0.58			
1-HEXENE	3.51	2.96	4.36	3.17	3.23	2.68	2.67	3.98			
N-HEXANE	1.29	0.96	1.43	1.16	1.19	1.04	1.08	1.55			
HEPTENES + ISO-HEPTANES	1.01	0.41	0.83	0.71	0.65	0.52	0.50	1.20			
1-HEPTENE	2.07	1.33	2.46	1.79	1.79	1.34	1.34	2.14			
N-HEPTANE	0.87	0.48	0.85	0.73	0.74	0.57	0.64	1.02			
C8-OLEFINS + ISO-P	0.78	0.21	0.32	0.50	0.47	0.29	0.35	0.70			
1-OCTENE	1.08	0.42	0.98	0.80	0.83	0.56	0.59	1.00			
N-OCTANE	0.58	0.19	0.37	0.39	0.42	0.28	0.33	0.60			
C9-OLEFINS + ISO-P	0.85	0.50	0.11	0.45	0.44	0.29	0.38	0.61			
C9-OLEFINS	0.54	0.00	0.28	0.35	0.32	0.21	0.26	0.40			
N-NONANE	0.38	0.00	0.13	0.22	0.21	0.13	0.18	0.30			
N-DECANE	0.26	0.00	0.07	0.18	0.16	0.10	0.14	0.19			
N-DECENES	0.24	0.00	0.04	0.14	0.13	0.08	0.11	0.18			
ACETONE	0.82	0.46	0.20	0.67	0.62	0.40	0.27	0.41			
1-PROPANOL	0.50	0.00	0.26	0.38	0.44	0.30	0.29	0.52			
N-BUTANONE	1.06	0.43	0.00	0.79	0.61	0.50	0.52	0.84			
UNKNOWN LITE HYDRO-CARB LIQ (2)	14.23	20.06	23.46	20.21	19.21	22.74	22.99	13.98			
UNKNOWN HVY HYDRO-CARB LIQ (3)	14.07	23.79	25.22	18.98	19.49	22.74	20.84	19.87			
SLURRY REACTOR-MAX	3.24	4.13	3.76	4.04	4.59	4.59	5.62	12.23			

(1) Based on Inter-Reactor Sample
(2) Collected in Ambient and Chilled Condensers
(3) Collected in Hot Condenser

Table D-4
 Composition of Fischer-Tropsch
 Hydrocarbon Phase Oxygenates
 (Run CT-256-3)

M.B.No.	3-4	3-48	3-61	3-64
Days on Stream	6.4	50.5	74.5	80.5
Component	Weight % of Hydrocarbon Phase			
METHANOL	0.350	0.650	1.800	1.330
FORMIC ACID	0.033	0.090	0.040	0.120
ETHANOL	1.550	2.310	5.270	4.550
ACETIC ACID	0.140	0.290	0.340	0.510
ACETONE	0.170	0.420	0.540	0.370
PROPANOLS	1.520	2.250	3.940	3.410
PROPANOIC ACIDS	0.058	0.130	0.150	0.280
C4-ESTERS + KETONES	0.210	0.460	0.570	0.500
BUTANOLS	0.910	1.390	2.190	1.970
BUTANOIC ACIDS	0.037	0.081	0.070	0.140
C5-ESTERS + KETONES	0.190	0.360	0.410	0.380
PENTANOLS	0.843	0.842	1.132	0.940
C6-ESTERS + KETONES	0.000	0.000	0.000	0.204
HEXANOLS	0.151	0.334	0.638	0.000
C7-ESTERS + KETONES	0.001	0.001	0.039	0.568
HEPTANOLS	0.427	0.627	1.117	0.025
C8-ESTERS + KETONES	0.133	0.064	0.234	0.681
OCTANOLS	0.583	0.781	1.126	0.416
C9-ESTERS + KETONES	0.356	0.347	0.428	0.669
NONANOLS	0.532	0.667	0.941	1.501
C10-ESTERS + KETONES	0.432	0.447	0.533	0.621
DECANOLS	0.418	0.515	0.747	1.388
C11-ESTERS + KETONES	0.402	0.460	0.517	0.547
C11-ALKANOLS	0.283	0.380	0.558	1.105
C12 PLUS ESTERS + KETONES	1.376	1.781	2.249	2.111
C12 PLUS ALKANOLS	0.503	0.883	1.370	2.765
Total, Wt %	11.608	16.561	26.900	27.100
Yield per HC Produced, g/100g	4.793	8.922	12.293	--

Table D-5
 Composition of Fischer-Tropsch
 Aqueous Phase Organic Oxygenates
 (Run CT-256-3)

M.B.No.	3-4	3-10	3-25	3-32	3-48
Days On Stream	6.4	12.4	26.0	33.5	50.5
Component	Weight % of Aqueous Phase				
METHANOL	5.01	7.46	7.68	7.16	10.40
ETHANOL	11.49	15.45	14.85	14.26	17.45
ACETIC ACID	0.59	0.39	0.15	0.20	0.10
ACETONE	0.67	1.22	1.50	1.45	2.27
N-PROPANOL	3.07	4.80	5.45	5.27	5.10
I-PROPANOL	0.43	0.87	1.01	1.02	1.28
PROPANOIC ACIDS	0.16	0.15	0.14	0.17	0.10
C4-ESTERS + I-KETONE	0.23	0.21	0.73	0.68	1.09
N-BUTANOL	1.02	2.32	2.34	2.12	1.51
N-2-BUTANOL	0.11	0.09	0.36	0.36	0.31
OTHER BUTANOLS	0.03	0.03	0.02	0.02	0.03
BUTANOIC ACIDS	0.07	0.08	0.15	0.18	0.12
C5-N-METHYL KETONE	0.00	0.00	0.00	0.00	0.00
C5-ESTERS + I-PENTANONE	0.08	0.25	0.40	0.37	0.46
N-1-PENTANOL	0.35	0.72	1.11	0.95	0.45
N-2-PENTANOL	0.00	0.07	0.10	0.10	0.04
OTHER PENTANOLS	0.02	0.06	0.08	0.07	0.05
C6-N-METHYL KETONE	0.03	0.10	0.19	0.18	0.12
N-1-HEXANOL	0.08	0.22	0.41	0.33	0.12
N-1-HEPTANOL	0.00	0.06	0.13	0.11	0.02
N-1-OCTANOL	0.00	0.01	0.03	0.03	0.00
C9+ ALKANOLS	0.03	0.10	0.29	0.21	0.00
Total, Wt %	23.47	34.66	37.12	35.24	41.02
Yield per HC Produced, g/100g	0.84	---	1.34	1.20	1.22

Table D-6
Composition of Fischer-Tropsch Reactor Wax
 (Run CT-256-3)

Days On-Stream Press., MPa Temp., °C	6		20.8		23.8		35		42.4		51.5		60.8		68.8		71.7		83.3	
	1.48 260	1.48 260	1.48 260	1.48 260	1.48 260	1.48 260	1.48 260	1.48 260	1.48 260	1.48 260	1.48 262	1.82 266	1.48 267	1.82 266	1.48 267	1.48 267	2.17 267	2.51 267		
Carbon No.	Weight %																			
13-20	5.39	10.79	10.34	9.20	12.23	11.06	10.51	8.51	9.92	9.54										
21-25	18.14	22.27	21.22	18.47	23.01	19.86	17.80	13.69	14.73	18.27										
26-30	25.25	29.23	27.92	27.95	25.42	26.08	28.10	26.75	24.72	25.61										
31-35	22.84	20.19	21.90	21.81	18.63	20.79	22.44	25.24	23.87	21.18										
36-40	12.45	8.86	11.21	12.43	10.31	11.98	13.20	14.26	14.74	13.33										
41-45	8.14	3.43	4.86	5.43	4.86	4.96	5.09	7.45	7.36	7.35										
46-50	4.15	2.41	1.82	2.45	2.83	2.70	2.11	3.60	3.99	3.72										
51-55	1.50	2.01	0.73	1.06	1.69	1.59	0.76	0.50	0.66	1.00										
56-60	0.79	0.81	0.00	0.60	1.01	0.97	0.00	0.00	0.00	0.00										
61-67	1.36	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.00	0.00										
Mol Avg C-No.	30.0	27.4	27.6	28.3	27.3	27.8	27.8	29.1	28.7	28.4										
Peak C-No.	35	27	28	28	26	28	28	30	31	30										

Table D-7
Second-Stage Fixed-Bed ZSM-5 Reactor
Operating Conditions and Material Balances
(Run C-256-3)

	3-7	3-8	3-9	3-10	3-11	3-13	3-19	3-20	3-21
(Nitrogen-Free Basis)									
M.B. No.	9.3	10.3	11.3	12.4	13.4	15.4	20.0	21.0	22.0
Days On-stream									
First-Stage Conditions:									
Charge H ₂ /CO (Molar)	0.682	0.680	0.678	0.681	0.680	0.683	0.688	0.689	0.683
Temperature, °C	260	259	260	260	260	260	259	259	260
Pressure, MPa	1.480	1.480	1.480	1.480	1.480	1.480	1.480	1.480	1.480
Feed Sup. Vel., cm/s	3.884	3.922	3.949	3.978	3.987	3.826	3.801	3.807	3.807
Space Vel., NL/gFe-hr	2.535	2.580	2.591	2.632	2.620	2.514	2.478	2.478	2.478
N ₂ in Feed, Mol %	5.7	6.3	6.5	6.5	6.0	6.3	6.4	6.4	6.3
Second-Stage Conditions:									
Temp., Inlet, °C	332	316	302	329	329	388	347	332	315
Outlet, °C	378	357	332	346	349	424	385	379	370
Pressure, MPa	1.432	1.446	1.446	1.446	1.439	1.439	1.446	1.446	1.446
GHSV, 1/hr	2882	3131	3151	2788	3187	3214	3087	3069	3069
Days On-stream	1.3	2.4	3.4	4.4	5.4	7.4	2.2	3.2	4.1
Conversions, Mol % :									
H ₂	80.89	78.86	79.34	81.42	78.62	79.67	80.83	79.92	80.19
CO	92.61	91.62	91.29	92.68	91.65	90.53	91.71	91.02	91.42
H ₂ +CO	87.86	86.46	86.46	88.12	86.38	86.12	87.27	86.49	86.86
Yields, Wt % of Products :									
Hydrocarbons									
CO ₂	21.83	20.53	20.40	23.20	20.22	23.05	22.60	20.42	21.21
H ₂ O	68.97	69.37	69.61	67.19	69.89	68.44	67.73	69.26	68.75
H ₂	0.99	1.34	0.98	1.25	1.18	1.01	1.37	1.34	1.38
H ₂	0.93	0.96	0.94	0.93	0.97	0.91	0.85	0.90	0.88
CO	7.28	7.80	8.07	7.43	7.74	8.59	7.45	8.08	7.77
Total	100	100	100	100	100	100	100	100	100
Bal Recovery, Wt % of Charge:	96.61	102.39	102.82	93.87	102.80	105.01	106.05	105.78	105.15
gHC/nm ³ (H ₂ +CO) conv.:	187	189	189	193	188	219	213	194	200
(H/C) Atomic Ratio in HC :	2.19	2.25	2.24	2.20	2.24	2.20	2.26	2.27	2.27
Selectivities, Wt % of HC :									
Methane	6.57	6.98	7.17	5.63	7.39	6.28	7.41	7.83	7.46
Ethane	0.75	0.82	1.06	2.12	1.45	1.14	0.55	0.53	0.55
Ethane	3.07	3.18	3.16	2.62	3.29	2.86	3.07	3.34	3.11
Propene	2.89	3.46	3.52	2.77	4.71	4.31	1.54	1.76	1.98
Propane	5.78	4.60	3.78	1.92	3.68	7.36	9.03	8.59	7.04
Butenes	4.63	7.24	8.79	7.49	10.63	5.82	1.96	2.47	3.13
i-Butane	6.70	5.13	3.23	0.24	2.74	6.77	10.63	10.12	8.96
n-Butane	5.60	5.29	4.17	2.03	3.74	5.79	8.20	7.83	7.37
CS - C11	52.65	49.81	48.32	51.55	49.40	48.35	45.64	45.94	49.28
C12+ (Excl. Rx.-Max)	0.93	3.06	6.47	13.27	3.10	1.72	2.71	2.56	2.12
Slurry Rx.-Max	10.43	10.43	10.26	10.20	9.88	9.60	9.26	9.08	9.00
Total	100	100	100	100	100	100	100	100	100
i-C ₄ /C ₃ + C ₄ =) Molar :	0.76	0.42	0.23	0.02	0.16	0.57	2.56	2.03	1.50
(C ₃ /C ₃) Molar Ratio :	1.91	1.27	1.02	0.66	0.75	1.63	5.60	4.64	3.39
Alkylate, Wt % of HC :	12.70	10.09	6.34	0.48	5.38	13.13	7.66	9.22	11.09
Cat-Poly, Wt % of HC :	1.51	5.74	9.19	10.02	12.70	3.76	0.00	0.00	0.00
C ₅ - C ₁₁ PONA, Wt % :	(1)	46.36	41.70	35.52	35.06	39.41	48.68	47.13	52.97
Paraffins	(1)	32.59	44.95	62.42	52.73	20.73	6.61	7.41	10.94
Olefins	(1)	3.82	1.78	0.21	1.66	8.28	7.14	7.44	6.00
Naphthenes	(1)	17.23	11.58	1.85	10.54	31.58	37.57	38.02	31.00
Aromatics	(1)								
(1) Not Available									

Table D-7 (cont'd)
 Second-Stage Fixed-Bed ZSM-5 Reactor
 Operating Conditions and Material Balances
 (Run CT-256-3)

	3-22	3-23	3-24	3-25	3-26	3-27	3-28	3-29	3-30
(Nitrogen-Free Basis)									
M.B. No.	23.0	24.0	25.0	26.0	27.0	28.0	29.0	30.5	31.5
Days On-stream									
First-Stage Conditions:									
Charge H ₂ /CO (Molar)	0.685	0.687	0.685	0.689	0.685	0.692	0.694	0.665	0.686
Temperature, °C	260	259	260	260	260	261	261	261	260
Pressure, MPa	1.480	1.487	1.480	1.480	1.480	1.480	1.480	1.480	1.487
Feed Sup. Vel., cm/s	3.820	3.809	3.816	3.803	3.796	3.679	3.662	3.594	3.614
Space Vel., NL/gFe-hr	2.507	2.516	2.497	2.489	2.477	2.409	2.388	2.343	2.373
N ₂ in Feed, Mol %	6.4	6.3	6.6	6.6	6.2	6.4	6.8	6.9	6.8
Second-Stage Conditions:									
Temp., Inlet, °C	306	308	312	314	321	329	334	347	352
Temp., Outlet, °C	356	353	356	358	366	373	379	395	398
Pressure, MPa	1.446	1.446	1.446	1.411	1.411	1.411	1.398	1.460	1.467
GHSV, 1/hr	3101	3038	3084	3099	2956	2804	2970	3245	3102
Days On-stream	5.1	6.2	7.2	8.2	9.2	10.2	11.2	12.6	13.6
Conversions, Mol % :									
H ₂	79.59	79.91	78.79	79.13	79.42	80.76	79.86	72.85	76.76
CO	90.06	90.89	90.37	89.57	89.77	91.37	90.66	80.89	87.01
H ₂ +CO	85.80	86.42	85.66	85.31	85.56	87.04	86.24	77.68	82.85
Yields, Wt % of Products :									
Hydrocarbons									
CO ₂	20.95	21.59	19.98	20.29	19.79	22.26	22.65	21.78	21.71
H ₂ O	67.90	68.09	69.03	67.32	67.97	67.37	66.92	58.94	64.47
H ₂	1.27	1.02	1.17	1.99	1.30	1.13	1.15	1.01	1.13
H ₂	0.91	0.92	0.96	0.94	0.99	0.92	0.90	1.16	1.03
CO	8.97	8.39	8.86	9.36	9.31	8.37	8.31	17.10	11.66
Total	100	100	100	100	100	100	100	100	100
Bal Recovery, Wt % of Charge:	105.58	103.43	103.52	104.97	97.77	98.77	106.20	106.56	106.09
sHC/NM3 (H ₂ +CO) conv.:	200	200	187	193	176	195	216	235	216
(H/C) Atomic Ratio in HC :	2.25	2.27	2.27	2.27	2.26	2.25	2.25	2.27	2.27
Selectivities, Wt % of HC :									
Methane	6.77	7.27	8.19	7.37	8.00	7.33	7.21	7.73	7.93
Ethane	0.95	0.60	0.74	0.71	0.86	0.81	0.81	0.94	0.93
Ethane	2.99	2.97	3.27	3.17	3.29	3.01	3.00	3.05	3.30
Propene	1.96	2.53	3.09	3.13	3.57	3.28	3.30	3.43	3.33
Propene	5.60	4.92	4.93	5.01	5.29	5.27	5.72	6.64	7.62
Butenes	4.43	5.55	6.09	6.94	6.66	5.60	5.40	4.98	4.51
i-Butane	6.74	5.95	5.76	5.85	6.07	6.75	7.28	8.36	8.84
n-Butane	6.28	5.81	5.54	5.65	5.43	5.79	6.07	6.59	6.94
C ₅ - C ₁₁	52.88	53.46	51.26	50.92	49.56	51.03	50.33	48.37	45.93
C ₁₂ + (Excl. Rx.-Max)	2.47	2.27	2.50	2.71	2.81	2.81	2.41	1.46	1.83
Slurry Rx.-Max	8.91	8.68	8.62	8.54	8.47	8.32	8.46	8.45	8.84
Total	100	100	100	100	100	100	100	100	100
i-C ₄ /(C ₃ +C ₄) Molar :	0.92	0.64	0.54	0.51	0.51	0.65	0.72	0.84	0.95
(C ₃ /C ₃) Molar Ratio :	2.73	1.85	1.52	1.53	1.42	1.53	1.66	1.84	2.18
Alkylate, Wt % of HC :	12.72	11.64	11.33	11.50	11.94	13.03	13.90	15.65	16.37
Cat-Poly, Wt % of HC :	0.41	2.39	3.62	4.42	4.36	2.59	2.08	1.12	0.31
C ₅ - C ₁₁ PONA, Wt % :									
Paraffins	51.09	51.02	45.66	47.36	44.19	46.66	45.96	47.65	45.77
Olefins	21.46	26.08	28.66	31.83	29.17	24.11	23.88	17.64	15.26
Naphthenes	4.13	3.44	4.87	4.41	3.86	5.85	5.59	7.75	8.21
Aromatics	23.32	19.46	20.81	16.39	22.78	23.38	24.57	26.97	30.76

Table D-7 (cont'd)
 Second-Stage Fixed-Bed ZSM-5 Reactor
 Operating Conditions and Material Balances
 (Run CT-256-3)

	3-31	3-32	3-33	3-34	3-35	3-36	3-37	3-38	3-39
(Nitrogen-Free Basis)									
M.B. No.	32.5	33.5	34.5	35.5	36.5	37.5	38.5	39.5	40.5
Days On-stream	0.679	0.702	0.696	0.695	0.685	0.674	0.695	0.679	0.693
First-Stage Conditions:									
Charge H ₂ /CO (Molar)	260	260	260	259	260	260	259	260	260
Temperature, °C	1.480	1.480	1.446	1.480	1.494	1.487	1.480	1.494	1.480
Pressure, MPa	3.489	3.498	3.448	3.480	3.448	3.467	3.479	3.461	3.461
Feed Sup. Vel., cm/s	2.282	2.249	2.224	2.273	2.267	2.245	2.273	2.252	2.259
Space Vel., NL/gFe-hr	6.7	7.0	7.2	6.9	7.0	6.8	6.9	5.9	5.6
N ₂ in Feed, Mol %									
Second-Stage Conditions:									
Temp., Inlet, °C	361	363	368	373	378	383	373	392	394
Temp., Outlet, °C	405	410	412	415	417	418	415	418	419
Pressure, MPa	1.446	1.411	0.101	1.411	1.411	1.377	1.411	1.398	1.377
GHSV, 1/hr	2883	2822	2805	2832	2810	2805	2833	2752	2720
Days On-stream	14.6	15.6	16.6	17.6	18.6	19.6	20.6	21.6	22.6
Conversions, Mol %:									
H ₂	79.45	80.88	81.16	80.74	81.98	80.92	81.33	81.69	81.48
CO	90.12	91.66	91.93	92.26	92.09	91.44	91.57	91.65	91.49
H ₂ +CO	85.81	87.22	87.51	87.54	87.98	87.20	87.37	87.62	87.39
Yields, Mt % of Products:									
Hydrocarbons	22.10	22.73	21.82	23.00	22.98	20.39	22.18	22.29	21.36
C ₂	66.93	67.52	68.82	67.74	67.85	69.50	67.91	68.11	68.48
H ₂ O	1.14	1.31	1.25	1.43	1.25	1.24	1.48	1.15	1.33
H ₂	0.91	0.88	0.85	0.87	0.80	0.87	0.84	0.82	0.87
CO	8.92	7.56	7.25	6.96	7.12	8.00	7.63	7.96	7.96
Total	100	100	100	100	100	100	100	100	100
Bal Recovery, Mt % of Charge:	105.50	104.88	105.86	105.75	105.80	101.97	105.85	104.25	101.77
gHC/Nm ³ (H ₂ +CO) conv.:	212	210	204	215	215	185	207	207	192
(H/C) Atomic Ratio in HC:	2.27	2.27	2.27	2.27	2.26	2.28	2.25	2.25	2.28
Selectivities, Mt % of HC:									
Methane	7.91	7.68	8.08	7.69	7.43	8.44	7.54	7.30	7.87
Ethane	0.97	1.01	1.10	1.06	1.15	1.39	1.24	1.29	1.43
Ethene	3.34	3.31	3.45	3.25	3.21	3.62	3.21	3.15	3.35
Propene	3.32	3.35	3.59	3.90	3.91	4.62	4.31	4.46	5.10
Propane	8.39	8.89	9.46	9.03	9.08	10.23	9.08	9.02	9.40
Butenes	4.23	4.04	4.22	4.37	4.53	5.01	5.04	5.27	5.86
i-Butane	9.32	9.45	9.53	9.26	9.02	9.63	8.87	8.73	8.89
n-Butane	7.35	7.58	7.59	7.61	7.46	7.73	7.38	7.41	7.59
C ₅ - C ₁₁	44.89	45.11	44.25	44.46	44.79	39.91	44.15	45.23	42.99
C ₁₂ + (Excl. Rx.-Max)	1.99	0.59	0.75	1.70	1.77	1.94	1.84	0.94	0.57
Slurry Rx.-Max	8.30	8.99	7.97	7.66	7.63	7.47	7.31	7.22	6.96
Total	100	100	100	100	100	100	100	100	100
i-C ₄ /(C ₃ +C ₄) Molar:	1.04	1.07	1.02	0.93	0.89	0.83	0.79	0.75	0.68
(C ₃ /C ₃) Molar Ratio:	2.41	2.53	2.52	2.21	2.21	2.11	2.01	1.93	1.76
Alkylate, Mt % of HC:	16.51	16.19	17.14	17.05	16.69	17.85	16.57	16.79	16.79
Cat-Poly, Mt % of HC:	0.00	0.00	0.00	0.48	0.78	1.41	1.68	2.09	3.06
C ₅ - C ₁₁ PONA, Mt %:									
Paraffins	44.82	44.13	42.46	44.93	43.90	40.50	42.46	42.89	43.15
Olefins	14.23	12.99	12.49	13.11	13.10	11.71	14.27	16.38	15.98
Naphthenes	8.55	8.76	9.27	9.15	8.86	8.68	8.35	7.63	8.60
Aromatics	32.40	34.12	35.79	32.80	34.14	39.12	34.92	33.10	32.28

Table D-7 (cont'd)
 Second-Stage Fixed-Bed ZSM-5 Reactor
 Operating Conditions and Material Balances
 (Run CI-256-3)

	3-51	3-52	3-53	3-54	3-55	3-56	3-57	3-58	3-59
(Nitrogen-Free Basis)									
M.B. No.	53.5	55.5	57.5	59.5	62.5	64.5	66.5	68.5	70.5
Days On-stream									
First-Stage Conditions:									
Charge H ₂ /CO (Molar)	0.687	0.686	0.675	0.687	0.675	0.691	0.693	0.691	0.691
Temperature, °C	262	263	264	264	264	265	265	265	266
Pressure, MPa	1.508	1.515	1.480	1.508	1.591	1.577	1.535	1.825	2.170
Feed Sup. Vel., cm/s	3.163	3.186	3.247	3.171	2.917	2.919	2.773	2.605	2.564
Space Vel., NL/gFe-hr	2.101	2.094	2.095	2.083	2.067	2.036	1.923	2.186	2.587
N ₂ in feed, Mol %	6.6	7.8	7.8	7.8	8.7	9.1	7.3	5.6	4.4
Second-Stage Conditions:									
Temp., Inlet, °C	317	303	304	313	327	337	344	354	361
Temp., Outlet, °C	362	357	353	361	381	392	395	402	412
Pressure, MPa	1.322	1.322	1.301	1.294	1.308	1.308	1.342	1.646	2.032
GHSV, 1/hr	2636	2659	2646	2604	2907	2775	2387	2719	3068
Days On-stream	0.6	2.6	4.6	6.6	9.7	11.7	13.7	15.7	17.7
Conversions, Mol % :									
H ₂	79.29	79.62	79.95	80.04	72.38	76.09	84.21	82.97	81.86
CO	88.86	89.44	89.58	89.87	76.28	81.49	81.00	82.43	80.49
H ₂ +CO	84.96	85.45	85.70	85.87	74.70	79.29	82.31	82.63	81.01
Yields, Wt % of Products :									
Hydrocarbons									
C ₀₂	22.58	20.57	21.88	20.29	19.75	22.02	20.02	19.55	20.70
H ₂ O	64.88	67.46	66.50	67.90	55.56	59.04	61.14	62.71	59.08
H ₂	1.63	1.32	1.16	1.42	1.64	1.41	0.90	1.10	1.13
CO	0.92	0.92	0.90	1.24	1.24	1.06	0.72	0.67	0.74
C ₀	9.99	9.72	9.56	9.47	21.82	16.48	17.23	15.97	18.35
Total	100	100	100	100	100	100	100	100	100
Bal Recovery, Wt % of Charge:	106.25	103.42	103.87	101.81	103.61	106.94	104.97	105.42	101.85
gHC/Nm ³ (H ₂ +CO) conv.:	219	193	207	187	214	230	197	203	211
(H/C) Atomic Ratio in HC :	2.28	2.30	2.29	2.25	2.33	2.29	2.29	2.28	2.26
Selectivities, Wt % of HC :									
Methane	7.27	9.51	8.71	9.63	10.98	9.99	9.66	9.46	8.39
Ethane	0.96	0.51	0.56	0.78	1.05	0.96	1.04	0.92	0.91
Ethane	3.27	3.81	3.61	4.04	4.76	4.59	3.83	4.17	3.97
Propene	0.87	2.08	2.28	3.07	3.78	3.29	3.58	2.99	3.24
Propane	8.54	6.81	5.57	5.91	6.29	6.65	7.72	8.71	8.41
Butenes	1.37	3.23	4.45	5.22	5.52	4.68	4.62	4.17	4.20
i-Butane	10.64	8.51	6.86	7.22	7.54	7.81	8.95	9.01	8.61
n-Butane	8.35	7.19	6.24	6.20	5.96	6.23	6.99	7.14	7.17
C ₅ - C ₁₁	49.34	50.24	54.70	51.00	49.98	50.65	47.48	48.78	49.05
C ₁₂₊ (Excl. Rx.-Max)	3.83	2.94	2.19	2.41	1.73	1.91	2.00	0.88	2.01
Slurry Rx.-Max	5.56	5.17	4.83	4.52	2.41	3.24	4.13	3.76	4.04
Total	100	100	100	100	100	100	100	100	100
1-C ₄ /(C ₃ + C ₄) Molar :	4.07	1.37	0.88	0.75	0.69	0.83	0.92	1.07	0.98
(C ₃ /C ₃) Molar Ratio :	9.42	3.12	2.33	1.83	1.59	1.93	2.06	2.78	2.48
Alkylate, Wt % of HC :	4.85	11.53	12.94	13.74	14.38	14.64	16.58	15.60	15.90
Cat-Poly, Wt % of HC :	0.00	0.00	0.65	1.76	2.46	1.14	0.57	0.00	0.15
C ₅ - C ₁₁ PONA, Wt % :									
Paraffins	49.96	49.38	50.78	39.93	44.67	43.11	43.71	42.84	40.40
Olefins	8.70	12.78	20.57	17.26	22.21	18.02	16.36	13.34	17.85
Naphthenes	8.13	6.44	5.55	6.79	6.70	7.86	7.97	7.97	7.50
Aromatics	33.22	31.40	23.10	36.02	26.42	31.02	31.96	35.86	34.25

Table D-7 (cont'd)
 Second-Stage Fixed-Bed ZSM-5 Reactor
Operating Conditions and Material Balances
 (Run CT-256-3)

(Nitrogen-Free Basis)					
M.B. No.	3- 60	3- 61	3- 62	3- 63	3- 64
Days On-stream	72.5	74.5	76.5	78.5	80.5
First-Stage Conditions:					
Charge H ₂ /CO (Molar)	0.607	0.596	0.600	0.634	0.603
Temperature, oC	265	266	266	264	265
Pressure, MPa	2.170	2.515	2.515	2.515	2.515
Feed Sup. Vel., cm/s	2.593	2.537	2.207	1.365	2.548
Space Vel., NL/gFe-hr	2.616	3.014	2.612	1.602	3.028
N ₂ in Feed, Mol %	4.5	2.9	3.3	4.4	2.9
Second-Stage Conditions:					
Temp., Inlet, oC	370	377	392	399	408
Outlet, oC	418	424	439	442	442
Pressure, MPa	2.032	2.390	2.384	2.370	2.515
GHSV, 1/hr	3218	3681	2760	1677	3666
Days On-stream	19.7	21.7	23.7	25.7	27.7
Conversions, Mol % :					
H ₂	80.31	78.81	88.78	91.32	75.46
CO	79.25	76.52	87.42	90.48	76.79
H ₂ +CO	79.65	77.37	87.93	90.81	76.29
Yields, Wt % of Products :					
Hydrocarbons	19.01	18.31	19.94	21.41	16.60
CO ₂	59.69	58.02	66.50	68.38	58.16
H ₂ O	1.28	1.08	0.92	0.90	1.51
H ₂	0.80	0.84	0.47	0.37	1.04
CO	19.22	21.74	12.17	8.94	22.68
Total	100	100	100	100	100
Bal Recovery, Wt % of Charge:					
gHC/Nm ³ (H ₂ +CO) conv.:	103.38	103.49	99.05	101.80	98.00
(H/C) Atomic Ratio in HC :	200	199	183	192	173
(H/C) Atomic Ratio in HC :	2.27	2.26	2.26	2.27	2.22
Selectivities, Wt % of HC :					
Methane	9.14	8.81	8.51	7.70	7.71
Ethene	1.16	1.27	1.26	1.29	2.77
Ethane	4.31	4.10	4.29	4.08	3.25
Propene	3.92	4.45	4.01	4.17	9.46
Propane	9.11	8.86	10.22	9.60	7.44
Butenes	4.70	5.39	4.70	4.59	11.72
i-Butane	8.56	8.11	8.11	7.34	4.94
n-Butane	7.15	7.05	7.28	6.85	4.61
C ₅ - C ₁₁	45.30	45.12	43.36	32.48	40.36
C ₁₂₊ (Excl. Rx.-Wax)	2.05	2.26	2.64	9.37	1.41
Slurry Rx.-Wax	4.59	4.59	5.62	12.23	6.31
Total	100	100	100	100	100
i-C₄/(C₃= + C₄=) Molar :					
	0.83	0.69	0.78	0.70	0.20
(C₃/C₃=) Molar Ratio :					
	2.22	1.90	2.43	2.20	0.75
Alkylate, Wt % of HC :					
	15.94	15.33	15.15	13.81	9.71
Cat-Poly, Wt % of HC :					
	1.25	2.62	1.67	2.29	16.42
C₅ - C₁₁ PONA, Wt % :					
Paraffins	39.06	38.62	37.95	39.77	32.14
Olefins	14.31	16.53	15.10	12.19	32.04
Naphthenes	7.98	7.49	7.62	7.49	5.87
Aromatics	38.65	37.36	39.33	40.55	29.95

Table D-8

Second-Stage ZSM-5 Reactor
Raw Gasoline(l) Properties
(Run CT-256-3)

M.B. No.	7	8	9	11	19	20	21	22	23	26	27	32	33	53	54	57	58	59	60	64
DOS	9.3	10.3	11.3	13.4	13.4	20	21	22	23	27	27	33.5	33.5	57.5	59.5	66.5	68.5	70.5	72.5	80.5
Second-Stage Severity:																				
i-C ₄ /C ₃ + C ₄)	0.76	0.42	0.23	0.16	2.56	2.03	1.5	0.92	0.51	0.51	0.51	1.07	0.88	0.75	0.92	0.92	1.07	0.98	0.83	0.20
C ₃ /C ₃	1.91	1.27	1.02	0.75	5.61	4.64	3.39	2.72	1.42	1.42	1.42	2.53	2.33	1.83	2.06	2.06	2.77	2.48	2.32	0.75
SP. Gr.	.768	.757	.744	.729	.726	.769	.771	.763	.759	.759	.763	.782	.767	.765	.784	.784	.781	.770	.769	.702
Acid No. (Unwashed) mg KOH/mg	0.15	0.15	0.15	-	-	-	-	-	-	-	-	0.04	0.15	0.4	0.4	0.1	0.04	0.05	0.13	0.11
PONA, wt %:																				
Paraffins	-	33.2	27.5	24.4	30.4	34.9	34.9	36.8	32.5	32.5	32.5	27.6	33.2	25.9	29.1	29.1	-	28.6	30.2	22.4
Olefins	-	32.3	43.8	50.2	4.6	7.8	10.3	21.5	28.0	11.9	21.2	16.8	14.1	11.9	14.1	14.1	-	18.1	13.9	32.0
Naphthenes	-	11.6	12.8	10.9	10.2	11.0	11.4	11.7	11.0	12.2	13.1	12.2	13.1	12.2	11.8	11.8	-	10.1	10.8	6.8
Aromatics	-	22.9	15.9	14.5	54.8	46.3	43.4	30.0	28.5	28.5	48.3	32.5	45.1	45.1	45.0	45.0	-	43.2	45.1	35.8
Octane Numbers:																				
R+0	90.5	89.3	85.4	85.1	89.6	92.0	89.3	86.9	87.4	87.4	93.9	87.6	87.6	87.9	94.0	94.0	92.3	92.7	92.0	91.1
M+0	80.8	80.1	75.6	83.4	83.4	82.8	80.4	78.4	79.0	79.0	83.5	79.7	79.7	79.5	81.8	81.8	82.5	82.7	82.8	80.7
ASTM Distillation, °C:																				
IBP	36	35	39	33	36	32	37	39	35	35	35	36	39	37	42	42	37	31	33	32
50 Vol %	128	122	126	120	130	125	128	127	128	128	128	130	130	128	133	133	128	124	123	123
90 Vol %	184	182	187	189	192	184	185	184	187	187	189	186	186	185	184	184	184	185	183	183
95 Vol %	218	214	231	232	245	238	224	212	232	232	236	218	218	219	222	222	220	237	236	238
EP	240	239	250	247	263	251	253	245	248	248	248	255	246	242	249	249	243	241	238	238
Residue, Vol %	3	3	1.1	1.1	0.9	0.7	1.2	1.1	1.0	1.0	1.3	1.4	1.4	1.3	0.9	0.9	1.0	0.9	1.0	1.0
Loss, Wt %	0	0	0	1.9	2.6	2.3	1.8	0.9	2.0	2.0	1.7	1.1	1.1	1.2	1.1	1.1	2.0	3.1	2.5	3.0

(1) Collected in ambient and chilled condensers. Hydrocarbons collected in hot condenser was very small.

Table D-9
Composition of Hydrocarbon Products from
Two-Stage Slurry F-T/SH-5 Syn gas Conversion
(Run CT-256-3)

M.B.No.	3-7	3-8	3-9	3-10	3-11	3-13	3-19
Days On Stream	9.3	10.3	11.3	12.4	13.4	15.4	20.0
METHANE	6.57	6.98	7.17	5.63	7.39	6.28	7.41
ETHENE	0.75	0.82	1.06	2.12	1.45	1.14	0.95
ETHANE	3.07	3.18	3.16	2.62	3.29	2.86	3.07
PROPENE	2.89	3.46	3.52	2.77	4.71	4.31	1.54
PROPANE	5.78	4.60	3.78	1.92	3.68	7.36	9.03
1-BUTANE	6.70	5.13	3.23	0.24	2.74	6.77	10.63
1-BUTENE+2-METHYLPROPENE	2.83	4.41	5.38	3.67	6.48	3.46	1.18
N-BUTANE	5.60	5.29	4.17	2.03	3.74	5.79	8.20
TRANS-2-BUTENE	1.07	1.68	2.04	2.32	2.48	1.38	0.46
CIS-2-BUTENE	0.73	1.15	1.37	1.49	1.67	0.97	0.32
3-METHYL-1-BUTENE	0.08	0.16	0.22	0.20	0.27	0.11	0.03
1-PENTANE	4.68	4.82	3.01	0.40	2.34	4.75	7.50
1-PENTENE	0.10	0.20	0.27	0.27	0.33	0.16	0.04
2-METHYL-1-BUTENE	0.00	1.18	1.74	1.83	2.10	0.78	0.22
N-PENTANE	3.20	4.12	3.36	1.88	2.88	3.47	4.42
TRANS-2-PENTENE	0.36	0.79	1.13	1.37	1.40	0.57	0.15
CIS-2-PENTENE	0.17	0.39	0.55	0.64	0.68	0.29	0.07
2-METHYL-2-BUTENE	1.32	3.05	4.75	5.72	5.67	1.86	0.54
C5-DIOLEFINS (DIENES)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,2-DIMETHYLBUTANE	0.04	0.04	0.03	0.00	0.03	0.06	0.02
CYCLOPENTANE	0.06	0.08	0.03	0.00	0.12	0.26	0.19
HEXENES + ISO-HEXANES	0.07	0.04	0.26	0.66	0.00	0.06	0.00
2,3-DIMETHYLBUTANE	0.07	0.11	0.17	0.00	0.21	0.11	0.17
2-METHYLPENTANE	1.66	2.65	1.86	0.42	1.32	1.79	2.72
3-METHYLPENTANE	0.60	0.52	0.63	0.17	0.43	0.85	1.17
HEXENES	0.00	1.53	2.44	4.06	3.05	1.00	0.19
1-HEXENE	0.09	0.56	0.30	0.45	0.26	0.09	0.02
N-HEXANE	1.39	1.40	0.99	1.98	1.08	2.11	1.80
2,4-DIMETHYLPENTANE	0.00	0.01	0.00	0.00	0.00	0.01	0.01
METHYLCYCLOPENTANE	0.33	0.22	0.07	0.03	0.07	1.17	0.89
3,3-DIMETHYLPENTANE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CYCLOHEXANE	0.00	0.02	0.00	0.00	0.00	0.03	0.02
HEPTENES + ISO-HEPTANES	0.68	0.00	0.00	4.84	0.00	0.68	0.20
2-METHYLHEXANE	0.46	0.79	0.55	0.25	0.43	0.60	0.85
2,3-DIMETHYLPENTANE	0.03	0.08	0.04	0.01	0.04	0.19	0.18
3-METHYLHEXANE	0.38	0.70	0.46	0.23	0.37	0.58	0.83
1-CIS-3-DIMETHYL-N5	0.10	0.14	0.05	0.00	0.05	0.37	0.29
1-TRANS-3-DIMETHYL-N5	0.00	0.19	0.05	0.01	0.05	0.26	0.20
1-TRANS-2-DIMETHYL-N5	0.10	0.00	0.03	0.00	0.03	0.30	0.25
3-ETHYL-PENTANE	0.55	0.00	0.00	0.00	0.00	0.00	0.00
N-HEPTANE	0.59	1.35	1.27	1.87	1.29	1.33	0.68
C7-OLEFINS	0.00	2.21	3.07	5.11	3.92	1.14	0.24
METHYLCYCLOHEXANE	0.07	0.15	0.07	0.01	0.06	0.19	0.15
C8-OLEFINS + ISO-P	0.75	0.00	0.00	0.95	0.00	0.51	0.49
MONOMETHYL-ISO-C8-P	0.00	1.22	0.96	0.35	0.72	0.48	0.67
OTHER ISO-C8-P	0.00	0.10	0.05	0.01	0.04	0.15	0.12
C8-OLEFINS	0.00	4.20	4.68	4.60	5.46	1.65	0.33
C8-NAPHTHENES (N5+N6)	0.00	0.74	0.30	0.03	0.28	1.11	1.00
N-OCTANE	0.13	1.10	1.24	1.36	1.29	0.71	0.22
C9-OLEFINS + ISO-P	0.70	0.00	0.00	0.11	0.00	0.55	0.36
MONOMETHYL-ISO-C9-P	0.00	0.76	0.68	0.32	0.48	0.27	0.30
OTHER ISO-C9-P	0.00	0.15	0.03	0.02	0.08	0.12	0.13
C9-OLEFINS	0.00	1.97	2.56	2.01	2.92	0.63	0.12
C9-NAPHTHENES (N5+N6)	0.00	0.39	0.25	0.02	0.15	0.31	0.26
N-NONANE	0.00	0.64	0.96	1.08	1.04	0.30	0.05
ISO-C10-P + O + N5 + N6	0.00	2.49	3.60	7.30	3.23	1.11	0.37
BENZENE	0.25	0.31	0.27	0.21	0.33	0.80	0.68
TOLUENE	0.38	0.99	0.42	0.12	0.42	2.89	3.73
ETHYLBENZENE	0.44	0.30	0.11	0.07	0.09	1.10	1.52
P-XYLENE	0.00	0.37	0.13	0.02	0.10	0.85	0.00
M-XYLENE	0.00	1.03	0.51	0.07	0.37	2.10	3.25
O-XYLENE	0.00	0.40	0.46	0.07	0.72	1.02	1.01
ISOPROPYLBENZENE	0.00	0.00	0.00	0.00	0.15	0.00	0.00
N-PROPYLBENZENE	0.00	0.18	0.12	0.04	0.10	0.16	0.11
1-METHYL-3-ETHYL-BENZENE	0.00	1.59	0.87	0.02	0.62	2.20	2.30
1,3,5-TRIMETHYL-BENZENE	0.00	0.07	0.16	0.00	0.14	0.08	0.08
1-METHYL-2-ETHYLBENZENE	0.00	0.05	0.00	0.00	0.00	0.13	0.00
ISO-C4-BENZENE	0.00	0.00	0.05	0.00	0.04	0.00	0.20
SEC-C4-BENZENE	0.00	0.00	0.17	0.00	0.20	0.00	0.00
1,2,4-TRIMETHYLBENZENE	0.00	0.86	0.47	0.07	0.71	1.52	1.51
1-METHYL-2-ISO-C3-BENZENE	0.00	0.13	0.10	0.00	0.03	0.03	0.07
1,3-DIETHYLBENZENE	0.00	0.00	0.00	0.00	0.10	0.42	0.07
1-METHYL-3-N-C3-BENZENE	0.00	0.52	0.33	0.00	0.00	0.11	0.41
N-C4-BENZENE	0.00	0.19	0.15	0.00	0.00	0.11	0.00
1,2,3-TRIMETHYLBENZENE	0.00	0.02	0.04	0.00	0.01	0.08	0.13
1,2-DIETHYLBENZENE	0.00	0.00	0.00	0.00	0.06	0.00	0.11
1-METHYL-2-N-C3-BENZENE	0.00	0.02	0.02	0.00	0.03	0.00	0.00
C10-ALKYLBENZENES	0.00	0.70	0.09	0.04	0.29	0.64	0.67
1,2,4,5-TETRAMETHYLBENZENE	0.00	0.05	0.01	0.01	0.03	0.07	0.09
1,2,3,5-TETRAMETHYLBENZENE	0.00	0.00	0.00	0.00	0.00	0.04	0.07
1,2,3,4-TETRAMETHYLBENZENE	0.00	0.00	0.03	0.00	0.01	0.01	0.02
C11-ALKYLBENZENES	0.00	0.80	1.08	0.19	0.65	0.88	1.07
NAPHTHALENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
METHYL-NAPHTHALENES	0.00	0.00	0.00	0.00	0.01	0.00	0.00
METHANOL	0.00	0.00	0.00	0.04	0.00	0.00	0.00
DIMETHYL ETHER	0.00	0.00	0.08	0.00	0.00	0.00	0.00
1-PROPANOL	0.00	0.00	0.00	0.12	0.00	0.00	0.00
UNKNOWN (HC AROMATICS)	0.00	0.00	0.00	0.02	0.00	0.00	0.05
UNKNOWN LITE HYDRO-CARB LIQ (1)	32.81	0.00	0.00	0.00	0.00	0.00	0.00
UNKNOWN C12+	0.93	3.06	6.47	13.27	3.10	1.72	2.71
SLURRY REACTOR-WAX	10.43	10.43	10.26	10.20	9.88	9.60	9.26

(1) Collected in Chilled and Ambient Condensers

Table D-9 (cont'd)
 Composition of Hydrocarbon Products from
 Two-Stage Slurry F-T/ZSM-5 Syn gas Conversion
 (Run CT-256-3)

M.B.No.	3-20	3-21	3-22	3-23	3-24	3-25	3-26	3-27	3-28
Days On Stream	21	22	23	24	25	26	27	28	29
METHANE	7.83	7.46	6.77	7.27	8.20	7.37	8.00	7.33	7.21
ETHENE	0.53	0.55	0.95	0.60	0.74	0.71	0.86	0.81	0.81
ETHANE	3.34	3.11	2.99	2.97	3.27	3.17	3.29	3.01	3.00
PROPENE	1.76	1.98	1.96	2.53	3.09	3.13	3.57	3.28	3.30
PROPANE	8.55	7.04	5.60	4.92	4.93	5.01	5.29	5.27	5.72
1-BUTANE	10.12	8.96	6.74	5.95	5.76	5.85	6.07	6.75	7.28
1-BUTENE+2-METHYLPROPENE	1.50	1.90	2.70	3.37	3.76	4.25	4.09	3.40	3.26
N-BUTANE	7.83	7.37	6.28	5.81	5.54	5.65	5.43	5.79	6.07
TRANS-2-BUTENE	0.58	0.73	1.03	1.29	1.40	1.61	1.53	1.31	1.27
CIS-2-BUTENE	0.39	0.50	0.70	0.88	0.93	1.08	1.03	0.89	0.87
3-METHYL-1-BUTENE	0.03	0.05	0.09	0.12	0.12	0.15	0.13	0.11	0.11
1-PENTANE	6.64	7.00	5.87	5.27	4.34	4.82	4.37	5.39	5.66
1-PENTENE	0.04	0.06	0.11	0.16	0.15	0.18	0.15	0.14	0.14
2-METHYL-1-BUTENE	0.26	0.44	0.71	0.97	0.92	1.13	0.89	0.81	0.78
N-PENTANE	4.12	5.10	4.86	4.71	3.71	4.20	3.45	4.11	4.21
TRANS-2-PENTENE	0.19	0.29	0.47	0.65	0.59	0.74	0.58	0.55	0.53
CIS-2-PENTENE	0.09	0.14	0.23	0.32	0.28	0.37	0.28	0.27	0.26
2-METHYL-2-BUTENE	0.67	1.13	1.87	2.65	2.34	2.95	2.21	2.07	2.00
2,2-DIMETHYLBUTANE	0.01	0.03	0.03	0.03	0.02	0.03	0.05	0.04	0.04
CYCLOPENTANE	0.14	0.11	0.09	0.08	0.04	0.05	0.04	0.08	0.09
HEXENES + ISO-HEXANES	0.00	0.03	0.08	0.13	0.04	0.04	0.08	0.08	0.03
2,3-DIMETHYLBUTANE	0.13	0.15	0.09	0.11	0.08	0.10	0.08	0.09	0.15
2-METHYLPENTANE	2.48	3.31	3.18	3.04	2.08	2.54	1.95	2.56	2.95
3-METHYLPENTANE	1.01	1.27	1.11	1.02	0.70	0.88	0.69	0.93	0.95
HEXENES	0.35	0.42	0.89	1.18	1.42	2.07	1.20	0.90	0.80
1-HEXENE	0.02	0.05	0.08	0.15	0.07	0.08	0.06	0.10	0.10
N-HEXANE	1.86	2.76	3.10	3.26	2.27	2.79	2.05	2.59	2.56
2,4-DIMETHYLPENTANE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
METHYLCYCLOPENTANE	0.58	0.41	0.26	0.20	0.27	0.27	0.19	0.56	0.62
3,3-DIMETHYLPENTANE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CYCLOHEXANE	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02
HEPTENES + ISO-HEPTANES	0.02	0.00	0.11	0.24	0.37	0.24	0.74	0.66	0.70
2-METHYLHEXANE	0.84	0.82	0.92	0.87	0.99	0.98	0.82	1.00	0.96
2,3-DIMETHYLPENTANE	0.17	0.13	0.09	0.08	0.08	0.09	0.09	0.12	0.13
3-METHYLHEXANE	0.81	0.76	0.78	0.72	0.80	0.80	0.73	0.85	0.84
1-CIS-3-DIMETHYL-N5	0.27	0.22	0.15	0.12	0.13	0.14	0.17	0.23	0.25
1-TRANS-3-DIMETHYL-N5	0.27	0.21	0.15	0.09	0.13	0.20	0.11	0.18	0.17
1-TRANS-2-DIMETHYL-N5	0.20	0.15	0.10	0.00	0.09	0.00	0.01	0.07	0.21
N-HEPTANE	0.82	0.94	1.31	1.38	1.61	1.55	1.44	1.64	1.58
C7-OLEFINS	0.42	0.58	1.29	1.85	2.01	2.41	1.97	1.34	1.12
METHYLCYCLOHEXANE	0.21	0.19	0.19	0.16	0.16	0.16	0.17	0.22	0.22
C8-OLEFINS + ISO-P	0.00	0.00	0.51	0.00	0.04	0.00	0.12	0.85	0.69
MONOMETHYL-ISO-C8-P	1.01	1.09	1.33	1.29	0.79	1.14	1.11	0.52	0.83
OTHER ISO-C8-P	0.16	0.14	0.11	0.09	0.07	0.10	0.11	0.09	0.12
C8-OLEFINS	1.00	1.07	2.88	3.56	4.18	4.01	3.73	2.43	3.02
C8-NAPHTHENES (N5+N6)	1.32	1.19	0.85	0.84	1.27	0.66	0.83	1.24	0.85
N-OCTANE	0.00	0.52	0.93	1.08	1.17	1.02	1.00	0.92	0.17
C9-OLEFINS + ISO-P	0.00	0.00	0.00	0.00	0.02	0.00	0.37	0.36	0.49
MONOMETHYL-ISO-C9-P	0.48	0.58	0.81	0.81	0.81	0.19	0.66	0.51	0.46
OTHER ISO-C9-P	0.17	0.17	0.16	0.08	0.15	0.12	0.20	0.14	0.16
C9-OLEFINS	0.33	0.73	2.11	2.09	2.18	1.87	2.03	1.51	1.29
C9-NAPHTHENES (N5+N6)	0.41	0.44	0.37	0.34	0.39	0.74	0.37	0.38	0.37
N-NONANE	0.10	0.17	0.07	0.60	0.67	0.55	0.55	0.39	0.36
ISO-C10-P + O + N5 + N6	0.83	1.11	2.17	2.69	3.00	2.18	2.47	1.84	1.37
BENZENE	0.44	0.31	0.41	0.26	0.39	0.40	0.40	0.52	0.51
TOLUENE	2.91	2.24	1.30	0.99	0.97	0.95	1.26	1.61	1.77
ETHYLBENZENE	1.04	0.82	0.51	0.37	0.38	0.30	0.59	0.93	0.92
P-XYLENE	1.05	0.85	0.57	0.44	0.42	0.36	0.55	0.56	0.62
M-XYLENE	2.62	2.15	1.59	1.30	1.33	1.04	1.38	1.47	1.53
O-XYLENE	1.10	0.89	0.66	0.60	0.66	0.50	0.54	0.66	0.69
ISOPROPYLBENZENE	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00
N-PROPYLBENZENE	0.17	0.22	0.26	0.26	0.24	0.18	0.25	0.24	0.22
1-METHYL-3-ETHYL-BENZENE	3.00	2.91	2.53	2.02	2.02	1.53	2.18	2.10	2.22
1,3,5-TRIMETHYL-BENZENE	0.07	0.07	0.09	0.13	0.14	0.10	0.11	0.08	0.08
1-METHYL-2-ETHYL-BENZENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
ISO-C4-BENZENE	0.04	0.05	0.00	0.06	0.06	0.04	0.04	0.05	0.05
SEC-C4-BENZENE	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00
1,2,4-TRIMETHYLBENZENE	1.72	1.51	1.21	1.02	1.05	0.77	1.05	1.10	1.15
1-METHYL-2-ISO-C3-BENZENE	0.06	0.04	0.05	0.05	0.05	0.02	0.15	0.19	0.17
1,3-DIETHYLBENZENE	0.00	0.00	0.00	0.69	0.70	0.50	0.00	0.00	0.00
1-METHYL-3-N-C3-BENZENE	0.57	0.67	0.76	0.24	0.25	0.19	0.66	0.59	0.57
N-C4-BENZENE	0.16	0.18	0.20	0.18	0.18	0.12	0.21	0.18	0.17
1,2,3-TRIMETHYLBENZENE	0.00	0.05	0.04	0.03	0.03	0.01	0.02	0.00	0.00
1,2-DIETHYLBENZENE	0.10	0.14	0.23	0.00	0.00	0.00	0.00	0.00	0.00
1-METHYL-2-N-C3-BENZENE	0.12	0.04	0.04	0.03	0.03	0.02	0.03	0.07	0.06
C10-ALKYLBENZENES	0.21	0.17	0.12	0.77	0.80	0.59	0.79	0.10	0.13
1,2,4,5-TETRAMETHYLBENZENE	0.10	0.09	0.08	0.07	0.07	0.05	0.10	0.07	0.06
1,2,3,5-TETRAMETHYLBENZENE	0.00	0.00	0.00	0.02	0.02	0.00	0.05	0.00	0.00
1,2,3,4-TETRAMETHYLBENZENE	0.13	0.10	0.08	0.01	0.00	0.06	0.15	0.06	0.07
C11-ALKYLBENZENES	1.82	1.76	1.58	0.85	0.83	0.60	0.57	1.32	1.38
NAPHTHALENE	0.00	0.00	0.03	0.00	0.02	0.02	0.00	0.01	0.00
METHYL-NAPHTHALENES	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
UNKNOWN (HC AROMATICS)	0.06	0.01	0.00	0.00	0.00	0.00	0.04	0.00	0.00
UNKNOWN C12+	2.56	2.12	2.47	2.27	2.50	2.71	2.81	2.81	2.41
SLURRY REACTOR-WAX	9.08	9.00	8.91	8.68	8.62	8.54	8.47	8.32	8.46

Table D-9 (cont'd)
Composition of Hydrocarbon Products from
Two-Stage Slurry F-T/ISM-5 Syngas Conversion
(Run C1-255-3)

M.B.No.	3-29	3-30	3-31	3-32	3-33	3-34	3-35	3-36	3-37
Days On Stream	30.5	31.5	32.5	33.5	34.5	35.5	36.5	37.5	38.5
METHANE	7.73	7.93	7.91	7.68	8.06	7.69	7.43	8.44	7.54
ETHENE	0.94	0.93	0.97	1.01	1.10	1.06	1.15	1.39	1.24
ETHANE	3.05	3.30	3.34	3.31	3.45	3.25	3.21	3.62	3.21
PROPENE	3.43	3.33	3.32	3.35	3.59	3.90	3.91	4.62	4.31
PROPANE	6.64	7.62	8.39	8.89	9.46	9.03	9.08	10.23	9.08
1-BUTANE	8.36	8.84	9.32	9.45	9.53	9.26	9.02	9.63	8.87
1-BUTENE+2-METHYLPROPENE	2.96	2.71	2.54	2.42	2.54	2.62	2.71	3.03	3.04
N-BUTANE	6.99	6.94	7.35	7.58	7.59	7.61	7.46	7.73	7.38
TRANS-2-BUTENE	1.18	1.06	1.00	0.95	1.00	1.03	1.07	1.17	1.19
CIS-2-BUTENE	0.83	0.73	0.69	0.66	0.69	0.72	0.75	0.81	0.83
3-METHYL-1-BUTENE	0.09	0.08	0.07	0.07	0.07	0.07	0.08	0.08	0.08
1-PENTANE	6.76	6.16	6.29	6.28	5.92	6.12	6.02	5.28	5.61
1-PENTENE	0.13	0.10	0.10	0.09	0.09	0.10	0.11	0.10	0.11
2-METHYL-1-BUTENE	0.69	0.55	0.50	0.46	0.46	0.50	0.52	0.47	0.56
N-PENTANE	4.40	3.95	4.03	3.99	3.77	4.02	4.01	3.30	3.74
TRANS-2-PENTENE	0.49	0.38	0.35	0.32	0.33	0.36	0.38	0.33	0.40
CIS-2-PENTENE	0.24	0.18	0.17	0.16	0.16	0.18	0.19	0.16	0.19
2-METHYL-2-BUTENE	1.76	1.33	1.21	1.09	1.07	1.18	1.24	1.06	1.29
C5-DIOLEFINS (DIENES)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,2-DIMETHYLBUTANE	0.06	0.04	0.04	0.04	0.03	0.04	0.04	0.03	0.04
CYCLOPENTANE	0.20	0.19	0.22	0.24	0.25	0.28	0.29	0.15	0.17
HEXENES + ISO-HEXANES	0.07	0.02	0.02	0.02	0.00	0.05	0.02	0.00	0.05
2,3-DIMETHYLBUTANE	0.16	0.16	0.15	0.14	0.13	0.13	0.16	0.11	0.12
2-METHYLPENTANE	2.69	2.23	2.14	2.09	1.91	2.04	2.06	1.40	1.81
3-METHYLPENTANE	1.14	0.96	0.94	0.96	0.90	0.94	0.96	0.66	0.84
HEXENES	0.45	0.48	0.46	0.42	0.67	0.43	0.44	0.58	0.58
1-HEXENE	0.11	0.06	0.05	0.05	0.02	0.05	0.07	0.03	0.06
N-HEXANE	2.31	2.01	1.93	1.96	1.79	1.97	2.05	1.37	1.87
2,4-DIMETHYLPENTANE	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
METHYLCYCLOPENTANE	1.02	0.95	1.00	1.12	1.08	1.20	1.23	0.88	1.11
3,3-DIMETHYLPENTANE	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00
CYCLOHEXANE	0.02	0.02	0.03	0.03	0.04	0.02	0.02	0.03	0.00
HEPTENES + ISO-HEPTANES	0.59	0.36	0.30	0.30	0.07	0.35	0.40	0.14	0.38
2-METHYLHEXANE	0.77	0.75	0.70	0.69	0.61	0.67	0.62	0.43	0.57
2,3-DIMETHYLPENTANE	0.17	0.18	0.18	0.19	0.20	0.20	0.19	0.15	0.18
3-METHYLHEXANE	0.73	0.72	0.68	0.67	0.62	0.67	0.61	0.44	0.57
1-CIS-3-DIMETHYL-NS	0.32	0.33	0.33	0.35	0.34	0.38	0.34	0.28	0.34
1-TRANS-3-DIMETHYL-NS	0.32	0.33	0.33	0.35	0.34	0.38	0.35	0.28	0.34
1-TRANS-2-DIMETHYL-NS	0.25	0.26	0.27	0.28	0.27	0.30	0.28	0.22	0.27
N-HEPTANE	1.08	1.10	1.01	0.98	0.89	1.09	0.97	0.76	1.02
C7-DIOLEFINS	0.61	0.64	0.57	0.52	0.67	0.50	0.54	0.61	0.63
METHYLCYCLOHEXANE	0.24	0.25	0.23	0.24	0.19	0.25	0.19	0.16	0.20
C8-DIOLEFINS + ISO-P	0.69	0.52	0.41	0.40	0.01	0.50	0.40	0.01	0.42
MONOMETHYL-ISO-C8-P	0.57	0.61	0.56	0.51	0.57	0.44	0.43	0.46	0.43
OTHER ISO-C8-P	0.12	0.13	0.13	0.13	0.16	0.12	0.12	0.15	0.19
C8-DIOLEFINS	1.11	1.10	1.30	1.17	1.37	0.83	0.58	0.81	0.84
C8-NAPHTHENES (N5+N6)	1.03	1.10	1.11	1.05	1.26	0.99	0.97	1.10	0.87
N-OCTANE	0.52	0.51	0.06	0.06	0.00	0.42	0.42	0.42	0.49
C9-DIOLEFINS + ISO-P	0.88	0.56	0.35	0.41	0.08	0.37	0.38	0.04	0.42
MONOMETHYL-ISO-C9-P	0.29	0.32	0.28	0.25	0.27	0.23	0.22	0.26	0.29
OTHER ISO-C9-P	0.13	0.14	0.13	0.12	0.13	0.11	0.02	0.09	0.14
C9-DIOLEFINS	0.68	0.67	0.54	0.41	0.45	0.40	0.54	0.26	0.33
C9-NAPHTHENES (N5+N6)	0.34	0.35	0.32	0.29	0.32	0.27	0.29	0.37	0.39
N-NONANE	0.17	0.17	0.14	0.14	0.15	0.14	0.19	0.22	0.25
ISO-C10-P + O + NS + N6	0.88	0.85	0.71	0.70	0.72	0.52	0.53	0.61	0.55
BENZENE	0.64	0.64	0.68	0.76	0.75	0.81	0.82	0.61	0.74
TOLUENE	2.49	2.87	3.10	3.33	3.24	3.02	3.52	3.37	3.44
ETHYLBENZENE	1.31	1.24	1.16	1.32	0.91	1.25	1.27	0.85	1.38
P-XYLENE	0.62	0.73	0.71	0.88	0.99	2.90	2.91	0.84	0.79
M-XYLENE	1.61	1.81	2.06	2.11	2.43	0.00	0.00	2.43	2.12
O-XYLENE	0.70	0.79	0.88	0.93	1.07	0.92	0.90	1.01	0.91
N-PROPYLBENZENE	0.15	0.15	0.14	0.12	0.13	0.12	0.12	0.13	0.13
1-METHYL-3-ETHYL-BENZENE	1.98	2.14	2.13	2.14	2.31	1.98	2.00	2.23	2.05
1,3,5-TRIMETHYL-BENZENE	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.06
1-METHYL-2-ETHYLBENZENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
ISO-C4-BENZENE	0.04	0.03	0.03	0.00	0.03	0.03	0.03	0.03	0.03
1,2,4-TRIMETHYLBENZENE	1.21	1.32	1.37	1.46	1.60	1.40	1.43	1.61	1.46
1-METHYL-2-ISO-C3-BENZENE	0.11	0.11	0.10	0.04	0.04	0.12	0.03	0.04	0.03
1,3-DIETHYLBENZENE	0.00	0.00	0.00	0.00	0.40	0.00	0.36	0.39	0.37
1-METHYL-3-N-C3-BENZENE	0.42	0.43	0.40	0.38	0.08	0.34	0.07	0.08	0.08
N-C4-BENZENE	0.09	0.09	0.00	0.09	0.10	0.00	0.09	0.10	0.09
1,2,3-TRIMETHYLBENZENE	0.04	0.03	0.03	0.00	0.06	0.00	0.08	0.09	0.05
1,2-DIETHYLBENZENE	0.00	0.00	0.08	0.08	0.00	0.07	0.00	0.00	0.00
1-METHYL-2-N-C3-BENZENE	0.07	0.07	0.08	0.08	0.03	0.08	0.00	0.00	0.03
C10-ALKYLBENZENES	0.61	0.64	0.61	0.61	0.64	0.15	0.57	0.64	0.59
1,2,4,5-TETRAMETHYLBENZENE	0.06	0.07	0.07	0.07	0.08	0.07	0.07	0.08	0.07
1,2,3,5-TETRAMETHYLBENZENE	0.00	0.00	0.00	0.05	0.05	0.00	0.04	0.05	0.04
1,2,3,4-TETRAMETHYLBENZENE	0.09	0.09	0.09	0.01	0.11	0.10	0.10	0.11	0.10
C11-ALKYLBENZENES	0.69	0.76	0.75	0.77	0.67	1.11	0.75	0.76	0.72
NAPHTHALENE	0.06	0.07	0.00	0.07	0.08	0.07	0.00	0.09	0.00
METHYL-NAPHTHALENES	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
UNKNOWN (HC AROMATICS)	0.00	0.00	0.01	0.02	0.00	0.00	0.06	0.01	0.07
UNKNOWN C12+	1.46	1.83	1.99	0.59	0.75	1.70	1.77	1.94	1.84
SLURRY REACTOR-WAX	8.45	8.84	8.30	8.99	7.97	7.66	7.63	7.47	7.31

Table D-9 (cont'd)
 Composition of Hydrocarbon Products from
 Two-Stage Slurry F-T/ISM-5 Syngas Conversion
 (Run CT-256-3)

M.B.No.	3-38	3-39	3-51	3-52	3-53	3-54	3-55	3-56	3-57
Days On Stream	39.5	40.5	53.5	55.5	57.5	59.5	62.5	64.5	66.5
METHANE	7.30	7.87	7.27	9.51	8.71	9.63	10.98	9.99	9.66
ETHENE	1.29	1.43	0.96	0.51	0.56	0.78	1.05	0.96	1.04
ETHANE	3.15	3.35	3.27	3.81	3.61	4.04	4.76	4.59	3.83
PROPENE	4.46	5.10	0.87	2.08	2.28	3.07	3.78	3.29	3.58
PROPANE	9.02	9.40	8.54	6.81	5.57	5.91	6.29	6.65	7.72
I-BUTANE	8.73	8.89	10.64	8.51	6.86	7.22	7.54	7.81	8.95
1-BUTENE+2-METHYLPROPENE	3.15	3.52	0.85	1.99	2.73	3.21	3.35	2.80	2.78
N-BUTANE	7.41	7.59	6.35	7.19	6.24	6.20	5.96	6.23	6.99
TRANS-2-BUTENE	1.24	1.37	0.31	0.74	1.03	1.20	1.30	1.11	1.08
CIS-2-BUTENE	0.88	0.96	0.21	0.50	0.69	0.81	0.88	0.77	0.76
3-METHYL-1-BUTENE	0.09	0.10	0.03	0.05	0.09	0.09	0.10	0.08	0.08
1-PENTANE	5.89	5.62	7.74	6.14	5.86	5.18	5.90	5.96	6.21
1-PENTENE	0.13	0.14	0.33	0.08	0.11	0.11	0.13	0.12	0.11
2-METHYL-1-BUTENE	0.63	0.65	0.16	0.40	0.68	0.66	0.74	0.63	0.55
N-PENTANE	4.07	3.87	4.76	4.40	4.71	3.69	3.88	3.85	3.88
TRANS-2-PENTENE	0.46	0.46	0.11	0.27	0.45	0.42	0.50	0.27	0.39
CIS-2-PENTENE	0.23	0.23	0.06	0.13	0.21	0.20	0.24	0.25	0.18
2-METHYL-2-BUTENE	1.50	1.49	0.41	1.04	1.83	1.63	1.96	1.60	1.39
UNKNOWN C5-MONOOLEFINS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00
2,2-DIMETHYLBUTANE	0.05	0.05	0.04	0.02	0.03	0.03	0.05	0.04	0.04
CYCLOPENTANE	0.22	0.20	0.04	0.02	0.05	0.06	0.12	0.12	0.14
HEXENES + ISO-HEXANES	0.06	0.05	0.11	0.03	0.07	0.04	0.09	0.05	0.02
2,3-DIMETHYLBUTANE	0.13	0.12	0.16	0.10	0.09	0.08	0.12	0.12	0.13
2-METHYLPENTANE	1.96	1.75	2.88	2.58	3.10	1.94	2.65	2.45	2.28
3-METHYLPENTANE	0.89	0.81	1.19	0.93	1.04	0.75	1.05	1.06	0.94
HEXENES	0.58	0.64	0.38	0.59	0.79	0.81	0.58	0.82	0.60
1-HEXENE	0.07	0.07	0.65	0.03	0.08	0.05	0.13	0.07	0.06
N-HEXANE	2.00	1.87	2.20	2.25	2.99	1.76	2.33	2.23	2.01
2,4-DIMETHYLPENTANE	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.01	0.01
METHYLCYCLOPENTANE	1.15	1.10	0.69	0.48	0.46	0.58	0.79	0.97	0.99
3,3-DIMETHYLPENTANE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CYCLOHEXANE	0.00	0.02	0.02	0.03	0.02	0.03	0.02	0.03	0.03
HEPTENES + ISO-HEPTANES	0.42	0.39	0.18	0.14	0.53	0.23	0.80	0.38	0.35
2-METHYLHEXANE	0.55	0.49	0.97	1.12	1.34	0.74	0.99	0.90	0.79
2,3-DIMETHYLPENTANE	0.18	0.17	0.15	0.12	0.11	0.15	0.17	0.21	0.18
3-METHYLHEXANE	0.55	0.50	0.91	0.97	1.09	0.70	0.86	0.85	0.73
1-CIS-3-DIMETHYL-N5	0.34	0.32	0.26	0.23	0.21	0.27	0.29	0.36	0.36
1-TRANS-3-DIMETHYL-N5	0.34	0.32	0.75	0.24	0.17	0.26	0.30	0.35	0.32
1-TRANS-2-DIMETHYL-N5	0.28	0.26	0.51	0.23	0.06	0.19	0.25	0.28	0.28
N-HEPTANE	1.06	1.01	0.66	1.23	1.82	1.03	1.32	1.26	0.99
C7-OLEFINS	0.64	0.67	0.48	0.81	1.37	1.14	0.85	0.95	0.72
METHYLCYCLOHEXANE	0.23	0.23	0.25	0.20	0.22	0.32	0.34	0.33	0.36
C8-OLEFINS + ISO-P	0.52	0.43	0.55	0.01	0.25	0.01	0.87	0.70	0.56
MONOMETHYL-ISO-C8-P	0.25	0.38	0.89	1.41	0.76	0.94	0.69	0.72	0.63
OTHER ISO-C8-P	0.19	0.12	0.13	0.14	0.08	0.16	0.11	0.15	0.13
C8-OLEFINS	1.34	0.97	0.55	1.88	2.96	2.24	1.95	1.36	1.13
C8-NAPHTHENES (N5+N6)	0.61	0.91	1.10	1.25	1.48	1.24	0.84	1.12	0.98
N-OCTANE	0.51	0.49	0.46	0.75	1.02	0.60	0.54	0.55	0.44
C9-OLEFINS + ISO-P	0.33	0.32	0.20	0.00	0.55	0.00	1.36	0.86	0.99
MONOMETHYL-ISO-C9-P	0.22	0.26	0.42	0.79	0.77	0.51	0.39	0.13	0.33
OTHER ISO-C9-P	0.03	0.13	0.16	0.20	0.16	0.18	0.14	0.28	0.13
C9-OLEFINS	0.47	0.30	0.21	0.99	1.37	1.22	0.87	0.90	0.67
C9-NAPHTHENES (N5+N6)	0.29	0.34	0.39	0.56	0.36	0.51	0.42	0.41	0.32
N-NONANE	0.23	0.24	0.08	0.25	0.45	0.26	0.18	0.18	0.15
ISO-C10-P + 0 + N5 + N6	0.59	0.62	0.74	1.39	2.28	1.63	0.85	0.82	0.73
BENZENE	0.75	0.71	0.48	0.36	0.45	0.48	0.61	0.69	0.69
TOLUENE	3.46	3.22	3.15	2.09	1.56	2.65	2.27	3.06	3.43
ETHYLBENZENE	1.30	1.17	1.12	0.74	0.72	0.88	1.19	1.55	1.65
P-XYLENE	0.76	0.73	0.81	0.76	0.54	1.00	0.57	0.79	0.79
M-XYLENE	2.05	1.94	2.20	2.07	1.51	2.34	1.52	1.91	2.27
O-XYLENE	0.87	0.82	0.87	0.78	0.55	0.98	0.60	0.80	0.93
N-PROPYLBENZENE	0.13	0.12	0.16	0.30	0.29	0.29	0.19	0.19	0.19
1-METHYL-3-ETHYL-BENZENE	1.96	1.83	2.71	3.13	2.37	3.26	2.14	2.41	2.57
1,3,5-TRIMETHYL-BENZENE	0.06	0.05	0.10	0.09	0.10	0.11	0.06	0.06	0.07
1-METHYL-2-ETHYLBENZENE	0.04	0.00	0.00	0.03	0.03	0.08	0.10	0.10	0.13
ISO-C4-BENZENE	0.03	0.02	0.04	0.06	0.06	0.00	0.01	0.02	0.00
1,2,4-TRIMETHYLBENZENE	1.40	1.30	1.52	1.53	1.17	1.93	1.23	1.41	1.29
1-METHYL-2-ISO-C3-BENZENE	0.03	0.03	0.07	0.06	0.05	0.09	0.08	0.03	0.03
1,3-DIETHYLBENZENE	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43
1-METHYL-3-N-C3-BENZENE	0.07	0.33	0.54	0.84	0.76	0.80	0.53	0.51	0.09
N-C4-BENZENE	0.09	0.08	0.15	0.22	0.19	0.23	0.14	0.13	0.12
1,2,3-TRIMETHYLBENZENE	0.08	0.07	0.12	0.11	0.04	0.17	0.04	0.05	0.06
1,2-DIETHYLBENZENE	0.00	0.07	0.09	0.19	0.24	0.18	0.12	0.11	0.00
1-METHYL-2-N-C3-BENZENE	0.05	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00
C10-ALKYLBENZENES	0.51	0.53	0.83	1.04	0.89	1.23	0.77	0.77	0.19
1,2,4,5-TETRAMETHYLBENZENE	0.07	0.07	0.11	0.11	0.08	0.17	0.09	0.09	0.02
1,2,3,5-TETRAMETHYLBENZENE	0.04	0.04	0.10	0.06	0.03	0.08	0.03	0.05	0.01
1,2,3,4-TETRAMETHYLBENZENE	0.09	0.08	0.11	0.10	0.08	0.12	0.08	0.10	0.02
C11-ALKYLBENZENES	0.71	0.63	1.04	1.08	0.89	1.29	0.80	0.87	0.20
NAPHTHALENE	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
UNKNOWN (HC AROMATICS)	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UNKNOWN C12+	0.94	0.57	3.83	2.94	2.19	2.41	1.73	1.91	2.00
SLURRY REACTOR-WAX	7.22	6.96	5.56	5.17	4.83	4.52	2.41	3.24	4.13

Table D-9 (cont'd)
 Composition of Hydrocarbon Products from
 Two-Stage Slurry F-T/ZSM-5 Syngas Conversion
 (Run CT-256-3)

M.B.No.	3-58	3-59	3-60	3-61	3-62	3-63	6-64
Days On Stream	68.5	70.5	72.5	74.5	76.5	78.5	80.5
METHANE	9.46	8.39	9.14	8.81	8.51	7.70	7.72
ETHENE	0.92	0.91	1.16	1.27	1.26	1.29	2.77
ETHANE	4.17	3.97	4.31	4.10	4.29	4.08	3.25
PROPENE	2.99	3.24	3.92	4.45	4.01	4.17	9.46
PROPANE	8.71	8.41	9.11	8.86	10.22	9.60	7.44
I-BUTANE	9.01	8.61	8.56	8.11	8.11	7.34	4.94
1-BUTENE+2-METHYLPROPENE	2.51	2.51	2.82	3.22	2.79	2.76	6.77
N-BUTANE	7.14	7.17	7.15	7.05	7.28	6.85	4.61
TRANS-2-BUTENE	0.98	0.99	1.10	1.27	1.12	1.06	2.86
CIS-2-BUTENE	0.68	0.70	0.77	0.90	0.80	0.76	2.10
3-METHYL-1-BUTENE	0.07	0.08	0.08	0.10	0.09	0.07	0.21
1-PENTANE	6.06	6.29	5.39	5.13	4.85	4.28	3.04
1-PENTENE	0.10	0.10	0.11	0.13	0.13	0.11	0.28
2-METHYL-1-BUTENE	0.50	0.53	0.53	0.61	0.57	0.46	1.23
N-PENTANE	3.89	4.01	3.46	3.38	3.38	3.01	2.44
TRANS-2-PENTENE	0.36	0.38	0.38	0.44	0.41	0.33	0.87
CIS-2-PENTENE	0.17	0.19	0.19	0.22	0.21	0.17	0.45
2-METHYL-2-BUTENE	1.25	1.26	1.23	1.35	1.24	0.95	2.55
2,2-DIMETHYLBUTANE	0.04	0.03	0.03	0.03	0.03	0.02	0.05
CYCLOPENTANE	0.19	0.13	0.10	0.12	0.13	0.11	0.15
HEXENES + ISO-HEXANES	0.03	0.03	0.00	0.01	0.01	0.00	0.07
2,3-DIMETHYLBUTANE	0.10	0.13	0.12	0.11	0.11	0.08	0.06
2-METHYLPENTANE	2.17	2.18	1.70	1.62	1.52	1.18	0.93
3-METHYLPENTANE	0.96	0.42	0.81	0.79	0.77	0.60	0.47
HEXENES	0.54	2.98	0.87	0.94	0.95	0.67	1.61
1-HEXENE	0.06	0.05	0.03	0.04	0.04	0.03	0.08
N-HEXANE	1.98	1.93	1.61	1.62	1.65	1.22	1.36
2,4-DIMETHYLPENTANE	0.01	0.01	0.01	0.01	0.01	0.00	0.01
METHYLCYCLOPENTANE	1.00	1.03	0.91	0.86	0.96	0.79	0.63
3,3-DIMETHYLPENTANE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CYCLOHEXANE	0.03	0.03	0.03	0.00	0.03	0.02	0.02
HEPTENES + ISO-HEPTANES	0.32	0.27	0.14	0.14	0.14	0.06	0.32
2-METHYLHEXANE	0.75	0.69	0.56	0.55	0.48	0.30	0.28
2,3-DIMETHYLPENTANE	0.19	0.19	0.17	0.16	0.17	0.12	0.11
3-METHYLHEXANE	0.73	0.68	0.58	0.57	0.50	0.34	0.31
1-CIS-3-DIMETHYL-N5	0.35	0.33	0.30	0.28	0.28	0.20	0.20
1-TRANS-3-DIMETHYL-N5	0.35	0.32	0.30	0.28	0.29	0.20	0.19
1-TRANS-2-DIMETHYL-N5	0.27	0.26	0.25	0.22	0.24	0.17	0.14
N-HEPTANE	1.04	0.91	0.83	0.89	0.89	0.51	0.91
C7-OLEFINS	0.65	0.65	0.80	0.95	0.77	0.44	1.74
METHYLCYCLOHEXANE	0.27	0.21	0.21	0.18	0.17	0.09	0.10
C8-OLEFINS + ISO-P	0.41	0.31	0.04	0.06	0.16	0.05	0.00
MONOMETHYL-ISO-C8-P	0.64	0.57	0.57	0.57	0.42	0.28	0.34
OTHER ISO-C8-P	0.14	0.14	0.15	0.15	0.13	0.10	0.11
C8-OLEFINS	1.05	1.00	1.26	1.23	0.88	0.40	2.61
C8-NAPHTHENES (N5+N6)	1.11	1.06	1.11	1.12	0.98	0.71	0.77
N-OCTANE	0.43	0.38	0.42	0.47	0.42	0.23	0.63
C9-OLEFINS + ISO-P	0.36	0.56	0.30	0.55	0.77	0.06	0.03
MONOMETHYL-ISO-C9-P	0.30	0.28	0.28	0.29	0.21	0.13	0.21
OTHER ISO-C9-P	0.13	0.12	0.04	0.12	0.10	0.02	0.11
C9-OLEFINS	0.67	0.42	0.53	0.70	0.21	0.18	0.97
C9-NAPHTHENES (N5+N6)	0.32	0.30	0.40	0.31	0.21	0.13	0.17
N-NONANE	0.15	0.14	0.18	0.22	0.16	0.09	0.46
ISO-C10-P + O + N5 + N6	1.15	0.69	0.79	0.75	0.66	0.41	1.08
BENZENE	0.71	0.72	0.69	0.65	0.78	0.71	0.59
TOLUENE	3.59	3.44	3.36	3.10	3.80	3.38	1.86
ETHYLBENZENE	1.35	1.38	1.15	1.25	1.48	0.72	0.59
P-XYLENE	0.87	0.97	1.02	0.99	0.99	0.82	0.73
M-XYLENE	2.37	2.30	2.57	2.43	2.51	2.20	1.66
O-XYLENE	1.01	0.97	1.10	1.07	1.09	0.93	0.75
N-PROPYLBENZENE	0.18	0.15	0.18	0.19	0.14	0.08	0.17
1-METHYL-3-ETHYL-BENZENE	2.59	2.49	2.66	2.58	2.19	1.47	1.93
1,3,5-TRIMETHYL-BENZENE	0.07	0.06	0.07	0.07	0.07	0.06	0.08
1-METHYL-2-ETHYLBENZENE	0.14	0.00	0.02	0.02	0.01	0.01	0.03
ISO-C4-BENZENE	0.02	0.03	0.04	0.04	0.03	0.02	0.10
1,2,4-TRIMETHYLBENZENE	1.67	1.63	1.81	1.74	1.64	1.19	1.27
1-METHYL-2-ISO-C3-BENZENE	0.03	0.03	0.04	0.03	0.04	0.03	0.02
1,3-DIETHYLBENZENE	0.62	0.00	0.49	0.00	0.39	0.00	0.09
1-METHYL-3-N-C3-BENZENE	0.00	0.46	0.11	0.48	0.08	0.22	0.39
N-C4-BENZENE	0.02	0.12	0.13	0.12	0.09	0.05	0.09
1,2,3-TRIMETHYLBENZENE	0.07	0.09	0.10	0.09	0.09	0.07	0.06
1,2-DIETHYLBENZENE	0.14	0.09	0.00	0.11	0.00	0.04	0.11
1-METHYL-2-N-C3-BENZENE	0.00	0.00	0.00	0.00	0.00	0.00	0.03
C10-ALKYLBENZENES	0.74	0.76	0.81	0.80	0.67	0.43	0.62
1,2,4,5-TETRAMETHYLBENZENE	0.13	0.10	0.10	0.10	0.09	0.04	0.08
1,2,3,5-TETRAMETHYLBENZENE	0.01	0.05	0.06	0.05	0.05	0.01	0.04
1,2,3,4-TETRAMETHYLBENZENE	0.02	0.11	0.12	0.10	0.10	0.06	0.08
C11-ALKYLBENZENES	1.14	0.76	0.90	0.79	0.69	0.55	0.68
NAPHTHALENE	0.02	0.06	0.00	0.00	0.00	0.01	0.01
METHYL-NAPHTHALENES	0.00	0.00	0.00	0.00	0.02	0.02	0.00
UNKNOWN (HC AROMATICS)	0.00	0.00	0.00	0.03	0.00	0.06	0.00
DIMETHYL ETHER	0.00	0.00	0.00	0.00	0.00	0.30	0.00
UNKNOWN C12+	0.88	2.01	2.05	2.26	2.64	9.37	1.41
SLURRY REACTOR-WAX	3.76	4.04	4.59	4.59	5.62	12.23	6.31