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APPENDIX D

EXPERIMENTAL CONDITIONS AND RESULTS

Experimental Conditions and Results

Run 4

Catalyst -- 100 Co : 15.9 ThO₂ : 92.9 Kieselguhr : 1.96 K₂CO₃

Note: The pretreatment and sulfiding procedures of the catalyst in each reactor and the longitudinal sulfur gradients in the catalyst beds are given in Section 3.1.1, page 28.
MMOLES = Micromoles

FISCHER-TROPSCH PROGRAM

EXPERIMENT 4-1

REACTION TIME, HRS = 3.3 ROOM TEMP, C = 28.0 HYDROGEN/CO RATIO = 1.850

REACTOR

	1	2	4	5	7
NOMINAL S, WT PCT	0.29	0.43	0.50	0	0
PRESSURE, KPA	600.000	600.000	600.000	600.000	600.000
SPACE VEL, V/V/HR	222.000	219.000	219.000	219.000	219.000
INLET H2 FLOW, CC/MIN	119.87	118.30	116.30	117.67	116.73
INLET CO FLOW, CC/MIN	64.79	63.95	63.95	63.61	63.10
REACTOR TEMP, C	196.0	193.0	196.0	197.0	193.0

EXIT GAS COMPOSITION, MOLE PCT

H2	47.04	55.23	56.57	41.53	43.93
CO	32.37	34.29	34.26	30.91	33.49
CO2	5.48	1.42	1.05	8.26	4.96
CH4	10.28	5.20	4.90	14.04	11.86
C2H6	1.31	0.60	0.51	1.68	1.37
C2H4	0.00	0.00	0.00	0.00	0.00
C3H8	0.94	0.36	0.30	1.32	1.00
C3H6	1.37	0.80	0.69	1.64	1.51
N-C4H10	0.73	0.33	0.29	1.07	0.94
1-C4H8	0.59	0.45	0.41	0.68	0.76
N-C5H12	0.19	0.19	0.19	0.51	0.62
1-C5H10	0.19	0.26	0.28	0.34	0.44

AVG CONTRACTION, PCT

CO2-FREE CONTRACTION, PCT	82.02	72.56	70.15	88.14	86.54
H2 CONVERTED, CC/MIN	83.00	72.95	70.46	89.12	87.21
H2 CONVERTED, MMOL/MIN	104.25	90.69	87.53	108.74	106.10
H2 CONVERSION, PCT	4217.29	3668.66	3540.92	4399.10	4292.21
CO CONVERTED, CC/MIN	86.96	76.65	73.98	92.41	90.89
CO CONVERTED, MMOL/MIN	54.04	46.80	45.31	56.96	54.99
CO CONVERSION, PCT	2186.38	1893.36	1832.99	2304.33	2224.65
H2 USAGE RATIO	83.41	73.18	70.85	87.55	87.15
	0.658	0.659	0.658	0.656	0.658

GASEOUS PRODUCTS, MMOL/MIN

CH4	138.18011	105.28152	107.88661	122.12657	116.13284
C2H6	17.64685	12.18957	11.36671	14.65020	13.48404
C2H4	0.00000	0.00000	0.00000	0.00000	0.00000
C3H8	12.69933	7.30738	6.77259	13.48252	9.86804
C3H6	18.50942	16.24837	15.24544	14.34537	14.79048
N-C4H10	9.93308	6.79975	6.48878	9.30083	9.25617
1-C4H8	7.93771	9.15565	9.02795	5.98703	7.52169
CO2	73.68664	28.88361	23.15553	71.90499	48.56094

TOTAL HC (GAS), MMOL/MIN

CO CONV TO GAS, MMOL/MIN	204.91	156.98	156.78	177.98	171.05
CO TO HC (GAS), MMOL/MIN	412.27	293.03	281.69	362.30	332.74
CO CONVERTED TO C5+ HYDROCARBONS, MMOL/MIN	338.59	264.14	258.74	290.40	284.18
CC/MIN	1774.10	1600.37	1551.10	1942.03	1891.90
SELECTIVITY	43.85	39.56	38.34	48.00	46.76
CO TO C5+, PCT	81.14	84.62	84.62	84.27	85.04

FISCHER-TROPSCH PROGRAM

EXPERIMENT 4-2

REACTION TIME, HR. = 4.2 ROOM TEMP, C = -8.0 HYDROGEN/CO RATIO = 1.489

REACTOR	1	2	3	4	5	7
NOMINAL S.WT PCT	0.29	0.43		0.50	0	0
PRESSURE, KPA	600.000	600.000	600.000	600.000	600.000	600.000
SPACE VEL, V/V/HR	201.000	200.000	205.000	204.000	202.000	211.000
INLET H2 FLOW, CC/MIN	100.26	99.70	102.42	101.77	100.64	105.34
INLET CO FLOW, CC/MIN	67.34	66.95	68.79	68.34	67.58	70.74
REACTOR TEMP, C	199.0	197.0	195.0	198.0	195.0	195.0
EXIT GAS COMPOSITION, MOLE PCT						
H2	30.42	39.06	28.36	35.23	30.49	29.63
CO	56.03	53.29	59.08	55.12	57.37	58.77
CO2	3.41	1.50	4.35	1.92	2.57	2.37
CH4	6.59	4.47	5.44	5.17	5.90	5.74
C2H6	0.95	0.60	0.67	0.69	0.83	0.80
C2H4	0.00	0.00	0.00	0.00	0.00	0.00
C3H8	0.56	0.34	0.36	0.40	0.49	0.50
C3H6	1.21	0.88	1.01	0.98	1.16	1.11
N-C4H10	0.58	0.35	0.37	0.40	0.49	0.51
1-C4H8	0.79	0.56	0.65	0.59	0.68	0.65
N-C5H12	0.43	0.29	0.27	0.28	0.35	0.39
1-C5H10	0.50	0.42	0.44	0.41	0.48	0.47
AVG CONTRACTION, PCT						
CO2-FREE CONTRACTION, PCT	78.81	69.15	79.38	76.07	77.11	79.44
H2 CONVERTED, CC/MIN	79.54	69.62	80.28	76.55	77.70	79.93
H2 CONVERTED, MMOL/MIN	89.47	79.62	92.41	87.43	88.89	94.61
H2 CONVERSION, PCT	3619.26	3220.94	3738.47	3536.81	3596.12	3827.30
CO CONVERTED, CC/MIN	89.22	79.86	90.22	85.91	84.33	89.81
CO CONVERTED, MMOL/MIN	47.44	39.36	47.93	45.91	45.49	49.47
CO CONVERSION, PCT	1919.35	1600.48	1939.06	1857.31	1840.55	2001.16
H2 USAGE RATIO	70.45	59.08	69.68	67.17	67.31	69.92
	0.653	0.668	0.658	0.655	0.661	0.656
GASEOUS PRODUCTS, MMOL/MIN						
CH4	94.74111	93.11762	77.78590	85.20089	91.90708	84.20072
C2H6	13.66403	12.62406	9.60151	11.38361	12.98403	11.81027
C2H4	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C3H8	8.13465	7.15667	5.15901	6.62381	7.64118	7.40676
C3H6	18.94500	18.38898	14.52336	16.13835	18.13557	16.29666
N-C4H10	8.34812	7.42703	5.30066	6.74578	7.63556	7.58966
1-C4H8	11.38339	11.71079	9.33328	9.73087	10.72097	9.57138
CO2	49.10974	31.25510	62.24874	32.79202	40.14973	34.77951
TOTAL HC (GAS), MMOL/MIN						
CO CONV TO GAS, MMOL/MIN	155.21	150.47	121.72	135.82	149.02	136.87
CO TO HC (GAS), MMOL/MIN	331.34	302.93	276.90	274.95	308.78	282.35
CO CONVERTED TO C5+ HYDROCARBONS, MMOL/MIN	282.23	271.68	214.65	242.16	268.63	247.57
CC/MIN	1586.00	1297.54	1662.16	1582.36	1531.77	1718.81
SELECTIVITY	39.25	32.07	41.08	39.11	37.86	42.49
CO TO C5+, PCT	82.73	81.07	85.71	85.19	83.22	85.89

FISCHER-TROPSCH PROGRAM

EXPERIMENT 4-3

REACTION TIME, HRS =		5.4	ROOM TEMP, C =		26.0	HYDROGEN/CO RATIO =				2.059
REACTOR	1	2	3	4	5	7				
NOMINAL S, WT PCT	0.29	0.43	0.50	0.50	0	0				
PRESSURE, KPA	600.000	600.000	600.000	600.000	600.000	600.000				
SPACE VEL, V/V/HR	247.000	258.000	249.000	246.000	248.000	250.000				
INLET H2 FLOW, CC/MIN	138.31	144.64	139.57	137.74	139.13	140.02				
INLET CO FLOW, CC/MIN	67.17	70.24	67.79	66.90	67.57	68.00				
REACTOR TEMP, C	199.0	198.0	196.0	198.0	195.0	195.0				
EXIT GAS COMPOSITION, MOLE PCT										
H2	44.15	48.62	36.05	42.84	49.08	48.58				
CO	29.72	25.39	15.22	26.58	31.13	30.63				
CO2	4.81	5.18	17.28	7.21	3.18	3.83				
CH4	14.88	12.83	25.73	17.18	11.74	12.64				
C2H6	2.06	1.70	2.89	2.17	1.56	1.61				
C2H4	0.00	0.00	0.00	0.00	0.00	0.00				
C3H8	1.98	1.74	2.89	2.33	1.41	1.57				
C3H6	1.77	1.35	1.91	1.62	1.47	1.30				
N-C4H10	1.91	1.65	2.44	2.21	1.37	1.40				
1-C4H8	0.80	0.52	0.63	0.63	0.70	0.61				
N-C5H12	1.55	1.57	1.67	1.39	1.03	1.05				
1-C5H10	0.44	0.22	0.09	0.24	0.42	0.39				
AVG CONTRACTION, PCT										
CO2-FREE CONTRACTION, PCT	88.36	81.94	92.09	85.34	84.03	86.15				
H2 CONVERTED, CC/MIN	88.92	82.88	93.45	86.39	84.54	86.68				
H2 CONVERTED, MOLES/MIN	127.76	125.77	133.66	124.89	122.93	126.03				
H2 CONVERSION, PCT	5202.79	5121.82	5443.28	5086.13	5006.34	5132.35				
CO CONVERTED, CC/MIN	92.37	86.95	95.76	90.66	88.35	90.00				
CO CONVERTED, MOLES/MIN	60.07	59.22	65.29	58.80	57.29	59.18				
CO CONVERSION, PCT	2446.27	2411.99	2658.90	2394.74	2333.34	2410.06				
H2 USAGE RATIO	89.42	84.31	96.31	87.90	84.79	87.02				
	0.680	0.679	0.671	0.679	0.682	0.680				
GASEOUS PRODUCTS, MOLES/MIN										
CH4	144.91455	202.74331	171.87634	209.99966	157.79553	148.36035				
C2H6	20.10894	26.91820	19.36646	26.56985	21.06768	18.96024				
C2H4	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000				
C3H8	19.30923	27.62614	19.35050	28.55321	18.98897	18.43447				
C3H6	17.24412	21.42684	12.79752	19.80854	19.80854	15.35126				
N-C4H10	18.67781	26.11688	16.29659	27.03870	18.52322	16.42858				
1-C4H8	7.85035	8.34985	4.22589	7.81524	9.53120	7.17643				
CO2	46.81673	81.94151	115.45024	88.14866	42.82555	44.95581				
TOTAL HC(GAS), MOLES/MIN										
CO CONV TO GAS, MOLE/MIN	228.10	313.18	243.91	319.78	245.71	224.71				
CO TO HC(GAS), MOLES/MIN	447.72	623.54	504.59	635.78	471.36	427.01				
CO CONVERTED TO C5+ HYDROCARBONS	400.90	541.60	389.14	547.64	428.54	382.05				
MOLES/MIN	1998.55	1788.44	2154.30	1758.95	1861.97	1983.05				
CC/MIN	49.07	43.91	52.90	43.19	45.72	48.69				
SELECTIVITY										
CO TO C5+, PCT	81.69	74.14	81.02	73.45	79.79	82.28				

FISCHER-TROPSCH PROGRAM

EXPERIMENT 4-4

REACTION TIME, HRS = 3.9 ROOM TEMP, C = 29.0 HYDROGEN/CO RATIO = 1.940

REACTOR	1	2	3	4	5	7
NOMINAL SMT PCT	0.29	0.43	0.50	0.50	0	0
PRESSURE, KPA	1100.000	1100.000	1100.000	1100.000	1100.000	1100.000
SPACE VEL, V/V/HR	204.000	212.000	202.000	212.000	217.000	210.000
INLET H2 FLOW, CC/MIN	112.30	116.49	111.16	116.49	119.36	115.57
INLET CO FLOW, CC/MIN	57.89	60.04	57.30	60.04	61.52	59.57
REACTOR TEMP, C	200.0	196.0	197.0	200.0	196.0	194.0

EXIT GAS COMPOSITION, MOLE PCT

H2	20.18	31.20	18.34	17.24	26.19	28.86
CO	12.16	38.67	0.55	1.06	17.81	14.69
CO2	34.27	10.97	27.05	33.07	30.06	30.66
CH4	24.26	12.92	50.86	41.11	20.34	19.71
C2H6	4.01	2.29	3.15	3.78	3.57	3.25
C2H4	0.00	0.00	0.00	0.00	0.00	0.00
C3H8	3.52	1.90	1.66	2.88	3.28	3.05
C3H6	2.19	2.25	0.00	0.16	2.02	1.86
N-C4H10	2.01	1.52	0.60	1.10	1.97	1.83
1-C4H8	0.40	0.92	0.00	0.00	0.45	0.40
N-C5H12	0.26	0.51	0.03	0.12	0.40	0.32
1-C5H10	0.00	0.19	0.00	0.00	0.00	0.00

AVG CONTRACTION, PCT	92.50	88.38	91.68	91.22	91.56	91.86
CO2-FREE CONTRACTION, PCT	95.07	89.66	93.93	94.12	94.10	94.35
H2 CONVERTED, CC/MIN	109.73	110.09	108.59	113.81	115.36	111.46
H2 CONVERTED, MMOL/MIN	4424.30	4438.81	4378.52	4598.96	4651.42	4493.94
H2 CONVERSION, PCT	97.70	94.50	97.68	97.70	96.65	96.44
CO CONVERTED, CC/MIN	56.33	52.11	57.22	59.88	58.81	57.48
CO CONVERTED, MMOL/MIN	2271.44	2101.33	2307.22	2414.34	2371.12	2317.52
CO CONVERSION, PCT	97.31	86.79	99.86	99.72	95.58	96.48
H2 USAGE RATIO	0.660	0.678	0.654	0.655	0.662	0.659

GASEOUS PRODUCTS, MMOL/MIN

CH4	124.75720	106.86454	287.13708	256.97050	125.10972	113.25248
C2H6	20.63698	18.94819	17.78046	23.62262	21.97193	18.70124
C2H4	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C3H8	18.12263	15.71790	9.37566	18.02764	20.21712	17.52811
C3H6	11.28640	18.65859	0.00000	1.05544	12.46100	10.73825
N-C4H10	10.34874	12.60681	3.39228	6.91945	12.11579	10.54569
1-C4H8	2.08659	7.64725	0.00000	0.00000	2.78935	2.33208
CO2	176.18240	90.69726	152.72778	206.66732	184.84909	176.18237

TOTAL HC(GAS), MMOL/MIN	187.23	180.44	317.68	306.59	194.66	173.09
CO CONV TO GAS, MMOL/MIN	480.18	419.60	517.12	595.81	511.55	463.14
CO TO HC(GAS), MMOL/MIN	303.99	328.90	364.39	389.14	326.70	286.96
CO CONVERTED TO C5+ HYDROCARBONS	1791.26	1681.73	1790.10	1818.53	1859.56	1854.37
MMOL/MIN	44.42	41.71	44.39	45.10	46.12	45.99
SELECTIVITY						
CO TO C5+, PCT	78.86	80.03	77.58	75.32	78.42	80.01

FISCHER-TROPSCH PROGRAM

EXPERIMENT 4-5

REACTION TIME, HRS = 4.8 ROOM TEMP, C = 30.5 HYDROGEN/CO RATIO = 1.526

REACTOR	1	2	3	4	5	7
NOMINAL S, WT PCT	0.29	0.43	0.50	0.50	0	0
PRESSURE, KPA	1100.000	1100.000	1100.000	1100.000	1100.000	1100.000
SPACE VEL, V/V/HR	232.000	205.000	195.000	197.000	208.000	199.000
INLET H2 FLOW, CC/MIN	116.83	103.36	98.35	99.31	104.51	99.98
INLET CO FLOW, CC/MIN	76.56	67.73	64.44	65.08	68.48	65.51
REACTOR TEMP, C	199.0	197.0	194.0	198.0	195.0	195.0
EXIT GAS COMPOSITION, MOLE PCT						
H2	27.14	36.88	30.57	30.22	27.71	29.48
CO	59.08	56.03	58.47	57.25	59.99	58.77
CO2	3.75	1.50	3.90	3.90	3.60	3.47
CH4	6.57	4.18	6.10	6.04	5.77	5.40
C2H6	1.19	0.76	1.03	1.05	1.12	0.93
C2H4	0.00	0.00	0.00	0.00	0.00	0.00
C3H8	0.03	0.46	0.67	0.72	0.69	0.69
C3H6	1.49	1.15	1.31	1.46	1.54	1.26
N-C4H10	0.72	0.43	0.58	0.67	0.61	0.62
1-C4H8	0.78	0.68	0.65	0.71	0.83	0.71
N-C5H12	0.46	0.32	0.12	0.26	0.42	0.47
1-C5H10	0.38	0.36	0.13	0.21	0.41	0.38
AVG CONTRACTION, PCT						
CO2-FREE CONTRACTION, PCT	80.50	77.30	77.09	76.36	78.28	80.23
H2 CONVERTED, CC/MIN	81.23	77.64	77.98	77.28	79.06	80.92
H2 CONVERTED, MOLES/MIN	106.60	89.04	86.94	87.57	94.10	90.33
H2 CONVERSION, PCT	4276.74	3572.32	3488.25	3513.27	3775.22	3624.22
CO CONVERTED, CC/MIN	91.24	86.14	88.40	88.17	90.03	90.35
CO CONVERTED, MOLES/MIN	54.28	45.97	42.64	42.83	45.94	46.29
CO CONVERSION, PCT	2177.81	1844.53	1710.88	1718.45	1843.36	1857.21
CO USAGE RATIO	70.90	67.87	66.16	65.81	67.08	70.65
	0.662	0.659	0.670	0.671	0.671	0.661
GASEOUS PRODUCTS, MOLES/MIN						
CH4	99.40689	65.21276	91.32360	94.17721	87.05744	70.92820
C2H6	18.13585	11.85898	15.44668	16.36985	16.88154	12.28641
C2H4	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C3H8	12.56460	7.26099	10.14257	11.36232	10.47420	9.16376
C3H6	22.6.745	17.97836	19.62353	22.81944	23.33473	16.62233
N-C4H10	10.92856	6.82568	8.76949	10.52336	9.28157	8.23632
1-C4H8	11.83030	10.60083	9.82319	11.16739	12.59613	9.40003
CO2	56.85415	23.41709	58.46976	60.93148	54.37736	45.56781
TOTAL HC(GAS), MOLES/MIN						
CO CONV TO GAS, MOLE/MIN	175.54	119.73	155.12	166.41	159.62	126.63
CO TO HC(GAS), MOLES/MIN	389.29	257.77	344.35	377.15	364.13	288.97
CO CONVERTED TO C5+ HYDROCARBONS	332.43	234.35	285.88	316.22	309.75	243.40
MOLES/MIN	1788.52	1585.76	1366.52	1341.30	1479.22	1568.23
CC/MIN	44.58	39.55	34.06	33.43	36.87	39.08
SELECTIVITY						
CO TO C5+, PCT	82.12	86.02	79.87	78.05	80.24	84.44

FISCHER-TROPSCH PROGRAM

EXPERIMENT 4-7

REACTION TIME, HRS = 3.8 ROOM TEMP, °C = 35.0 HYDROGEN/CO RATIO = 1.74

REACTOR	1	2	4	5	7
NOMINAL S, WT PCT	0.29	0.43	0.50	0	0
PRESSURE, KPA	1600.000	1600.000	1600.000	1600.000	1600.000
SPACE VEL, V/V/HR	204.000	209.000	205.000	216.000	204.000
INLET H2 FLOW, CC/MIN	112.80	115.39	113.31	119.27	112.80
INLET CO FLOW, CC/MIN	57.12	58.44	57.39	60.41	57.12
REACTOR TEMP, °C	198.0	196.0	198.0	194.0	193.0
EXIT GAS COMPOSITION, MOLE PCT					
H2	34.21	56.33	45.48	43.49	50.23
CO	6.09	34.10	33.65	27.71	25.58
CO2	28.26	1.69	5.41	9.54	8.26
CH4	22.36	4.39	9.53	13.98	8.69
C2H6	2.97	0.77	1.49	1.73	1.54
C2H4	0.00	0.00	0.00	0.00	0.00
C3H8	2.84	0.59	1.25	1.57	1.57
C3H6	1.16	0.95	1.61	1.28	1.25
N-C4H10	0.89	0.47	0.95	0.79	0.97
1-C4H8	0.11	0.45	0.66	0.31	0.44
N-C5H12	0.04	0.22	0.41	0.00	0.24
1-C5H10	0.00	0.14	0.00	0.00	0.00
AVG CONTRACTION, PCT					
CO2-FREE CONTRACTION, PCT	92.59	62.10	84.98	82.11	82.34
H2 CONVERTED, CC/MIN	94.68	62.74	85.79	83.82	83.80
H2 CONVERTED, MMOL/MIN	108.49	78.28	101.66	105.30	97.73
H2 CONVERSION, PCT	4289.19	3094.80	4018.96	4162.97	3863.60
CO CONVERTED, CC/MIN	96.18	67.83	89.71	88.28	86.64
CO CONVERTED, MMOL/MIN	56.36	35.97	48.76	51.50	49.45
CO CONVERSION, PCT	2228.17	1422.09	1927.85	2036.16	1955.06
H2 USAGE RATIO	98.65	61.55	84.97	85.26	86.56
	0.658	0.685	0.675	0.671	0.664
GASEOUS PRODUCTS, MMOLLS/MIN					
CH4	111.20884	114.54545	96.64231	177.68914	103.06501
C2H6	14.79545	20.05418	15.16050	22.00618	18.36806
C2H4	0.00000	0.00000	0.00000	0.00000	0.00000
C3H8	14.16100	15.56025	12.70821	19.91390	18.65406
C3H6	5.87945	24.74197	16.39922	16.26781	14.85553
N-C4H10	4.47588	12.33668	9.71893	10.10799	11.51658
1-C4H8	0.59372	11.97071	6.77395	4.3365	5.26708
CO2	140.54397	44.04329	54.83081	121.24340	98.05227
TOTAL HC (GAS), MMOL/MIN					
CO CONV TO GAS, MMOL/MIN	151.11	199.20	157.40	750.01	171.72
CO TO HC (GAS), MMOL/MIN	361.74	416.83	335.08	508.05	405.51
CO CONVERTED TO C5+ HYDROCARBONS	221.19	372.79	280.25	386.81	307.46
MMOL/MIN	1866.42	1005.25	1592.77	1528.10	1549.55
CC/MIN	47.21	25.42	40.28	30.65	39.19
SELECTIVITY					
CO TO C5+, PCT	83.76	70.68	82.61	75.04	79.25

FISCHER-TROPSCH PROGRAM

EXPERIMENT 4-8

REACTION TIME, HRS	4.0	RQOM TEMP, C	31.5	HYDROGEN/CO RATIO	2.021				
REACTOR	1	2	4	5	6	7			
NOMINAL S.WT PCT	0.29	0.43	0.50	0	0	0			
PRESSURE, KPA	1600.000	1600.000	1600.000	1600.000	1600.000	1600.000			
SPACE VEL, V/V/HR	194.000	202.000	210.000	215.000	213.000	218.000			
INLET H2 FLOW, CC/MIN	107.93	112.51	116.83	120.06	118.72	121.42			
INLET CO FLOW, CC/MIN	53.38	55.45	57.78	59.39	58.72	60.05			
REACTOR TEMP, C	217.0	216.0	216.0	212.0	216.0	215.6			
EXIT GAS COMPOSITION, MOLE PCT									
H2	7.49	6.65	5.89	4.12	4.61	15.26			
CO	0.21	0.22	0.21	0.19	0.19	0.41			
CO2	29.16	29.76	29.46	29.07	28.56	33.97			
CH4	53.62	52.56	52.86	54.68	54.68	36.45			
C2H6	3.74	4.37	4.30	3.72	2.90	4.20			
C2H4	0.00	0.00	0.00	0.00	0.00	0.00			
C3H8	2.33	2.79	2.77	1.95	1.49	4.01			
C3H6	0.00	0.00	0.00	0.00	0.00	0.00			
N-C4H10	1.16	1.42	1.34	0.98	0.85	2.01			
1-C4H8	0.00	0.00	0.00	0.00	0.00	0.00			
N-C5H12	0.18	0.42	0.32	0.25	0.46	0.57			
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00			
AVG CONTRACTION, PCT	76.30	73.83	78.52	73.67	72.24	89.34			
CO2-FREE CONTRACTION, PCT	84.63	81.62	84.85	81.32	80.17	92.96			
H2 CONVERTED, CC/MIN	105.31	109.58	114.62	118.11	116.45	118.46			
H2 CONVERTED, MOLES/MIN	4211.05	4382.03	4583.37	4723.21	4656.52	4737.25			
H2 CONVERSION, PCT	97.57	97.39	98.10	98.37	98.08	97.56			
CO CONVERTED, CC/MIN	53.31	55.55	57.70	59.30	58.53	59.97			
CO CONVERTED, MOLES/MIN	2131.81	2221.42	2307.52	2371.25	2344.50	2398.34			
CO CONVERSION, PCT	99.86	99.81	99.85	99.84	99.84	99.86			
H2 USAGE RATIO	0.663	0.663	0.665	0.665	0.665	0.663			
GASEOUS PRODUCTS, MMOL/MIN									
CH4	750.51306	924.85571	792.67895	1033.21606	1076.95019	281.79276			
C2H6	52.46280	76.97593	64.55482	70.42773	57.21060	32.46424			
C2H4	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000			
C3H8	32.75517	49.20442	41.68143	36.95516	29.37354	31.04900			
C3H6	6.00000	6.00000	0.00000	0.00000	0.00000	0.00000			
N-C4H10	16.24211	25.00243	20.24344	18.57070	16.79140	15.56069			
1-C4H8	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000			
CO2	408.13787	523.66674	441.79670	549.28210	562.46692	262.58947			
TOTAL HC (GAS), MMOL/MIN	851.95	1076.03	919.15	1159.16	1180.32	360.86			
CO CONV TO GAS, MMOL/MIN	1426.75	1850.09	1569.60	1908.50	1909.12	764.70			
CO TO HC (GAS), MMOL/MIN	1018.61	1326.43	1127.80	1359.21	1346.65	502.11			
CO CONVERTED TO C5+ HYDROCARBONS	705.06	371.33	737.91	462.75	435.38	1633.64			
MMOL/MIN	17.63	9.28	18.45	11.57	10.88	40.85			
SELECTIVITY									
CO TO C5+, PCT	33.07	16.71	31.97	19.51	18.57	68.11			

Experimental Conditions and Results

Run 5

Catalyst — 100 Fe : 21.8 Cu : 1.0 K₂CO₃

Note: The pretreatment and sulfiding procedures of the catalyst in each reactor and the longitudinal sulfur gradients in the catalyst bed are given in Section 3.2.1, page 42.
MMOLES = Micromoles

FISCHER-TROPSCH PROGRAM

EXPERIMENT 3-1

REACTION TIME, HRS = 4.2 ROOM TEMP, C = 29.0 HYDROGEN/CO RATIO = 1.610

REACTOR	1	2	3	4	5	6	7
NOMINAL S.WT PCT	0.080	0.240	0.240	0.400	0	0	0
PRESSURE, KPA	990.000	970.000	1040.000	1020.000	1000.000	960.000	970.000
SPACE VEL, V/V/HR	178.000	174.000	189.000	213.000	196.000	189.000	185.000
INLET H2 FLOW, CC/MIN	73.12	71.62	71.59	87.74	80.58	77.50	76.10
INLET CO FLOW, CC/MIN	45.41	44.49	48.19	54.50	50.05	46.19	47.27
REACTOR TEMP, C	249.0	245.0	246.0	250.0	250.0	248.0	251.0

EXIT GAS COMPOSITION, MOLE PCT

H2	53.25	49.54	50.92	52.54	50.46	52.31	53.25
CO	0.72	0.74	0.78	0.76	0.78	0.74	0.79
CO2	35.02	34.57	35.02	35.62	34.57	35.77	35.17
CH4	6.80	8.38	7.20	6.31	7.20	7.20	6.70
C2H6	3.26	3.67	3.24	2.72	3.31	3.23	3.24
C2H4	0.45	0.58	0.51	0.53	0.38	0.30	0.38
C3H8	0.79	0.90	0.80	0.63	0.89	0.79	0.89
C3H6	2.47	2.68	2.28	2.04	2.32	2.13	2.33
N-C4H10	0.45	0.50	0.45	0.33	0.45	0.46	0.45
1-C4H8	1.08	1.03	0.98	0.87	0.92	0.81	1.01
N-C5H12	0.18	0.16	0.14	0.14	0.21	0.23	0.24
1-C5H10	0.37	0.21	0.26	0.34	0.36	0.38	0.44

AVG CONTRACTION, PCT

CO2-FREE CONTRACTION, PCT	60.18	58.31	63.43	62.46	64.17	58.34	62.55
H2 CONVERTED, CC/MIN	74.12	72.72	76.23	75.83	76.56	73.24	75.72
H2 CONVERTED, MMOL/MIN	47.98	47.65	54.17	59.68	56.97	50.18	51.50
H2 CONVERSION, PCT	1934.78	1921.20	2104.05	2406.47	2296.95	2023.22	2076.62
CO CONVERTED, CC/MIN	65.62	66.52	69.81	68.02	70.69	64.67	67.67
CO CONVERTED, MMOL/MIN	43.07	44.12	47.83	54.09	49.68	47.80	46.90
CO CONVERSION, PCT	1817.39	1778.91	1928.67	2181.02	2003.34	1927.41	1891.03
H2 USAGE RATIO	99.24	99.17	99.25	99.25	99.27	99.19	99.21
	0.515	0.519	0.531	0.524	0.534	0.512	0.523

GASEOUS PRODUCTS, MMOL/MIN

CH4	129.54339	163.63958	133.56075	135.93942	135.89169	152.15222	124.96115
C2H6	62.10350	71.64271	60.22199	58.66808	62.50086	68.25598	60.48382
C2H4	8.62275	11.40131	9.52251	11.43557	7.34960	6.35880	7.25538
C3H8	15.10077	17.69679	15.01720	13.59774	16.31729	18.81720	14.78084
C3H6	47.02982	52.37392	42.38427	44.05349	43.87349	45.19345	43.55851
N-C4H10	8.64677	9.77600	8.42644	7.27422	8.57349	9.84552	8.46357
1-C4H8	20.65747	20.28127	18.31181	18.89566	17.54079	17.32196	18.82163
CO2	666.52319	674.66870	649.57776	767.02050	652.36560	755.83264	655.20202

TOTAL HC(GAS), MMOL/MIN

CO CONV TO GAS, MMOL/MIN	291.77	346.81	287.45	337.86	322.04	317.94	278.32
CO TO HC(GAS), MMOL/MIN	1241.26	1334.83	1201.79	1327.80	1212.98	1357.91	1199.80
CO CONVERTED TO C5+ HYDROCARBONS, MMOL/MIN	574.74	660.16	552.21	553.77	560.62	602.08	544.59
SELECTIVITY							
CO TO C5+, PCT	31.70	24.96	37.68	39.44	39.45	29.54	36.55
CO C5+/CO HC(GAS)	1.00	0.67	1.31	1.55	1.40	0.94	1.26

EXPERIMENT 5-2 FISCHER-TROPSCH PROGRAM

REACTION TIME, HRS = 3.6 RUOH TEMP, C = 26.0 HYDROGEN/CO RATIO = 1.550

REACTOR	1	2	3	4	5	6	7
NOMINAL S.WT PCT	0.080	0.240	0.240	0.400	0	0	0
PRESSURE, KPA	990.000	970.000	1040.000	1020.000	1000.000	960.000	970.000
SPACE VEL, V/V/HR	263.000	267.000	261.000	235.000	242.000	255.000	250.000
INLET H2 FLOW, CC/MIN	106.60	108.22	105.95	95.30	97.88	103.37	101.11
INLET CO FLOW, CC/MIN	68.78	69.81	68.36	61.48	3.15	66.69	65.23
REACTOR TEMP, C	249.0	245.0	246.0	211.0	250.0	249.0	252.0

EXIT GAS COMPOSITION, MOLE PCT

H2	56.81	55.85	56.33	56.57	55.85	56.09	57.05
CO	0.87	0.85	0.91	0.87	0.85	0.86	0.89
CO2	34.72	34.72	34.72	34.62	34.57	34.42	34.87
CH4	6.21	6.26	6.26	6.31	6.01	6.01	5.40
C2H6	2.58	2.47	2.42	2.37	2.67	2.59	2.39
C2H4	0.59	0.58	0.49	0.56	0.42	0.38	0.43
C3H8	0.53	0.47	0.48	0.46	0.56	0.57	0.59
C3H6	2.03	1.90	1.63	1.63	1.97	1.83	1.77
N-C4H10	0.27	0.24	0.24	0.24	0.30	0.31	0.27
1-C4H8	0.79	0.78	0.70	0.68	0.86	0.75	0.81
N-C5H12	0.06	0.10	0.10	0.10	0.14	0.16	0.16
1-C5H10	0.15	0.29	0.26	0.27	0.39	0.35	0.41

AVG CONTRACTION, PCT	53.53	54.22	61.27	61.09	58.08	56.19	56.71
CO2-FREE CONTRACTION, PCT	69.66	70.11	74.72	74.56	72.57	71.27	71.81
H2 CONVERTED, CC/MIN	60.30	62.69	67.93	60.79	60.18	61.58	60.03
H2 CONVERTED, MMOL/MIN	2455.89	2553.27	2766.48	2475.72	2450.90	2507.95	2444.86
H2 CONVERSION, PCT	56.56	57.93	64.11	63.79	61.48	59.37	59.37
CO CONVERTED, CC/MIN	68.06	69.12	67.74	60.95	62.57	66.04	64.58
CO CONVERTED, MMOL/MIN	2771.86	2814.81	2758.72	2482.13	2548.21	2689.68	2630.21
CO CONVERSION, PCT	98.96	99.00	99.09	99.13	99.08	99.03	99.00
H2 USAGE RATIO	0.469	0.475	0.500	0.499	0.490	0.482	0.481

GASEOUS PRODUCTS, MMOL/MIN

CH4	206.28048	207.91763	172.20172	156.84466	165.42211	182.57699	158.51599
C2H6	85.83547	82.09880	66.74008	58.97566	73.55761	78.80964	70.32824
C2H4	19.68492	19.39112	13.62678	14.07379	11.68009	11.81708	12.71832
C3H8	17.73652	15.85537	13.3432	11.58562	15.02556	17.44141	14.60073
C3H6	67.46685	63.05911	44.92241	40.7655	54.23560	55.54689	52.12661
N-C4H10	9.20275	8.12007	6.78926	6.04856	8.51860	9.41969	7.72508
1-C4H8	26.36873	25.98546	19.36318	16.92486	23.72784	22.77261	23.87088
CO2	1152.45190	1152.45190	954.48474	860.23767	950.35266	1044.34741	1022.52453

TOTAL HC(GAS), MMOL/MIN	432.57	422.42	336.99	305.04	352.76	378.38	340.08
CO CONV TO GAS, MMOL/MIN	1967.67	1936.51	1566.86	1411.62	1624.81	1755.91	1674.49
CO TO HC(GAS), MMOL/MIN	815.22	784.06	612.37	551.38	674.46	711.56	651.96
CO CONVERTED TO C5+ HYDROCARBONS	804.18	878.30	1191.86	1070.51	923.39	933.77	955.72
MMOL/MIN	19.74	21.56	29.26	26.28	22.67	22.93	23.46
SELECTIVITY							
CO TO C5+, PCT	29.01	31.20	43.20	43.12	36.23	34.71	36.33
CO C5+/CO HC(GAS)	0.98	1.12	1.94	1.94	1.36	1.31	1.46

FISCHER-TROPSCH PROGRAM

EXPERIMENT 5-3

REACTION TIME, HRS = 4.0 ROOM TEMP, C = 28.5 HYDROGEN/CO RATIO = 1.030

REACTOR

	1	2	3	4	5	6	7
NOMINAL S, WT PCT	0.080	0.240	0.240	0.400	0	0	0
PRESSURE, KPA	990.000	970.000	1000.000	1020.000	1000.000	960.000	970.000
SPACE VEL, V/V/HR	201.000	223.000	197.000	191.000	197.000	200.000	208.000
INLET H2 FLOW, CC/MIN	68.03	75.59	66.68	64.52	66.68	67.49	70.19
INLET CO FLOW, CC/MIN	66.05	73.39	64.74	62.64	64.74	65.53	68.15
REACTOR TEMP, C	251.0	247.0	247.0	253.0	252.0	250.0	254.0

EXIT GAS COMPOSITION, MOLE PCT

H2	31.68	36.54	34.82	32.79	32.79	35.43	33.20
CO	1.40	1.84	1.65	1.44	1.42	1.59	1.40
CO2	56.62	53.81	54.71	57.72	58.02	57.72	58.32
CH4	6.03	6.29	7.05	6.60	5.82	5.32	5.37
C2H6	2.39	2.18	2.49	2.21	2.34	2.08	2.20
C2H4	0.80	0.67	0.63	0.78	0.63	0.56	0.67
C3H8	0.40	0.37	0.43	0.39	0.39	0.35	0.37
C3H6	1.97	1.60	1.68	1.70	1.83	1.62	1.78
N-C4H10	0.21	0.19	0.21	0.21	0.21	0.20	0.20
1-C4H8	0.90	0.66	0.67	0.71	0.83	0.84	0.73
N-C5H12	0.07	0.07	0.06	0.06	0.10	0.09	0.09
1-C5H10	0.33	0.24	0.21	0.15	0.37	0.35	0.40

AVG CONTRACTION, PCT	61.96	59.22	65.00	65.40	62.71	55.64	58.98
CO2-FREE CONTRACTION, PCT	84.26	81.16	84.15	85.37	81.35	81.24	82.90
H2 CONVERTED, CC/MIN	51.87	53.39	50.66	50.09	50.61	46.5	51.35
H2 CONVERTED, MOLES/MIN	2095.07	2156.23	2046.22	2022.99	2044.05	1881.56	2073.99
H2 CONVERSION, PCT	76.25	70.62	75.97	77.63	75.09	69.02	73.15
CO CONVERTED, CC/MIN	65.33	72.27	63.98	62.00	64.04	64.58	67.35
CO CONVERTED, MOLES/MIN	2638.58	2918.72	2583.91	2504.72	2586.41	2608.41	2720.06
CO CONVERSION, PCT	98.91	98.47	98.82	98.98	98.91	98.56	98.82
H2 USAGE RATIO	0.442	0.424	0.441	0.446	0.441	0.419	0.432

GASEOUS PRODUCTS, MMOL/MIN

CH4	124.35562	154.42257	131.04113	117.45494	115.18392	126.93739	123.22708
C2H6	49.26834	53.64323	46.37812	39.43760	46.49673	49.60968	50.48512
C2H4	16.62839	16.67987	11.84065	13.96853	12.61286	13.49948	15.41930
C3H8	8.33856	9.13800	8.15282	6.97072	7.81132	7.48898	8.53639
C3H6	40.77505	39.44297	31.34726	30.22043	36.28383	38.62335	40.80456
N-C4H10	4.46923	4.71625	3.96073	3.53492	4.32279	4.77471	4.80624
1-C4H8	18.41151	16.47241	12.52846	12.65085	16.45339	17.60998	19.32038
CO2	1207.45776	1320.28100	1016.47412	1025.70166	1148.20776	1375.37256	1336.70215

TOTAL HC(GAS), MMOL/MIN	262.44	294.47	245.24	224.24	239.20	259.54	262.59
CO CONV TO GAS, MMOL/MIN	1703.27	1845.68	1448.40	1426.29	1597.12	1859.40	1836.26
CO TO HC(GAS), MMOL/MIN	495.81	525.40	431.93	400.59	448.91	484.03	499.56
CO CONVERTED TO C5+ HYDROCARBONS, MMOL/MIN	935.31	1073.03	1135.50	1077.93	989.31	749.01	883.79
CC/MIN	23.16	26.57	28.11	26.69	24.49	18.54	21.88
SELECTIVITY							
CO TO C5+, PCT	35.44	36.7	43.94	43.04	38.25	28.71	32.49
CO C5+/CO HC(GAS)	1.88	2.04	2.62	2.69	2.20	1.54	1.76

FISCHER-TROPSCH PROGRAM

EXPERIMENT 9-4

REACTION TIME, HRS = 3.6 ROOM TEMP, C = 31.0 HYDROGEN/CO RATIO = 1.600

REACTOR	1	2	3	4	5	6	7
NOMINAL S.WT PCT	0.080	0.240	0.240	0.400	0	0	0
PRESSURE, KPA	990.000	970.000	1040.000	1020.000	1000.000	960.000	970.000
SPACE VEL, V/V/HR	248.000	275.000	261.000	258.000	244.000	273.000	256.000
INLET H2 FLOW, CC/MIN	101.63	112.77	107.20	105.81	109.24	111.94	104.97
INLET CO FLOW, CC/MIN	63.52	70.48	67.00	66.13	62.65	69.96	65.61
REACTOR TEMP, C	259.0	255.0	256.0	261.0	259.0	257.0	261.0
EXIT GAS COMPOSITION, MOLE PCT							
H2	53.93	53.80	54.19	54.19	55.61	55.14	55.61
CO	0.95	0.93	0.78	0.91	0.88	0.83	0.92
CO2	35.47	35.47	35.77	35.17	34.87	34.87	34.87
CH4	7.61	7.49	8.38	7.89	6.46	6.36	6.13
C2H6	2.96	2.70	2.96	2.72	2.80	2.57	2.61
C2H4	0.56	0.67	0.63	0.66	0.44	0.47	0.44
C3H8	0.55	0.48	0.54	0.51	0.53	0.48	0.51
C3H6	2.01	2.07	2.04	1.95	2.05	1.91	1.95
N-C4H10	0.24	0.25	0.26	0.25	0.29	0.25	0.27
1-C4H8	0.71	0.91	0.85	0.83	0.92	0.91	0.94
N-C5H12	0.04	0.09	0.08	0.09	0.13	0.12	0.13
1-C5H10	0.11	0.34	0.30	0.33	0.41	0.45	0.46
AVG CONTRACTION, PCT	60.49	58.52	62.11	62.34	58.87	59.45	59.55
CO2-FREE CONTRACTION, PCT	74.50	73.24	75.66	75.58	73.21	73.59	73.65
H2 CONVERTED, CC/MIN	66.43	71.88	71.43	70.72	62.98	71.27	66.60
H2 CONVERTED, MOLES/MIN	2660.72	2879.01	2861.34	2732.77	2522.67	2834.92	2667.66
H2 CONVERSION, PCT	65.36	63.73	66.63	66.83	62.82	63.67	63.44
CO CONVERTED, CC/MIN	62.89	69.77	66.48	65.54	62.06	69.34	64.97
CO CONVERTED, MOLES/MIN	2519.21	2794.72	2662.81	2625.18	2485.11	2777.57	2602.42
CO CONVERSION, PCT	99.01	98.99	99.22	99.10	99.05	99.11	99.02
H2 USAGE RATIO	0.513	0.507	0.517	0.519	0.503	0.506	0.506
GASEOUS PRODUCTS, MMOL/MIN							
CH4	199.04690	228.23635	221.57688	204.68563	173.40982	187.96603	169.58877
C2H6	77.61212	82.45164	78.50421	70.66981	75.13974	76.15470	72.33210
C2H4	14.80674	20.47982	16.66184	17.26460	11.87271	14.12065	12.23258
C3H8	14.38977	14.91192	14.34112	13.22954	14.34112	14.32694	14.20978
C3H6	52.71134	63.29650	54.00994	50.72236	55.19473	46.51665	53.97818
N-C4H10	6.39411	7.62487	7.68817	6.49619	7.86746	7.65725	7.56654
1-C4H8	18.71169	27.77036	22.65106	21.56319	24.94661	26.94821	26.17000
CO2	927.13598	1079.88257	945.73999	912.23449	935.86609	1030.15112	963.80236
TOTAL HC(GAS), MMOL/MIN	382.67	444.77	414.99	384.63	362.75	383.69	356.07
CO CONV TO GAS, MMOL/MIN	1612.74	1890.18	1681.91	1596.88	1623.09	1749.62	1642.03
CO TO HC(GAS), MMOL/MIN	685.61	810.30	736.17	684.64	687.22	714.46	678.22
CO CONVERTED TO C5+ HYDROCARBONS	906.46	904.53	980.89	1028.30	862.62	1027.95	960.38
MMOL/MIN	22.63	22.58	24.49	25.67	21.53	25.66	23.97
SELECTIVITY							
CO TO C5+, PCT	35.98	32.36	36.83	39.17	34.70	37.00	36.90
CO C5+/CO HC(GAS)	1.32	1.11	1.35	1.50	1.25	1.42	1.41

EXPERIMENT 5-5 FISCHER-TROPSCH PROGRAM

REACTION TIME, HRS = 3.8 ROOM TEMP, C = 27.0 HYDROGEN/CO RATIO = 1.550

REACTOR	1	2	3	4	5	6	7
NOMINAL S, WT PCT	0.080	0.740	0.240	0.400	0	0	0
PRESSURE, KPA	990.000	970.000	1040.000	1020.000	1000.000	940.000	970.000
SPACE VEL, V/V/HR	298.000	298.000	251.000	238.000	245.000	251.000	251.000
INLET H ₂ FLOW, CC/MIN	104.36	104.36	101.74	96.53	99.14	101.74	101.74
INLET CO FLOW, CC/MIN	67.32	67.32	65.64	62.27	63.96	63.64	65.64
REACTOR TEMP, C	273.0	268.0	269.0	275.0	273.0	272.0	276.0
EXIT GAS COMPOSITION, MOLE PCT							
H ₂	56.57	56.33	56.04	55.37	56.57	56.33	57.29
CO	1.21	1.17	1.09	1.08	1.06	0.98	1.11
CO ₂	35.17	33.52	33.82	34.36	33.37	33.37	32.72
CH ₄	6.46	6.05	6.60	6.90	5.91	6.19	5.72
C ₂ H ₆	2.77	2.77	2.88	2.94	2.81	2.79	2.74
C ₂ H ₄	0.42	0.60	0.49	0.53	0.30	0.35	0.28
C ₃ H ₈	0.51	0.53	0.55	0.58	0.58	0.56	0.58
C ₃ H ₆	2.13	2.36	2.31	2.39	2.07	2.12	1.96
N-C ₄ H ₁₀	0.27	0.28	0.30	0.31	0.32	0.31	0.32
1-C ₄ H ₈	1.01	1.13	1.14	1.12	1.02	1.03	1.00
N-C ₅ H ₁₂	0.08	0.12	0.13	0.12	0.15	0.17	0.16
1-C ₅ H ₁₀	0.30	0.49	0.50	0.48	0.51	0.53	0.54
AVERAGE CONTRACTION, PCT							
CO ₂ -FREE CONTRACTION, PCT	59.81	59.61	61.96	60.95	59.33	60.37	59.37
H ₂ CONVERTED, CC/MIN	73.94	73.15	74.82	74.37	72.90	73.59	72.74
H ₂ CONVERTED, MOLES/MIN	65.32	65.30	66.03	62.19	61.62	64.38	62.78
H ₂ CONVERSION, PCT	2650.53	2650.53	2663.04	2524.39	2501.00	2613.04	2548.35
CO CONVERTED, CC/MIN	62.59	62.57	64.89	64.43	63.27	63.27	61.70
CO CONVERTED, MOLES/MIN	66.48	66.56	66.94	61.80	63.25	64.98	64.88
CO CONVERSION, PCT	2701.63	2701.63	2635.97	2500.39	2567.43	2637.67	2633.52
H ₂ USAGE RATIO	90.75	98.86	98.73	98.91	98.89	98.99	98.84
	0.495	0.495	0.504	0.502	0.493	0.497	0.491
GASEOUS PRODUCTS, MMOL/MIN							
CH ₄	180.96737	187.38497	170.81246	173.77993	159.35696	166.79364	157.92352
C ₂ H ₆	77.08334	78.05487	74.63421	74.07210	75.73159	75.11660	75.65683
C ₂ H ₄	11.89985	16.93875	12.81074	13.36578	8.10284	9.53281	7.81826
C ₃ H ₈	14.51262	15.12885	14.22854	14.67037	15.69492	15.25895	16.09008
C ₃ H ₆	59.90721	66.54957	59.74316	60.38284	55.80056	57.08827	54.27187
N-C ₄ H ₁₀	7.83057	8.03193	7.827.2	7.91568	8.65669	8.46850	9.05149
1-C ₄ H ₈	28.45934	31.84492	29.54358	28.33279	27.66897	27.82441	27.72817
CO ₂	985.07226	943.25500	874.01818	864.80578	896.39233	898.39233	908.56543
TOTAL HC (GAS), MMOL/MIN							
CO CONV TO GAS, MMOL/MIN	301.26	403.93	369.60	372.52	351.01	360.08	348.54
CO TO HC (GAS), MMOL/MIN	1713.62	1725.16	1591.12	1571.61	1585.20	1596.63	1591.64
CO CONVERTED TO C ₅ + HYDROCARBONS	728.55	761.91	717.10	718.81	696.81	698.30	683.07
MMOL/MIN	984.95	976.46	1044.85	916.77	982.22	1040.91	1041.87
CC/MIN	24.26	24.05	25.74	22.56	24.20	25.64	25.67
SELECTIVITY							
CO TO C ₅ +PCT	36.49	36.14	30.63	36.66	38.25	39.46	39.56
CO C ₅ /CO HC (GAS)	1.35	1.24	1.45	1.27	1.43	1.49	1.52

FISCHER-TROPSCH PROGRAM

EXPERIMENT 3-6

REACTION TIME, HRS = 3.5 ROOM TEMP, C = 20.0 HYDROGEN/CO RATIO = 1.960

REACTOR	1	2	3	4	5	6	7
NOMINAL SHT PCT	0.080	0.240	0.240	0.400	0	0	0
PRESSURE, KPA	990.000	970.000	1040.000	1020.000	1000.000	960.000	970.000
SPACE VEL, V/V/HR	255.000	255.000	255.000	250.000	241.000	256.000	249.000
INLET H2 FLOW, CC/MIN	112.69	112.69	112.69	110.44	106.50	110.44	109.88
INLET CO FLOW, CC/MIN	57.50	57.50	57.50	56.34	54.33	56.34	56.06
REACTOR TEMP, C	249.0	245.0	246.0	251.0	250.0	251.0	252.0

EXIT GAS COMPOSITION, MOLE PCT

H2	69.01	68.50	68.96	66.96	67.47	67.47	67.98
CO	1.42	1.21	1.16	1.25	1.56	1.52	1.94
CO2	24.95	25.70	27.71	28.01	27.95	28.01	27.95
CH4	2.95	3.23	3.37	3.15	2.73	2.88	2.51
C2H6	1.59	1.68	1.81	1.55	1.50	1.46	1.24
C2H4	0.21	0.23	0.23	0.31	0.21	0.24	0.24
C3H8	0.34	0.36	0.41	0.33	0.31	0.31	0.26
C3H6	1.08	1.21	1.24	1.14	1.03	1.07	0.96
N-C4H10	0.20	0.21	0.25	0.19	0.19	0.18	0.15
1-C4H8	0.49	0.58	0.57	0.53	0.49	0.50	0.46
N-C5H12	0.07	0.11	0.12	0.10	0.11	0.10	0.09
1-C5H10	0.17	0.20	0.23	0.24	0.25	0.27	0.26

AVG CONTRACTION, PCT	49.07	45.94	53.97	48.43	44.51	43.49	42.90
CO2-FREE CONTRACTION, PCT	61.78	59.84	66.73	62.88	60.02	59.32	58.86
H2 CONVERTED, CC/MIN	52.88	49.67	60.24	52.85	62.27	46.84	45.46
H2 CONVERTED, MOLES/MIN	2139.21	2009.58	2437.09	2131.98	1872.12	1895.01	1830.23
H2 CONVERSION, PCT	44.92	44.07	53.45	47.85	43.45	42.41	41.37
CO CONVERTED, CC/MIN	56.26	56.37	56.59	55.26	52.94	54.91	54.22
CO CONVERTED, MOLES/MIN	2275.94	2280.66	2280.20	2235.69	2141.73	2221.33	2193.50
CO CONVERSION, PCT	97.84	98.05	98.41	98.08	97.43	97.45	96.71
H2 USAGE RATIO	0.484	0.468	0.515	0.488	0.466	0.460	0.456

GASEOUS PRODUCTS, MOLES/MIN

CH4	103.76591	120.24409	107.06440	109.82800	98.84069	110.02005	96.42375
C2H6	56.06341	62.85109	57.38993	53.92706	54.49223	59.67869	47.84376
C2H4	7.44879	8.89524	7.29302	11.08682	7.67053	9.45029	9.29685
C3H8	12.20699	13.71105	13.08488	11.54925	11.40104	12.03975	10.08635
C3H6	38.19807	45.24471	39.57444	39.04415	37.41637	41.03224	37.17585
N-C4H10	7.35240	8.02135	7.93696	6.68260	6.94032	6.97379	6.07303
1-C4H8	17.40945	21.70336	18.29557	18.49009	17.92770	19.37232	17.92594
CO2	874.85241	956.67524	878.18908	974.63965	1009.43676	1068.13696	1071.64306

TOTAL HC(GAS), MOLES/MIN	242.44	280.67	250.64	251.40	234.68	254.56	224.82
CO CONV TO GAS, MOLES/MIN	1355.90	1516.12	1377.52	1400.34	1470.52	1573.01	1520.13
CO TO HC(GAS), MOLES/MIN	481.05	550.50	499.34	606.70	469.09	504.87	448.48
CO CONVERTED TO C5+ HYDROCARBONS	920.04	764.53	911.67	767.34	663.20	648.32	673.37
MOLES/MIN	22.74	18.89	22.53	18.94	16.39	16.02	16.64
SELECTIVITY							
CO TO C5+, PCT	40.42	33.32	39.82	34.27	30.96	29.18	30.69
CO C5+/CO HC(GAS)	1.91	1.31	1.82	1.04	1.41	1.28	1.50

FISCHER-TROPSCH PROGRAM

EXPERIMENT 3-7

REACTION TIME, HRS = 3.5 ROOM TEMP, C = 26.0 HYDROGEN/CO RATIO = 1.510

REACTOR	1	2	3	4	5	6	7
NOMINAL S.WT PCT	0.080	0.240	0.240	0.400	0	0	0
PRESSURE, KPA	990.000	970.000	1040.000	1020.000	1000.000	960.000	970.000
SPACE VEL, V/V/HR	259.000	253.000	261.000	247.000	240.000	250.000	253.000
INLET H2 FLOW, CC/MIN	103.69	101.55	104.76	98.88	96.20	100.21	101.55
INLET CO FLOW, CC/MIN	68.66	67.25	69.37	65.48	63.71	66.37	67.25
REACTOR TEMP, C	229.0	224.0	225.0	231.0	230.0	228.0	231.0
EXIT GAS COMPOSITION, MOLE PCT							
H2	64.43	64.11	63.92	63.92	64.43	64.93	64.93
CO	19.49	19.03	17.96	17.20	17.13	17.46	17.73
CO2	19.09	20.14	1.04	21.04	21.19	21.04	20.59
CH4	0.91	0.96	1.04	1.08	0.90	0.90	0.82
C2H6	0.25	0.25	0.28	0.26	0.22	0.21	0.19
C2H4	0.34	0.39	0.41	0.45	0.34	0.35	0.32
C3H8	0.09	0.10	0.11	0.11	0.09	0.09	0.08
C3H6	0.41	0.42	0.47	0.49	0.39	0.40	0.37
N-C4H10	0.06	0.06	0.07	0.07	0.06	0.06	0.05
1-C4H8	0.21	0.22	0.24	0.25	0.21	0.21	0.19
N-C5H12	0.03	0.03	0.04	0.04	0.04	0.04	0.04
1-C5H10	0.10	0.12	0.14	0.13	0.12	0.12	0.11
AVG CONTRACTION, PCT	35.74	29.65	37.26	35.05	33.71	34.26	32.66
CO2-FREE CONTRACTION, PCT	48.01	43.82	50.27	48.72	47.76	46.53	46.53
H2 CONVERTED, CC/MIN	32.33	25.41	34.91	30.63	27.90	25.11	27.74
H2 CONVERTED, MOLES/MIN	1316.64	1034.95	1421.95	1247.68	1136.52	1185.63	1129.75
H2 CONVERSION, PCT	31.18	25.02	33.33	30.98	29.00	29.05	27.31
CJ CONVERTED, CC/MIN	47.08	44.65	49.74	47.11	45.55	47.02	47.09
CJ CONVERTED, MOLES/MIN	1917.35	1818.35	2035.88	1918.76	1855.11	1915.14	1917.64
CO CONVERSION, PCT	68.56	66.39	71.70	71.95	71.49	70.85	70.01
H2 USAGE RATIO	0.407	0.362	0.412	0.394	0.379	0.382	0.370
GASEOUS PRODUCTS, MMOL/MIN							
CH4	41.15716	46.81372	46.63491	47.17593	38.45963	40.14273	38.24640
C2H6	11.40657	12.32916	12.70397	11.43793	4.7279	9.64073	9.15814
C2H4	15.57075	19.05000	18.41215	19.91497	15.09400	15.69107	15.16173
C3H8	4.29090	4.94347	5.04331	5.19190	4.01948	4.28760	3.98237
C3H6	18.87593	20.71409	21.13254	21.51535	17.20605	17.84823	17.29787
N-C4H10	2.82426	3.20433	3.43392	3.29203	2.67170	2.88979	2.69649
1-C4H8	9.89556	11.09900	11.04595	10.91868	9.07228	9.52640	9.08736
CO2	860.99511	974.07324	922.89807	914.84839	914.90966	938.41589	953.27819
TOTAL HC(GAS), MMOL/MIN	104.02	118.15	118.40	119.44	96.72	100.02	95.63
CO CONV TO GAS, MMOL/MIN	1076.48	1217.83	1168.21	1161.69	1114.25	1145.79	1151.14
CO TO HC(GAS), MMOL/MIN	215.49	243.75	245.31	246.84	199.34	206.57	197.86
CO CONVERTED TO C5+ HYDROCARBONS	840.86	600.52	857.67	757.07	740.85	769.85	766.50
MMOL/MIN	20.64	14.74	21.06	18.59	18.19	18.90	18.82
CC/MIN							
SELECTIVITY							
CO TO C5+, PCT	43.85	37.02	42.33	39.45	39.93	40.19	39.97
CO C5+/CO HC(GAS)	3.90	2.46	3.49	3.06	3.71	3.72	3.87

FISCHER-TROPSCH PROGRAM

EXPERIMENT 5-0

REACTION TIME, HRS = 3.9 ROOM TEMP, C = 26.0 HYDROGEN/CO RATIO = 1.460

REACTOR	1	2	3	4	5	6	7
NOMINAL S.W.T PCT	0.080	0.240	0.240	0.400	0	0	0
PRESSURE, KPA	990.000	970.000	1040.000	1020.000	1000.000	960.000	970.000
SPACE VEL, V/V/HR	257.000	259.000	247.000	254.000	244.000	250.000	251.000
INLET H2 FLOW, CC/MIN	101.75	102.53	97.89	100.46	96.50	98.72	99.17
INLET CO FLOW, CC/MIN	69.69	70.22	67.04	68.81	66.16	67.75	67.93
REACTOR TEMP, C	240.0	234.0	236.0	242.0	241.0	238.0	242.0

EXIT GAS COMPOSITION, MOLE PCT

H2	59.47	67.43	60.94	59.96	59.96	59.96	59.47
CO	3.80	4.83	4.60	5.02	3.84	5.17	4.33
CO2	36.07	32.16	33.82	33.82	34.42	35.17	35.17
CH4	2.13	2.15	2.18	2.15	1.96	1.67	1.81
C2H6	0.85	0.77	0.87	0.73	0.83	0.59	0.70
C2H4	0.47	0.51	0.48	0.59	0.41	0.44	0.41
C3H8	0.18	0.17	0.20	0.17	0.18	0.15	0.16
C3H6	0.05	0.01	0.04	0.05	0.09	0.08	0.07
N-C4H10	0.10	0.09	0.11	0.11	0.10	0.08	0.09
1-C4H8	0.39	0.37	0.37	0.39	0.32	0.34	0.34
N-C5H12	0.04	0.03	0.04	0.04	0.05	0.05	0.04
1-C5H10	0.16	0.14	0.15	0.15	0.16	0.14	0.16

AVG CONTRACTION, PCT	47.31	45.58	47.65	47.22	45.93	41.80	46.93
CO2-FREE CONTRACTION, PCT	66.32	63.09	65.36	65.07	64.54	62.27	65.60
H2 CONVERTED, CC/MIN	48.03	43.84	45.27	46.90	40.75	46.44	46.44
H2 CONVERTED, MOLES/MIN	1925.92	1785.53	1862.72	1909.90	1785.04	1659.76	1891.23
H2 CONVERSION, PCT	47.20	42.76	46.25	46.68	45.37	41.20	46.82
CO CONVERTED, CC/MIN	66.25	65.68	63.07	64.32	62.78	62.73	64.08
CO CONVERTED, MOLES/MIN	2698.14	2674.79	2588.47	2619.45	2556.70	2554.70	2609.62
CO CONVERSION, PCT	95.06	93.52	94.06	93.47	94.88	92.58	94.33
H2 USAGE RATIO	0.420	0.400	0.417	0.421	0.411	0.393	0.420

GASEOUS PRODUCTS, MOLES/MIN

CH4	78.48400	82.60081	76.71331	78.49713	70.37756	66.08264	65.66055
C2H6	31.28840	29.84891	30.61827	26.79668	29.75212	23.47090	25.57002
C2H4	17.46696	19.74029	16.94452	21.75434	14.87337	17.62850	14.88992
C3H8	6.63574	6.87532	7.23803	6.96172	6.53484	5.94843	5.87657
C3H6	31.35541	31.38395	29.6379	31.19765	28.23141	26.98797	26.78495
N-C4H10	3.80531	3.81142	4.13686	4.04542	3.70715	3.55508	3.36184
1-C4H8	14.48397	14.17403	13.20084	14.41844	13.26931	12.73114	12.61708
CO2	1327.07812	1231.38769	1189.04248	1230.36230	1233.59155	1389.44336	1270.12305

TOTAL HC(GAS), MOLES/MIN	183.51	188.44	178.47	183.67	166.84	156.40	154.76
CO CONV TO GAS, MOLE/MIN	1690.20	1599.90	1540.81	1594.29	1505.72	1701.67	1578.60
CO TO HC(GAS), MOLES/MIN	363.12	368.51	351.77	363.93	332.13	312.23	308.48
CO CONVERTED TO C5+ HYDROCARBONS	1007.93	1074.88	1027.65	1025.16	990.97	853.02	1031.02
MOLES/MIN	24.75	26.39	25.23	25.17	24.33	20.94	25.31
SELECTIVITY							
CO TO C5+ PCT	37.35	40.18	40.01	39.13	38.75	33.29	39.50
CO C5+/CO HC(GAS)	2.77	2.91	2.92	2.81	2.98	2.73	3.34

FISCHEK-TROPSH PROGRAM

EXPERIMENT 5-9

REACTION TIME, HRS =		4.5	ROOM TEMP, C =		29.0	HYDROGEN/CO RATIO =					1.550
REACTOR	1	2	3	4	5	6	7				
NOMINAL S, WT PCT	0.080	0.240	0.240	0.400	0	0	0				
PRESSURE, KPA	990.000	970.000	1040.000	1020.000	1000.000	960.000	970.000				
SPACE VEL, V/V/K	109.000	110.000	115.000	109.000	102.000	101.000	106.000				
INLET H2 FLOW, CC/MIN	44.15	44.60	46.65	44.15	41.44	40.76	43.02				
INLET CO FLOW, CC/MIN	28.49	28.78	30.09	28.49	26.73	26.30	27.76				
REACTOR TEMP, C	240.0	234.0	235.0	241.0	240.0	241.0	242.0				
EXIT GAS COMPOSITION, MOLE PCT											
H2	60.45	60.94	59.95	59.01	59.47	59.47	60.45				
CO	1.29	1.19	1.23	1.06	1.23	1.21	1.35				
CO2	34.72	33.67	33.52	35.62	36.07	35.23	35.17				
CH4	2.73	3.00	3.03	3.39	2.71	2.73	2.71				
C2H6	1.57	1.74	1.72	1.95	1.66	1.59	1.58				
C2H4	0.16	0.12	0.16	0.19	0.14	0.12	0.12				
C3H8	0.35	0.38	0.37	0.41	0.39	0.36	0.36				
C3H6	0.92	1.00	1.00	1.13	0.95	0.96	0.95				
N-C4H10	0.19	0.18	0.19	0.20	0.21	0.21	0.20				
1-C4H8	0.39	0.39	0.41	0.43	0.39	0.43	0.41				
N-C5H12	0.05	0.04	0.04	0.04	0.07	0.10	0.09				
1-C5H10	0.12	0.10	0.10	0.11	0.13	0.18	0.18				
AVG CONTRACTION, PCT											
CO2-FREE CONTRACTION, PCT	53.20	50.94	52.11	55.95	51.23	48.93	51.97				
H2 CONVERTED, CC/MIN	69.45	67.46	68.16	71.64	68.82	66.92	68.86				
H2 CONVERTED, MOLES/MIN	23.60	22.66	24.61	25.59	21.66	20.39	22.47				
H2 CONVERSION, PCT	951.70	913.95	992.42	1031.91	873.57	822.38	904.12				
CO CONVERTED, CC/MIN	53.45	50.81	52.71	57.95	52.28	50.03	52.23				
CO CONVERTED, MOLES/MIN	28.05	28.34	29.64	28.14	26.32	25.88	27.30				
CO CONVERSION, PCT	1130.92	1142.35	1192.16	1134.92	1061.41	1043.62	1100.73				
H2 USAGE RATIO	90.45	98.50	98.48	98.50	98.46	98.41	98.34				
	0.456	0.444	0.453	0.476	0.451	0.440	0.451				
GASEOUS PRODUCTS, MMOL/MIN											
CH4	17.55675	43.63700	44.93634	43.75341	36.40327	37.83290	37.22440				
C2H6	21.64612	25.40039	25.51775	25.20348	22.25980	22.03007	21.75770				
C2H4	2.32471	1.81371	2.51274	2.53344	1.91647	1.72554	1.86400				
C3H8	4.89197	5.63510	5.54331	5.41374	5.25721	5.09040	4.94573				
C3H6	12.66603	14.57443	14.81744	14.60739	12.82278	13.38814	13.02282				
N-C4H10	2.62345	2.74023	2.84650	2.54591	2.89494	2.92844	2.81843				
1-C4H8	5.43330	5.71566	6.14321	5.61834	5.34041	5.97737	5.68352				
CO2	476.00152	488.72884	496.6811	459.63781	483.63794	486.50726	482.13355				
TOTAL HC(GAS), MMOL/MIN											
CO CONV TO GAS, MMOL/MIN	87.14	99.48	102.37	99.75	86.90	88.97	87.11				
CO TO HC(GAS), MMOL/MIN	646.40	681.15	696.91	651.78	653.60	682.91	654.16				
CO TO HC(GAS), MMOL/MIN	170.39	192.42	198.23	192.14	171.95	176.40	171.98				
CO CONVERTED TO C5+ HYDROCARBONS, MMOL/MIN	484.52	461.81	500.25	483.13	405.80	380.71	446.57				
CC/MIN	12.01	11.45	12.40	11.98	10.06	9.44	11.07				
SELECTIVITY											
CO TO C5+, PCT	42.84	40.40	41.05	42.56	38.23	36.48	40.57				
CO C5+/CO HC(GAS)	2.84	2.39	2.52	2.51	2.35	2.15	2.59				

EXPERIMENT 5-10 FISCHER-TROPSCH PROGRAM

REACTION TIME, HRS = 3.5 ROOM TEMP, °C = 32.0 HYDROGEN/CO RATIO = 1.490

REACTOR	1	2	3	4	5	6	7
NOMINAL S.WT PCT	0.080	0.240	0.240	0.400	0	0	0
PRESSURE, KPA	1550.000	1500.000	1550.000	1530.000	1550.000	1520.000	1540.000
SPACE VEL, V/V/HR	238.000	254.000	233.000	248.000	248.000	248.000	257.000
INLET H2 FLOW, CC/MIN	94.94	101.32	96.76	99.04	99.04	99.04	102.46
INLET CO FLOW, CC/MIN	63.72	68.00	64.94	66.47	66.47	66.47	68.76
REACTOR TEMP, °C	240.0	235.0	236.0	242.0	240.0	241.0	242.0
EXIT GAS COMPOSITION, MOLE PCT							
H2	57.05	57.05	57.53	57.53	50.01	59.96	59.96
CO	1.59	1.25	1.67	1.70	1.50	1.84	1.84
CH4	38.33	38.78	38.63	38.78	38.93	37.58	37.58
C2H6	2.81	2.95	2.81	2.66	2.54	2.30	2.40
C2H4	1.59	1.62	1.48	1.32	1.45	1.20	1.26
C3H8	0.20	0.28	0.30	0.35	0.22	0.24	0.24
C3H6	0.34	0.34	0.31	0.29	0.30	0.27	0.27
N-C4H10	1.05	1.15	1.04	1.03	1.02	0.89	0.95
1-C4H8	0.16	0.18	0.17	0.16	0.17	0.15	0.15
N-C5H12	0.42	0.51	0.47	0.46	0.47	0.41	0.44
1-C5H10	0.07	0.06	0.06	0.06	0.07	0.06	0.07
1-C5H8	0.07	0.17	0.16	0.17	0.19	0.19	0.18
AVG CONTRACTION, PCT	51.47	49.21	45.58	50.65	49.45	45.42	46.85
CO2-FREE CONTRACTION, PCT	70.07	68.90	66.60	69.79	69.13	66.82	66.82
H2 CONVERTED, CC/MIN	51.01	52.26	46.13	52.05	50.50	44.87	47.89
H2 CONVERTED, MOLES/MIN	2036.66	2086.33	1841.82	2078.23	2016.15	1791.66	1912.03
H2 CONVERSION, PCT	53.73	51.57	47.67	52.55	50.98	45.31	46.74
CO CONVERTED, CC/MIN	62.49	66.92	63.46	65.08	65.21	64.00	67.08
CO CONVERTED, MOLES/MIN	2494.77	2671.69	2533.61	2598.20	2603.51	2587.16	2678.21
CO CONVERSION, PCT	98.06	98.41	97.73	97.90	98.10	97.49	97.55
H2 USAGE RATIO	0.449	0.438	0.420	0.444	0.436	0.409	0.416
GASEOUS PRODUCTS, MOLES/MIN							
CH4	86.45430	101.53378	98.80491	86.95471	85.03485	83.06027	87.19960
C2H6	49.04032	55.89012	52.04280	43.25703	48.50328	43.44104	45.83314
C2H4	6.31049	9.80603	10.66121	11.64039	7.45340	8.69042	9.07913
C3H8	10.48772	11.71355	11.21445	9.71733	10.34827	9.75780	10.11511
C3H6	32.40308	39.76483	36.80350	33.73186	34.12322	32.38110	34.51237
N-C4H10	5.08792	6.34854	6.31447	5.31218	5.91739	5.59568	5.73114
1-C4H8	12.98537	17.72607	16.67258	15.13321	15.93931	14.85722	16.10419
CO2	1178.29907	1331.50488	1357.18921	1264.46509	1300.45141	1355.17871	1365.23047
TOTAL HC(GAS), MOLES/MIN	202.76	242.80	232.51	205.74	207.31	197.78	208.57
CO CONV TO GAS, MOLES/MIN	1576.42	1815.18	1717.40	1673.34	1718.24	1730.72	1783.47
CO TO HC(GAS), MOLES/MIN	398.12	483.67	460.21	408.87	417.78	395.55	418.24
CO CONVERTED TO C5+ HYDROCARBONS							
MOLES/MIN	918.35	856.51	716.41	924.85	885.27	836.43	894.73
CC/MIN	23.00	21.45	17.94	23.16	22.17	20.95	22.41
SELECTIVITY							
CO TO C5+, PCT	36.81	32.05	28.27	35.59	34.00	32.33	33.40
CO C5+/CO HC(GAS)	2.30	1.77	1.55	2.22	2.11	2.11	2.13

FISCHER-TROPSCH PROGRAM
EXPERIMENT 5-11

REACTION TIME, HRS =		4.7	ROOM TEMP, C =		27.0	HYDROGEN/CO RATIO =					1.510
REACTOR	1	2	3	4	5	6	7				
NOMINAL S, WT PCT	0.080	0.240	0.240	0.400	0	0	0				
PRESSURE, KPA	2275.000	2225.000	2320.000	2275.000	2500.000	2250.000	2250.000				
SPACE VEL, V/V/HR	252.000	254.000	243.000	260.000	257.000	245.000	251.000				
INLET H2 FLOW, CC/MIN	101.20	101.86	97.46	104.28	102.96	98.34	100.76				
INLET CO FLOW, CC/MIN	67.01	67.45	64.54	69.05	68.11	65.12	66.72				
REACTOR TEMP, C	239.0	233.0	235.0	240.0	239.0	240.0	241.0				
EXIT GAS COMPOSITION, MOLE PCT											
H2	58.98	56.57	57.53	58.01	59.47	58.50	59.96				
CO	1.25	0.93	0.99	1.04	1.33	1.08	1.61				
CO2	35.92	37.12	36.67	36.97	35.47	36.22	35.17				
CH4	3.05	3.79	3.90	3.63	2.96	3.11	2.69				
C2H6	1.87	2.30	2.31	2.14	1.78	1.94	1.58				
C2H4	0.07	0.08	0.08	0.21	0.12	0.14	0.12				
C3H8	0.50	0.60	0.60	0.52	0.47	0.52	0.40				
C3H6	1.08	1.24	1.26	1.21	1.10	1.06	0.93				
N-C4H10	0.23	0.24	0.25	0.24	0.25	0.27	0.21				
1-C4H8	0.45	0.42	0.45	0.46	0.50	0.44	0.40				
N-C5H12	0.06	0.03	0.02	0.04	0.08	0.10	0.08				
1-C5H10	0.12	0.06	0.06	0.09	0.17	0.16	0.17				
AVG CONTRACTION, PCT											
CO2-FREE CONTRACTION, PCT	57.49	54.91	53.24	54.81	55.01	53.0	51.48				
H2 CONVERTED, CC/MIN	72.76	71.65	70.39	71.52	70.97	70.05	68.55				
H2 CONVERTED, MMOL/MIN	59.02	58.68	53.88	58.83	57.16	53.44	52.03				
H2 CONVERSION, PCT	2395.57	2381.65	2186.90	2387.93	2320.20	2169.04	2112.11				
CO CONVERSION, PCT	58.32	57.60	55.28	56.42	55.52	54.34	51.64				
CO CONVERSION, MMOL/MIN	66.12	66.74	63.78	68.23	67.16	64.29	65.41				
CO CONVERSION, PCT	2683.67	2709.12	2589.99	2769.64	2725.87	2609.52	2654.97				
CO CONVERSION, PCT	98.65	96.94	98.82	98.81	98.49	98.72	98.03				
H2 USAGE RATIO	0.471	0.467	0.457	0.462	0.459	0.453	0.443				
GASEOUS PRODUCTS, MMOL/MIN											
CH4	88.65292	117.47578	120.01208	115.62075	89.41064	96.97502	88.74885				
C2H6	54.42189	71.36195	71.06997	68.05639	55.70831	60.46374	52.34114				
C2H4	2.07214	2.76515	2.74414	6.81025	3.90519	4.44858	1.12073				
C3H8	14.56685	18.83113	18.56748	16.70639	14.70691	16.38940	13.44950				
C3H6	31.34536	38.50239	39.01004	38.47691	34.56996	33.24156	30.89904				
N-C4H10	7.39249	7.69156	7.87165	7.72866	8.04196	8.55561	7.20656				
1-C4H8	13.31821	13.08692	13.86935	14.75622	15.80956	13.97121	13.41452				
CO2	1042.57470	1150.25830	1127.65356	1175.61841	1108.67944	1128.49219	1159.95825				
TOTAL HC(GAS), MMOL/MIN											
CO CONV TO GAS, MMOL/MIN	211.76	269.71	273.14	268.15	222.15	234.02	210.18				
CO TO HC(GAS), MMOL/MIN	1464.79	1671.10	1654.99	1696.46	1560.55	1594.23	1577.16				
CO CONVERTED TO C5+ HYDROCARBONS, MMOL/MIN	422.22	520.84	527.33	520.84	451.87	465.73	417.20				
CO/MIN	1218.88	1037.92	934.00	1073.18	1165.31	1015.29	1077.81				
SELECTIVITY	30.03	25.57	23.01	26.44	28.71	25.01	26.55				
CO TO C5+, PCT	45.41	38.31	36.07	38.74	42.75	38.90	40.59				
CO C5+/CO HC(GAS)	2.88	1.99	1.77	2.06	2.57	2.17	2.58				

FISCHER-TROPSCH PROGRAM

EXPERIMENT 9-12

REACTION TIME, HRS = 4.6 ROOM TEMP, C = 31.0 HYDROGEN/CO RATIO = 1.490

REACTOR	1	2	3	4	5	6	7
NOMINAL S, MT PCT	0.080	0.240	0.240	0.400	0	0	0
PRESSURE, KPA	480.000	500.000	510.000	600.000	510.000	450.000	475.000
SPACE VEL, V/V/HR	246.000	258.000	261.000	258.000	246.000	259.000	251.000
INLET H ₂ FLOW, CC/MIN	97.47	102.88	107.23	102.88	98.01	103.42	100.17
INLET CO FLOW, CC/MIN	65.41	69.03	69.95	69.03	65.77	69.41	67.23
REACTOR TEMP, C	240.0	235.0	237.0	243.0	241.0	239.0	243.0
EXIT GAS COMPOSITION, MOLE PCT							
H ₂	61.93	61.57	61.93	60.94	61.44	61.93	61.93
CO	17.13	14.84	16.90	17.43	16.74	16.90	15.22
CO ₂	22.84	24.95	22.24	22.54	23.44	23.14	24.95
CH ₄	0.58	0.66	0.75	0.72	0.64	0.63	0.62
C ₂ H ₆	0.08	0.09	0.12	0.10	0.09	0.09	0.09
C ₂ H ₄	0.25	0.31	0.33	0.34	0.28	0.28	0.26
C ₃ H ₈	0.04	0.04	0.05	0.05	0.04	0.04	0.04
C ₃ H ₆	0.24	0.28	0.31	0.31	0.26	0.26	0.25
N-C ₄ H ₁₀	0.02	0.02	0.03	0.03	0.02	0.02	0.02
1-C ₄ H ₈	0.12	0.13	0.14	0.15	0.12	0.12	0.12
N-C ₅ H ₁₂	0.01	0.01	0.01	0.01	0.01	0.01	0.01
1-C ₅ H ₁₀	0.07	0.05	0.06	0.06	0.05	0.05	0.05
AVG CONTRACTIONS, PCT							
CO ₂ -FREE CONTRACTION, PCT	28.17	27.18	36.96	32.97	32.84	31.84	30.47
H ₂ CONVERTED, CC/MIN	44.58	45.35	50.98	48.08	48.58	47.62	47.81
H ₂ CONVERTED, MOLES/MIN	25.00	25.34	30.42	30.42	30.42	30.46	28.08
H ₂ CONVERTED, PCT	1001.61	1015.10	1451.06	1307.55	1218.64	1220.24	1124.83
CO CONVERTED, CC/MIN	25.65	24.63	34.75	31.72	31.04	29.45	28.03
CO CONVERTED, MOLES/MIN	45.37	50.46	51.39	48.95	47.35	49.50	49.50
CO CONVERTED, PCT	1817.39	2021.24	2058.60	1960.91	1896.67	1962.73	1982.95
H ₂ USAGE RATIO	69.36	73.08	73.47	70.90	71.98	71.31	73.63
	0.355	0.334	0.413	0.400	0.391	0.380	0.361
GASEOUS PRODUCTS, MOLES/MIN							
CH ₄	27.55254	33.13103	33.05431	33.57580	28.44110	29.88585	28.96549
C ₂ H ₆	4.00505	4.69391	5.54838	4.88446	4.30335	4.41647	4.36398
C ₂ H ₄	12.12984	15.77738	14.62177	16.06856	12.58386	13.3719	12.27570
C ₃ H ₈	1.92962	2.31067	2.24203	2.42120	1.92216	2.22036	2.19397
C ₃ H ₆	11.43468	14.19385	13.87876	14.64274	11.68227	12.35714	12.05860
N-C ₄ H ₁₀	1.22709	1.41035	1.47856	1.47734	1.15367	1.18972	1.20572
1-C ₄ H ₈	5.71271	6.73421	6.53660	7.13188	5.65814	5.90556	5.95695
CO ₂	1070.73095	1251.30542	978.39648	1040.83789	1031.16137	1092.23706	1163.35425
TOTAL HC (GAS), MOLES/MIN							
CO CONV TO GAS, MOLES/MIN	63.99	78.25	77.36	77.20	65.74	69.74	67.02
CO TO HC (GAS), MOLES/MIN	1198.40	1407.47	1132.21	1201.94	1143.43	1229.81	1297.00
CO CONVERTED TO C ₅ + HYDROCARBONS	127.67	156.16	153.81	161.11	130.27	137.57	133.65
MOLES/MIN	618.99	613.77	926.39	758.97	733.23	752.92	685.95
CC/MIN	15.45	15.32	23.12	18.94	18.30	18.79	17.12
SELECTIVITY							
CO TO C ₅ +, PCT	34.05	30.36	45.00	38.70	38.65	37.97	34.59
CO C ₅ +/CO HC (GAS)	4.84	3.93	6.02	4.71	5.62	5.47	5.13

Experimental Conditions and Results

Run 6

Catalyst — 3% Co-oxide + 11% MoO₃ Supported on Alumina
[used without Alkali Promoter or with 3.45% K₂O
Promoter]

Note: The pretreatment and sulfiding procedures of the catalyst in each reactor and the longitudinal sulfur gradients in the catalyst beds are given in Section 3.3.1, page 64.
Nominal S, wt% = ***** = fully sulfided catalyst.
MMOLES = Micromoles

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-1

REACTION TIME, HRS = 5.2 ROOM TEMP, C = 25.5 HYDROGEN/CO RATIO = 2.100

REACTOR	1	2	3	4	5	7
ALKALI PROMOTER	NO	NO	YES	YES	NO	YES
NOMINAL S.M.T PCT	1.000	*****	0.980	*****	0.000	0.000
PRESSURE, KPA	1460.000	1450.000	1520.000	1510.000	1450.000	1500.000
SPACE VEL, V/V/HR	202.400	218.200	202.400	197.500	190.100	199.900
INLET H2 FLOW, CC/MIN	114.28	123.20	114.28	111.49	107.31	112.89
INLET H2 FLOW, MMOL/MIN	4661.61	5025.53	4661.61	4568.04	4377.54	4604.96
INLET CO FLOW, CC/MIN	54.41	58.66	54.41	53.09	51.10	53.75
INLET CO FLOW, MMOL/MIN	2219.81	2393.11	2219.81	2165.73	2084.54	2192.84
REACTOR TEMP, C	303.0	303.0	303.0	302.0	302.0	303.0

EXIT GAS COMPOSITION, MOLE PCT

H2	65.44	65.44	66.45	67.98	64.93	68.50
CO	15.53	16.97	20.63	22.23	10.81	13.47
CO2	13.22	12.25	8.92	7.96	16.23	14.43
CH4	7.07	6.28	3.90	2.81	8.45	5.23
C2H6+C2H4	2.91	3.34	1.67	2.01	2.92	2.65
C3H8	0.28	0.45	0.31	0.44	0.77	0.74
C3H6	0.00	0.00	0.06	0.00	0.00	0.01
I-C4H10	0.00	0.01	0.01	0.01	0.02	0.02
N-C4H10	0.05	0.04	0.08	0.07	0.23	0.22
I-C4H8	0.00	0.00	0.01	0.00	0.00	0.00
I-C4H6	0.00	0.00	0.00	0.00	0.00	0.00
C15-2-C4H8	0.00	0.00	0.01	0.00	0.00	0.00
I-C5H10	0.00	0.00	0.01	0.00	0.00	0.00
N-C5H12	0.01	0.00	0.02	0.00	0.01	0.01
					0.06	0.06

AVG CONTRACTION, PCT	35.68	29.20	36.72	34.07	25.79	33.54
CO2-FREE CONTRACTION, PCT	44.19	37.88	42.36	39.33	37.25	43.13
H2 CONVERTED, CC/MIN	43.27	38.94	43.33	37.72	30.25	37.02
H2 CONVERTED, MMOL/MIN	1765.31	1588.68	1767.85	1539.01	1234.77	1510.32
H2 CONVERSION, PCT	37.86	31.61	37.92	37.83	28.19	32.79
CO CONVERTED, CC/MIN	37.56	36.80	32.39	28.97	38.27	38.83
CO CONVERTED, MMOL/MIN	1532.40	1501.43	1321.37	1181.79	1561.20	1584.04
CO CONVERSION, PCT	69.03	62.74	59.52	54.56	74.99	72.23
TOTAL H2+CO CONV	47.92	41.65	44.89	40.52	43.25	45.52
ACTUAL H2 CONV, PCT	50.42	44.41	46.26	41.59	46.14	46.95
ACTUAL CO CONV, PCT	42.65	35.85	42.01	30.28	37.19	42.50
H2 USAGE RATIO	0.535	0.514	0.572	0.565	0.441	0.488

GASEOUS PRODUCTS, MMOL/MIN

CH4	348.62835	370.17683	169.92923	124.73857	409.29199	236.69448
C2H6+C2H4	129.16830	175.86373	72.90661	89.05815	136.81427	120.05007
C3H8	12.48123	23.87583	13.76198	19.48232	37.65828	33.82704
C3H6	0.16047	0.38085	2.72356	0.32095	0.17551	0.65521
I-C4H10	0.21395	0.79792	0.71136	0.67242	1.06374	1.06074
N-C4H10	2.56460	2.17962	3.51207	3.20575	11.14414	10.22350
I-C4H8	0.00000	0.18064	0.56916	0.00000	0.09990	0.13985
I-C4H6	0.00000	0.17353	0.35371	0.00000	0.00000	0.22391
C15-2-C4H8	0.00000	0.00000	0.69349	0.00000	0.00000	0.16929
CO2	505.45361	643.4034	380.64361	352.60272	785.05925	651.92114

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-1

REACTOR	1	2	3	4	5	7
TOTAL HC (GAS), MMOL/HR	493.21	533.64	265.02	237.57	596.25	403.04
CO CONV TO GAS, MMOL/HR	1241.45	1411.42	776.66	730.68	1631.53	1279.43
CO TO HC (GAS), MMOL/HR	656.00	768.02	388.02	378.07	845.67	627.51
CO CONVERTED TO C5+ HYDROCARBONS MMOL/HR	290.95	90.01	544.70	451.11	0.00	304.61
CC/HR	7.13	2.20	13.35	11.05	0.00	7.46
SELECTIVITY						
CO TO C5+, PCT	18.98	5.99	41.22	38.17	0.00	19.23
CO TO CO2, PCT	38.20	42.85	29.41	29.83	50.33	41.15
CO TO CH4, PCT	22.75	21.99	12.86	10.55	25.21	14.94
CO C5+/CO HC (GAS)	0.44	0.11	1.40	1.19	0.00	0.48

FISCHER-TRUPSCH PROGRAM

EXPERIMENT 6-2

REACTION TIME, HRS = 3.8 ROOM TEMP, C = 25.5 HYDROGEN/CO RATIO = 2.010

REACTOR	1	2	3	4	5	6	7
ALKALI PROMOTER	NO	NO	YES	YES	NO	YES	YES
NOMINAL S, WT PCT	1.000	*****	0.980	*****	0.000	0.000	0.000
PRESSURE, KPA	1510.000	1510.000	1550.000	1550.000	1510.000	1510.000	1520.000
SPACE VEL, V/V/HR	188.700	212.300	195.900	209.900	209.900	217.100	191.100
INLET H2 FLOW, CC/MIN	105.02	118.16	108.96	116.84	116.84	120.78	106.34
INLET CO FLOW, CC/MIN	4284.16	4819.95	4444.87	4766.29	4766.29	4927.00	4337.82
INLET CO FLOW, CC/MIN	52.25	58.78	56.21	58.13	58.13	60.09	52.90
INLET CO FLOW, CC/MIN	2131.42	2397.99	2211.30	2371.29	2371.29	2451.24	2158.12
REACTOR TEMP, C	351.0	351.0	351.0	350.0	348.0	349.0	350.0

EXIT GAS COMPOSITION, MOLE PCT

H2	55.61	55.61	60.45	62.93	55.61	60.45	59.96
CO	11.57	9.04	14.92	20.70	12.41	12.41	11.72
CO2	18.18	19.91	15.78	11.14	20.74	18.56	19.01
CH4	15.24	14.59	8.96	5.16	13.29	8.23	8.70
C2H6+C2H4	2.70	4.60	2.88	2.81	3.80	3.80	3.93
C3H8	0.08	0.24	0.44	0.45	0.66	0.87	0.87
C3H6	0.00	0.00	0.02	0.00	0.00	0.00	0.00
1-C4H10	0.00	0.00	0.01	0.00	0.01	0.02	0.02
1-C4H8	0.01	0.01	0.08	0.05	0.13	0.21	0.20
1-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C4H2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C15-2-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C5H12	0.00	0.00	0.01	0.00	0.02	0.04	0.04

AVG CONTRACTION, PCT

CO2-FREE CONTRACTION, PCT	26.24	34.44	35.04	25.93	33.36	30.20	31.35
H2 CONVERTED, CC/MIN	39.66	47.50	45.29	34.36	47.18	43.15	44.36
H2 CONVERTED, MMOL/MIN	40.51	53.64	4.88	35.78	51.99	46.46	40.38
CO CONVERTED, CC/MIN	1652.56	2188.35	1830.87	1439.50	2121.08	1813.67	1671.65
CO CONVERTED, MMOL/MIN	38.57	45.40	41.19	30.20	44.50	36.81	38.53
CO CONVERTED, CC/MIN	38.82	47.30	38.39	31.29	47.30	44.42	40.12
CO CONVERTED, MMOL/MIN	1583.81	1929.65	1566.15	1276.51	1929.50	1812.14	1636.90
CO CONVERSION, PCT	74.30	80.46	70.82	53.03	81.36	73.92	75.84
TOTAL H2+CO CONV	50.44	57.05	51.03	38.05	56.75	49.14	50.93
ACTUAL H2 CONV, PCT	58.65	64.95	56.54	42.78	65.20	56.21	58.02
ACTUAL CO CONV, PCT	33.93	41.16	39.96	26.53	39.76	34.92	36.66
H2 USAGE RATIO	0.510	0.531	0.538	0.530	0.523	0.500	0.505

GASEOUS PRODUCTS, MMOL/MIN

CH4	721.51757	690.74194	387.46637	273.16015	632.44506	424.27038	387.18628
C2H6+C2H4	127.92140	218.04785	124.86373	148.60336	181.18524	196.18042	174.33929
C3H8	4.14123	11.73350	19.44676	24.16177	31.79807	45.07165	38.91336
C3H6	0.00000	0.00000	0.87746	0.00000	0.00000	0.00000	0.00000
1-C4H10	0.00000	0.00000	0.53748	0.11111	0.74725	1.49377	1.32033
1-C4H8	0.62989	0.61136	3.72440	3.12553	6.55495	10.88813	9.19154
1-C4H6	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1-C4H2	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C15-2-C4H6	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
CO2	860.64367	942.44043	692.44661	599.97339	936.63745	956.04516	845.45777

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-2

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS),MMOLES/MIN	854.21	921.13	536.91	449.56	832.73	677.90	611.43
CO CONV TO GAS,MMOLE/MIN	1052.94	2106.92	1397.67	1257.37	2106.05	1957.41	1741.12
CO TO HC(GAS),MMOLES/MIN	992.30	1164.46	715.21	657.39	1119.41	1001.37	895.65
CO CONVERTED TO C5+ HYDROCARBONS							
MMOLES/MIN	0.00	0.00	163.47	16.14	0.00	0.00	0.00
CC/MIN	0.00	0.00	4.13	0.46	0.00	0.00	0.00
SELECTIVITY							
CO TO C5+,PCT	0.00	0.00	10.75	1.49	0.00	0.00	0.00
CO TO CO2, PCT	54.33	48.83	43.57	47.00	51.13	52.75	51.65
CO TO CH4, PCT	45.35	35.79	24.74	21.39	32.77	23.71	23.65
CO C5+/CO HC(GAS)	0.00	0.00	0.23	0.02	0.00	0.00	0.00

EXPERIMENT 6-3

FISCHER-TROPSCH PROGRAM

REACTION TIME, HRS = 4.0 ROOM TEMP, C = 30.5 HYDROGEN/CO RATIO = 2.210

REACTOR	1	2	3	4	5	6	7
ALKALI PROMOTER	NO	NO	YES	YES	NO	YES	YES
NOMINAL S.WT PCT	1.000	*****	0.980	*****	0.000	0.000	0.000
PRESSURE, KPA	2480.000	2525.000	2515.000	2420.000	2470.000	2470.000	2470.000
SPACE VEL, V/VHR	195.600	193.700	189.600	186.900	195.600	195.600	195.600
INLET H2 FLOW, C/MIN	113.16	112.06	109.86	108.11	113.16	113.16	113.16
INLET CO FLOW, CC/MIN	4540.12	4495.94	4477.83	4317.37	4540.12	4540.12	4540.12
INLET CO FLOW, CC/MIN	49.85	49.54	48.40	47.62	49.85	49.85	49.85
INLET CO FLOW, CC/MIN	2000.05	1982.54	1941.77	1910.73	2000.05	2000.05	2000.05
REACTOR TEMP, C	351.0	351.0	351.0	349.0	348.0	348.0	350.0
EXIT GAS COMPOSITION, MOLE PCT							
H2	59.47	54.68	63.92	63.02	60.94	66.73	66.43
CO	5.90	3.50	7.01	7.01	6.28	8.52	8.45
CH4	16.23	18.63	12.85	14.08	15.30	14.53	15.33
C2H6+C2H4	15.17	17.19	10.11	8.38	12.43	8.13	8.33
C3H8	2.45	5.83	2.27	3.44	3.19	3.19	3.19
C3H6	0.05	0.33	0.22	0.67	0.49	0.62	0.69
1-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C4H10	0.00	0.00	0.00	0.01	0.01	0.02	0.01
1-C4H8	0.00	0.01	0.02	0.08	0.09	0.11	0.12
1-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C15-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C5H12	0.00	0.00	0.00	0.00	0.01	0.02	0.03
Avg CONTRACTION, PCT	32.67	33.56	35.97	36.06	34.21	26.03	27.61
CO2-FREE CONTRACTION, PCT	43.60	45.94	44.20	46.25	44.76	36.91	38.71
H2 CONVERTED, CC/MIN	47.89	53.43	45.03	45.25	47.80	34.91	37.13
H2 CONVERTED, MOLES/MIN	1921.36	2143.72	1808.92	1815.60	1917.70	1400.31	1485.09
H2 CONVERSION, PCT	42.31	47.68	41.03	41.85	42.23	30.85	32.81
CO CONVERTED, CC/MIN	43.37	45.61	38.37	39.84	43.11	39.57	39.98
CO CONVERTED, MOLES/MIN	1740.25	1829.85	1539.41	1598.37	1727.79	1587.92	1599.97
CO CONVERSION, PCT	87.01	92.39	79.27	83.65	85.40	79.33	77.99
TOTAL H2+CO CONV	55.98	61.35	52.73	54.63	55.77	45.63	47.24
ACTUAL H2 CONV, PCT	58.06	65.52	52.89	55.39	57.69	46.46	48.90
ACTUAL CO CONV, PCT	51.27	51.89	52.37	52.92	51.39	43.96	43.70
H2 USAGE RATIO	0.524	0.539	0.540	0.531	0.525	0.468	0.462
GASEOUS PRODUCTS, MOLES/MIN							
CH4	668.21460	740.05908	411.29943	330.70147	531.83264	394.78228	395.14445
C2H6+C2H4	108.21383	251.15347	92.41030	164.21527	148.04837	154.45735	149.79852
C3H8	2.30143	14.63549	8.94420	26.46978	2.33943	30.20476	28.31210
C3H6	0.00000	0.00000	0.22110	0.70000	0.00000	0.00000	0.00000
1-C4H10	0.00000	0.14857	0.28074	0.54486	0.50515	0.96918	0.86335
N-C4H10	0.00000	0.57276	1.17783	3.21264	4.00948	6.54933	5.93124
1-C4H8	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1-C4H6	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C15-2-C4H8	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
CO2	714.81555	602.01716	522.48022	587.06551	701.76671	708.52856	725.85168

EXPERIMENT 6-3

FISCHER-TROPSCH PROGRAM

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS), MMOL/ MIN	778.86	1006.36	514.34	525.14	708.73	586.96	580.05
CO CONV TO GAS, MMOL/ MIN	1606.91	2090.57	1151.94	1340.63	1614.77	1532.90	1532.71
CO TO HC(GAS), MMOL/ MIN	892.09	1288.55	629.46	753.57	913.00	824.38	806.86
CO CONVERTED TO C5+ HYDROCARBONS MMOL/ MIN	133.23	0.00	387.46	257.73	115.01	54.91	67.25
CC/ MIN	3.32	0.00	9.65	6.42	2.86	1.36	1.67
SELECTIVITY							
CO TO C5+, PCT	7.66	0.00	25.16	16.12	6.64	3.45	4.20
CO TO CO2, PCT	41.07	43.82	33.94	36.72	33.56	44.62	45.36
CO TO CH4, PCT	38.39	40.44	26.71	20.68	30.91	24.86	24.69
CO C5+/CO HC(GAS)	0.14	0.00	0.61	0.34	0.12	0.06	0.08

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-4

REACTION TIME, HRS =	4.1	ROOM TEMP, C =	26.5	HYDROGEN/CO RATIO =		1.960			
REACTOR	1	2	3	4	5	6	7		
ALKALI PROMOTER	NO	NO	YES	YES	NO	YES	YES		
NOMINAL S.I.M.T PCT	1.000	*****	0.980	*****	0.900	0.000	0.000		
PRESSURE, KPA	2045.000	1780.000	2080.000	2070.000	2050.000	2035.000	2035.000		
SPACE VEL., V/V/HR	192.100	183.700	190.000	195.500	200.800	198.100	197.300		
INLET H2 FLOW, CC/MIN	106.02	104.11	105.31	110.09	110.81	109.61	104.89		
INLET H2 FLOW, CC/MIN	4310.43	4232.43	4281.35	4475.99	4505.06	4450.51	4427.26		
INLET CO FLOW, CC/MIN	54.09	53.11	53.72	56.17	55.53	53.72	55.56		
INLET CO FLOW, CC/MIN	2199.20	2159.50	2184.36	2203.66	2299.50	2273.66	2259.80		
REACTOR TEMP, C	351.0	351.0	351.0	343.0	348.0	348.0	349.0		
EXIT GAS COMPOSITION, MOLE PCT									
H2	53.25	50.00	57.05	59.47	55.61	58.31	58.01		
CO	12.18	6.72	15.45	15.98	12.71	12.96	12.60		
CO2	18.33	22.84	15.93	15.48	18.18	18.41	18.41		
CH4	15.75	16.40	10.26	7.22	11.99	8.59	8.92		
C2H6+C2H4	3.93	6.75	2.78	4.13	3.28	3.11	3.79		
C3H8	0.05	0.46	0.36	0.77	0.53	0.81	0.81		
C3H6	0.00	0.00	0.01	0.00	0.00	0.00	0.00		
1-C4H10	0.00	0.00	0.01	0.02	0.01	0.02	0.16		
N-C4H10	0.00	0.00	0.05	0.10	0.09	0.19	0.00		
1-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
C15-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
N-C5H12	0.00	0.00	0.00	0.00	0.01	0.04	0.04		
AVG CONTRACTION, PCT	37.26	36.39	35.23	38.50	29.63	28.11	30.60		
CO2-FREE CONTRACTION, PCT	50.40	50.93	45.55	48.27	42.40	41.13	43.44		
H2 CONVERTED, CC/MIN	54.23	54.11	46.54	49.58	45.32	40.57	47.75		
H2 CONVERTED, MMOL/MIN	2205.06	2199.86	1892.31	2015.69	1845.67	1649.50	1739.36		
H2 CONVERSION, PCT	51.15	51.97	44.19	45.03	40.90	37.01	32.26		
CO CONVERTED, CC/MIN	42.24	46.18	37.81	39.90	41.56	40.61	41.19		
CO CONVERTED, MMOL/MIN	1717.57	1877.83	1537.17	1622.28	1683.03	1651.14	1674.87		
CO CONVERSION, PCT	78.09	86.75	70.37	71.03	73.51	72.62	74.14		
TOTAL H2+CO CONV.	60.25	63.79	53.04	53.21	51.92	49.04	51.04		
ACTUAL H2 CONV, PCT	67.97	73.92	59.78	59.34	60.22	56.67	58.54		
ACTUAL CO CONV, PCT	45.13	43.94	39.82	42.09	35.63	34.07	36.36		
H2 USAGE RATIO	0.562	0.539	0.551	0.554	0.521	0.499	0.509		
GASEOUS PRODUCTS, MMOL/MIN									
CH4	622.87390	666.92932	429.71398	298.94305	574.27905	416.05230	416.99243		
C2H6+C2H4	115.99601	274.77227	116.42222	170.92547	157.36016	189.49914	185.09655		
C3H8	2.25878	17.88940	15.16843	31.98002	25.60358	39.51877	37.74565		
C3H6	0.00000	0.00000	0.60733	0.05624	10848	0.21927	0.12602		
1-C4H10	0.00000	0.14038	0.43377	0.72945	0.59507	1.36693	1.26426		
N-C4H10	0.16753	0.37406	2.44286	4.43772	4.64823	9.43305	8.56490		
1-C4H8	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000		
C15-2-C4H8	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000		
CO2	725.06518	928.90478	667.22753	640.47070	870.71069	875.31762	853.43115		

EXPERIMENT 6-4

FISCHER-TROPSCH PROGRAM

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS),MMOLES/MIN	741.29	960.10	564.78	507.17	762.59	656.09	649.78
CO CONV TO GAS,MMOLE/MIN	1987.35	2201.10	1388.61	1398.43	1837.81	1833.73	1793.54
CO TO HC(GAS),MMOLES/MIN	862.29	1272.19	721.39	757.96	987.10	957.47	940.11
CO CONVERTED TO C5+ HYDROCARBONS MMOLES/MIN	130.21	0.00	148.55	223.84	0.00	0.00	0.00
CC/MIN	3.20	0.00	3.65	5.50	0.00	0.00	0.00
SELECTIVITY							
CO TO C5+,PCT	7.58	0.00	9.66	13.79	0.00	0.00	0.00
CO TO CO2, PCT	42.21	49.46	43.40	39.47	51.52	53.07	50.95
CO TO CH4, PCT	36.26	35.51	27.95	18.42	33.98	25.19	24.89
CO C5+/CO HC(GAS)	0.15	0.00	0.20	0.29	0.00	0.00	0.00

EXPERIMENT 6-5

FISCHER-TROPSCH PROGRAM

REACTION TIME, HRS = 4.5 ROOM TEMP, C = 26.5 HYDROGEN/CO RATIO = 2.080

REACTOR	1	2	3	4	5	6	7
ALKALI PROMOTER	NO	NO	YES	YES	NO	YES	YES
NOMINAL S.M.T PCT	1.000	*****	0.980	*****	0.000	0.000	0.000
PRESSURE, KPA	2060.000	2010.000	2100.000	2100.000	2050.000	2050.000	2050.000
SPACE VEL, V/V/HK	198.400	192.000	198.500	200.700	207.300	209.500	211.600
INLET H2 FLOW, CC/MIN	110.51	103.05	111.73	112.95	116.64	117.87	119.10
INLET CO FLOW, CC/MIN	4492.75	4322.82	4542.45	4502.41	4762.32	4792.29	4861.98
INLET CO FLOW, CC/MIN	51.12	51.94	53.71	54.30	56.08	56.67	57.25
INLET CO FLOW, CC/MIN	2159.97	2111.93	2183.97	2207.09	2279.96	2301.98	2327.97
REACTOR TEMP, C	376.0	376.0	376.0	374.0	374.0	375.0	349.0
EXIT GAS COMPOSITION, MOLE PCT							
H2	51.61	49.54	57.53	58.98	59.47	50.50	58.50
CO	8.45	5.32	12.39	12.94	12.75	11.38	10.96
CO2	18.79	20.96	15.25	15.18	15.18	16.76	15.63
CH4	19.29	19.07	12.14	9.68	9.62	9.62	10.18
C2H6+C2H4	1.97	5.03	3.10	3.56	3.53	3.56	3.59
C3H8	0.02	0.21	0.20	0.50	0.49	0.60	0.60
C3H6	0.00	0.00	0.01	0.00	0.00	0.00	0.00
I-C4H10	0.00	0.00	0.00	0.01	0.01	0.01	0.01
N-C4H10	0.00	0.00	0.02	0.05	0.05	0.12	0.12
I-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CIS-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C5H12	0.00	0.00	0.00	0.00	0.00	0.02	0.02
AVG CONTRACTION, PCT	38.40	33.25	34.72	32.44	32.72	29.64	31.95
CO2-FREE CONTRACTION, PCT	49.37	47.24	44.68	42.70	42.94	41.43	42.59
H2 CONVERTED, CC/MIN	58.48	55.14	49.59	46.30	47.53	46.03	48.89
H2 CONVERTED, MOLES/MIN	2377.49	2241.72	2016.28	1892.50	1932.63	1871.61	1987.94
H2 CONVERSION, PCT	52.91	51.03	44.38	40.99	40.75	39.05	41.05
CO CONVERTED, CC/MIN	44.61	46.25	39.24	39.68	41.26	42.69	44.10
CO CONVERTED, MOLES/MIN	1813.65	1860.52	1595.51	1613.28	1677.51	1735.73	1791.01
CO CONVERSION, PCT	63.45	89.04	73.02	73.06	73.57	75.33	77.02
TOTAL H2+CO CONV	62.99	63.37	53.69	51.40	51.40	50.83	52.73
ACTUAL H2 CONV, PCT	70.05	71.75	59.13	56.17	55.87	56.51	56.80
ACTUAL CO CONV, PCT	48.31	45.93	42.38	41.47	42.11	39.01	44.26
H2 USAGE RATIO	0.567	0.543	0.558	0.538	0.535	0.518	0.525
GASEOUS PRODUCTS, MOLES/MIN							
CH4	790.72546	828.37932	533.07336	444.87414	454.05835	490.67187	497.11206
C2H6+C2H4	81.07678	210.75860	95.77059	163.71429	166.89917	177.92250	175.35464
C3H8	0.99627	9.39460	8.26644	23.23052	23.31414	30.10205	29.65093
C3H6	0.00000	0.00000	0.81551	0.00000	0.00000	0.33961	0.32061
I-C4H10	0.01415	0.08245	0.25773	0.62279	0.58724	0.94911	0.87597
N-C4H10	0.06738	0.27199	1.13460	2.55612	2.55247	4.23540	5.97862
I-C4H8	0.00000	0.00000	0.06041	0.00000	0.00000	0.05151	0.05034
I-C4H8	0.00000	0.00000	0.05440	0.00000	0.00000	0.06186	0.06045
CIS-2-C4H8	0.00000	0.00000	0.10283	0.00000	0.00000	0.07015	0.06955
CO2	770.01306	910.48547	669.91150	697.47332	717.22448	816.75376	762.67968

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-5

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS), MMOL/HR	872.88	1056.88	640.23	634.97	647.41	706.39	709.47
CO CONV TO GAS, MMOL/HR	1726.20	2205.98	1430.31	1552.09	1587.58	1804.04	1728.55
CO TO HC(GAS), MMOL/HR	956.19	1255.49	760.40	854.62	870.35	967.28	965.87
CO CONVERTED TO C5+ HYDROCARBONS MMOL/HR	87.44	0.00	165.20	61.19	89.92	0.00	64.46
CC/HR	2.15	0.00	4.06	1.51	2.21	0.00	1.58
SELECTIVITY							
CO TO C5+, PCT	4.82	0.00	10.35	3.19	5.36	0.00	3.59
CO TO C2+, PCT	42.45	48.41	41.98	43.23	42.75	48.20	42.53
CO TO CH4, PCT	43.59	44.05	33.41	27.57	27.06	28.26	27.72
CO C5+/CO HC(GAS)	0.09	0.00	0.21	0.07	0.10	0.00	0.06

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-6

REACTION TIME, HRS = 4.7 ROOM TEMP, C = 25.5 HYDROGEN/CO RATIO = 2.140

REACTOR	1	2	3	4	5	6	7
ALNAI PROMOTER	NO	NO	YES	YES	NO	YES	YES
NOMINAL SHT PCT	1.000	*****	0.980	*****	0.000	0.000	0.000
PRESSURE, KPA	1000.000	070.000	1050.000	1015.000	990.000	900.000	1000.000
SPACE VEL, V/V/HR	188.100	195.500	200.500	195.500	203.100	206.700	194.300
INLET H2 FLOW, CC/MIN	106.91	113.29	113.87	111.23	115.35	116.23	110.35
INLET CO FLOW, CC/MIN	4357.12	4621.22	4645.12	4537.25	4705.45	4741.31	4501.40
INLET CO FLOW, CC/MIN	49.01	52.93	51.21	51.97	53.90	55.31	51.56
REACTOR TEMP, C	2036.03	2159.44	2170.62	2170.21	2198.81	2215.56	2103.45
	352.0	352.0	352.0	360.0	368.0	368.0	350.0
EXIT GAS COMPOSITION, MOLE PCT							
H2	65.44	65.44	67.47	69.01	67.66	67.08	67.47
CO	19.94	17.35	20.86	24.43	21.11	18.12	17.13
CO2	9.31	10.67	8.49	5.59	8.11	10.37	11.12
CH4	8.16	8.38	5.49	3.01	5.81	5.45	5.70
C2H6+C2H4	1.13	2.85	1.52	1.38	1.42	2.39	2.47
C3H8	0.03	0.13	0.19	0.22	0.18	0.42	0.43
C3H6	0.01	0.00	0.04	0.00	0.00	0.02	0.02
1-C4H10	0.01	0.00	0.01	0.00	0.00	0.01	0.01
N-C4H10	0.01	0.01	0.03	0.03	0.03	0.00	0.08
1-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C15-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C5H12	0.00	0.00	0.00	0.00	0.00	0.00	0.02
AVG CONTRACTION, PCT	15.14	19.99	23.54	11.61	11.37	20.84	18.78
CO2-FREE CONTRACTION, PCT	23.04	28.77	30.03	16.56	18.57	29.05	27.82
H2 CONVERTED, CC/MIN	19.77	26.25	27.67	11.67	13.85	24.43	21.62
H2 CONVERTED, MMOL/MIN	806.82	1070.92	1128.93	476.22	562.11	997.76	881.90
CO CONVERTED, PCT	18.51	23.17	24.30	10.49	12.00	21.03	19.59
CO CONVERTED, CC/MIN	23.38	29.65	25.55	16.72	22.22	29.05	29.04
CO CONVERTED, MMOL/MIN	953.84	1217.69	1083.53	682.16	906.66	1217.72	1184.57
TOTAL H2+CO CONV	46.84	56.38	49.91	32.17	41.23	54.96	56.31
ACTUAL H2 CONV, PCT	27.53	33.75	32.46	17.39	21.31	31.84	31.28
ACTUAL CO CONV, PCT	30.12	36.05	33.83	17.75	22.56	32.84	32.84
ACTUAL CO CONV, PCT	22.01	26.82	29.52	16.63	18.61	27.94	27.94
H2 USAGE RATIO	0.458	0.467	0.510	0.411	0.383	0.450	0.426
GASEOUS PRODUCTS, MMOL/MIN							
CH4	443.03344	454.79541	286.20745	177.53283	355.95373	300.46032	306.23815
C2H6+C2H4	61.66745	155.00195	79.24441	81.34501	87.40711	131.95654	132.65518
C3H8	2.04433	7.51789	10.13492	13.01748	11.45385	23.56221	23.34255
C3H6	0.71308	0.34424	2.43270	0.40003	0.30505	1.34777	1.36146
1-C4H10	0.56199	0.46832	0.65576	0.5730	0.48593	0.874.8	0.83348
N-C4H10	0.72220	0.63723	1.81584	1.93518	2.06024	4.82958	4.78838
1-C4H8	0.44786	0.33589	0.50188	0.22263	0.18941	0.35989	0.25830
1-C4H6	0.40335	0.29131	0.43047	0.19443	0.1769	0.40941	0.31018
C15-2-C4H8	0.50825	0.35577	0.53700	0.19293	0.20062	0.41271	0.32663
CO2	505.61901	595.32556	442.57751	329.47479	496.66674	571.16674	596.67456

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-6

REACTOR	1	2	3	4	5	6	7
TOTAL HC (GAS), MMOL/HR	510.10	619.74	381.97	275.30	458.23	464.21	470.11
CO CONV TO GAS, MMOL/HR	1090.83	1392.06	940.78	722.00	1075.16	1237.81	1288.40
CO TO HC (GAS), MMOL/HR	585.21	796.73	498.20	392.52	578.49	666.64	671.72
CO CONVERTED TO C5+ HYDROCARBONS MMOL/HR	0.00	0.00	142.75	0.00	0.00	0.00	0.00
CC/HR	0.00	0.00	3.49	0.00	0.00	0.00	0.00
SELECTIVITY							
CO TO C5+, PCT	0.00	0.00	13.17	0.00	0.00	0.00	0.00
CO TO C2, PCT	53.00	48.88	40.84	48.29	54.77	46.90	50.37
CO TO CH4, PCT	46.44	37.34	26.41	26.02	39.25	24.67	25.85
CO C5+/CO HC (GAS)	0.00	0.00	0.28	0.00	0.00	0.00	0.00

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-7

REACTION TIME:HRS = 4.3 ROOM TEMP,C = 25.5 HYDROGEN/CO RATIO = 2.030

REACTOR	1	2	3	4	5	6	7
ALKALI PROMOTER	NO	NO	YES	YES	NO	YES	YES
NOMINAL S.W.T PCT	1.000	*****	0.080	*****	0.000	0.000	0.000
PRESSURE,KPA	2045.000	2000.000	2090.000	2060.000	2010.000	2035.000	2035.000
SPACE VEL,V/V/HR	149.900	153.700	152.700	144.700	146.700	148.700	145.400
INLET H2 FLOW,CC/MIN	83.72	85.80	85.34	81.88	83.03	81.19	81.19
MMOL/MIN	3415.25	3499.96	3481.11	334.09	3340.09	3307.17	3311.94
INLET CO FLOW,CC/MIN	41.24	42.26	42.03	40.33	40.33	40.90	39.99
MMOL/MIN	1682.38	1724.12	1716.63	1645.36	1645.36	1668.52	1631.50
REACTOR TEMP,C	351.0	351.0	352.0	349.0	348.0	348.0	348.0
EXIT GAS COMPOSITION, MOLE PCT							
H2	55.61	50.02	58.50	61.44	58.98	60.94	60.94
CO	10.60	5.10	14.84	13.62	12.07	12.90	12.29
CO2	19.31	23.52	16.93	17.28	17.88	17.73	18.19
CH4	16.62	12.43	11.56	9.06	12.86	9.70	10.11
C2H6+C2H4	2.93	4.97	4.54	4.54	3.70	3.70	3.80
C3H8	0.07	0.39	0.29	0.61	0.44	0.65	0.69
C3H6	0.00	0.00	0.02	0.00	0.00	0.00	0.00
1-C4H10	0.00	0.00	0.00	0.02	0.01	0.02	0.02
N-C4H10	0.00	0.02	0.03	0.11	0.07	0.13	0.14
1-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C1S-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C3H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C3H12	0.00	0.00	0.00	0.01	0.01	0.03	0.03
GASEOUS PRODUCTS, MMOL/MIN							
CH4	549.18579	405.62512	377.32568	295.96484	477.49389	335.52503	330.15997
C2H6+C2H4	96.93730	162.40805	91.73048	148.37280	113.46633	126.84370	124.31714
C3H8	2.40977	12.85211	9.67875	26.63777	16.42413	22.49120	22.37220
C3H6	0.00000	0.00000	0.76910	0.00000	0.00000	0.24847	0.23664
1-C4H10	0.04563	0.00000	0.30423	0.81130	0.43579	0.73355	0.74369
N-C4H10	0.27166	0.76060	1.18973	3.78189	2.93576	4.69543	4.71459
1-C4H8	0.00000	0.00000	0.02244	0.00000	0.00000	0.04714	0.04489
1-C4H6	0.00000	0.00000	0.05391	0.00000	0.00000	0.07076	0.06739
C1S-2-C4H8	0.00000	0.00000	0.12228	0.00000	0.00000	0.06420	0.06114
CO2	635.21667	767.03737	554.30456	564.11523	664.00048	607.77295	593.54736
EXIT GAS COMPOSITION, MOLE PCT							
H2	35.18	37.53	37.17	34.54	25.54	33.22	33.98
CO2-FREE CONTRACTION,PCT	47.70	52.22	47.85	45.05	38.86	46.24	45.99
H2 CONVERTED,CC/MIN	38.67	45.06	38.53	32.73	28.20	31.83	32.43
H2 CONVERTED,MMOL/MIN	1577.66	1838.22	1572.02	1335.10	1150.46	1298.77	1323.06
H2 CONVERSION,PCT	46.19	52.51	45.15	39.97	34.44	38.34	39.94
CO CONVERTED,CC/MIN	32.57	38.16	30.16	20.63	28.80	30.06	30.55
CO CONVERTED,MMOL/MIN	1328.94	1557.65	1230.35	1200.63	1174.01	1226.33	1230.25
CO CONVERSION,PCT	78.99	90.34	71.74	72.97	71.60	73.49	75.40
TOTAL H2+CO CONV	57.01	65.00	53.93	50.06	46.64	49.94	51.65
ACTUAL H2 CONV, PCT	64.88	74.45	61.08	56.16	54.32	56.29	57.86
ACTUAL CO CONV, PCT	41.05	45.81	37.42	38.68	31.04	37.07	39.02
H2 USAGE RATIO	0.542	0.541	0.560	0.526	0.624	0.514	0.518

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-7

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS),MMOLES/MIN	648.85	581.65	481.19	475.61	610.75	490.71	482.71
CO CONV TO GAS,MMOLE/MIN	1389.77	1539.75	1153.19	1255.26	1431.18	1287.64	1262.68
CO TO HC(GAS),MMOLES/MIN	751.55	772.06	598.59	691.14	767.18	679.87	669.13
CO CONVERTED TO C5+ HYDROCARBONS MMOLES/MIN	0.00	17.90	77.15	0.00	0.00	0.00	0.00
CC/MIN	0.00	0.43	1.89	0.00	0.00	0.00	0.00
SELECTIVITY							
CO TO C5+,PCT	0.00	1.14	6.27	0.00	0.00	0.00	0.00
CO TO CO2, PCT	48.02	49.28	45.05	46.98	56.51	49.55	48.24
CO TO CH4, PCT	41.32	26.04	30.66	24.65	40.64	27.35	26.83
CO C5+/CO HC(GAS)	0.00	0.02	0.12	0.00	0.00	0.00	0.00

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-8

REACTION TIME, HRS = 4.5 ROOM TEMP, C = 26.0 HYDROGEN/CO RATIO = 1.410

REACTOR	1	2	3	4	5	6	7
ALKALI PROMOTER	NO	NO	YES	YES	NO	YES	YES
NOMINAL SINT PCT	1.000	*****	0.980	*****	0.000	0.000	0.000
PRESSURE, KPA	2040.000	1990.000	2090.000	2075.000	2060.000	2035.000	2035.000
SPACE VEL, V/V/HR	194.200	204.100	159.100	204.100	199.100	204.100	199.100
INLET H2 FLOW, CC/MIN	94.66	97.52	97.09	99.54	97.09	97.52	97.09
INLET H2 FLOW, MMOL/MIN	3855.17	4052.92	3954.04	4152.92	3954.04	4052.92	3954.04
INLET CO FLOW, CC/MIN	67.14	70.58	66.86	73.58	68.46	70.58	68.86
INLET CO FLOW, MMOL/MIN	2734.14	2874.41	2804.23	2874.41	2804.23	2874.41	2804.23
REACTOR TEMP, C	352.0	352.0	352.0	350.0	345.0	350.0	351.0
EXIT GAS COMPOSITION, MOLE PC:							
H2	36.97	32.79	45.92	47.27	43.11	45.49	45.03
CO	20.55	10.27	24.97	25.04	23.52	20.12	19.03
CD2	22.99	32.52	18.94	18.94	20.34	23.29	24.50
CH4	17.05	17.63	16.84	16.16	13.00	10.04	10.49
C2H6+C2H4	3.74	9.64	3.50	4.63	3.35	4.79	4.87
C3H8	0.08	1.03	0.47	1.05	0.47	1.01	1.02
C3H6	0.00	0.00	0.07	0.00	0.00	0.04	0.04
1-C4H10	0.00	0.02	0.01	0.04	0.01	0.03	0.03
N-C4H10	0.00	0.07	0.07	0.19	0.08	0.22	0.22
1-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C15-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.01	0.01
N-C5H12	0.00	0.00	0.01	0.02	0.01	0.05	0.05
AVG CONTRACTION, PCT	40.67	45.91	44.80	43.74	39.74	41.21	44.16
CO2-FREE CONTRACTION, PCT	54.31	63.50	55.25	51.96	52.06	54.71	58.14
H2 CONVERTED, CC/MIN	57.25	69.34	55.02	51.87	53.38	54.04	55.66
H2 CONVERTED, MMOL/MIN	2331.41	2824.08	2240.86	2112.47	2173.84	2200.77	2266.70
H2 CONVERSION, PCT	60.47	69.68	58.67	52.12	54.97	54.30	57.32
CO CONVERTED, CC/MIN	47.40	61.12	45.98	45.33	45.33	50.56	51.75
CO CONVERTED, MMOL/MIN	1930.52	2489.33	1872.76	1846.24	1846.24	2058.99	2091.18
CO CONVERSION, PCT	70.60	86.60	66.78	64.22	65.83	71.63	74.57
TOTAL H2+CO CONV	64.67	76.70	60.66	57.14	59.48	61.49	64.48
ACTUAL H2 CONV, PCT	83.79	99.74	74.54	71.30	76.03	77.71	80.54
ACTUAL CO CONV, PCT	37.72	44.20	41.58	37.18	36.14	38.62	41.83
H2 USAGE RATIO	0.547	0.531	0.544	0.533	0.540	0.516	0.520
GASEOUS PRODUCTS, MMOL/MIN							
CH4	666.74987	660.62854	404.35821	335.21124	529.72705	409.06675	403.70904
C2H6+C2H4	146.52337	361.40423	130.63998	190.42025	132.61166	195.16127	186.45697
C3H8	3.27833	38.80076	17.77437	43.51007	19.48354	41.18473	38.43643
C3H6	0.07087	0.01698	2.90796	0.20465	1.81902	1.58768	1.58768
1-C4H10	0.04049	0.77619	0.72130	1.84262	0.53433	1.51861	1.42302
N-C4H10	0.20653	2.75770	2.71650	8.15442	3.45669	9.08616	8.44912
1-C4H8	0.00000	0.00000	0.26227	0.00000	0.00000	0.32216	0.28350
1-C4H6	0.00000	0.00000	0.23111	0.00000	0.00000	0.35775	0.30949
C15-2-C4H8	0.00000	0.00000	0.33198	0.00000	0.00000	0.36243	0.33343
CO2	897.11645	1218.56347	706.51159	777.47115	832.51513	948.82251	917.91033

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-8

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS), MMOL/HR	816.87	1064.38	559.96	579.35	685.93	558.88	637.98
CO CONV TO GAS, MMOL/HR	1869.95	2732.58	1451.32	1664.69	1702.23	1923.83	1854.85
CO TO HC(GAS), MMOL/HR	970.83	1514.02	744.81	887.22	869.72	975.00	936.88
CO CONVERTED TO C5+ HYDROCARBONS MMOL/HR	60.57	0.00	421.43	181.50	144.00	135.16	236.32
CC/HR	1.48	0.00	10.34	4.45	3.53	3.31	5.89
SELECTIVITY							
CO TO C5+, PCT	3.13	0.00	22.50	9.83	7.79	6.56	11.30
CO TO CO2, PCT	46.57	48.95	37.72	42.11	45.67	46.08	43.89
CO TO CH4, PCT	34.23	26.53	21.59	18.15	28.69	19.86	19.16
CO C5+/CO HC(GAS)	0.06	0.00	0.56	0.20	0.16	0.13	0.25

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-9

REACTION TIME, HRS = 3.8 ROOM TEMP, C = 25.0 HYDROGEN/CO RATIO = 3.000

REACTOR	1	2	3	4	5	6	7
ALXALI PROMOTER	NO	NO	YES	YES	NO	YES	YES
NOMINAL S.WT PCT	1.000	*****	0.980	*****	0.000	0.000	0.000
PRESSURE, KPA	2050.000	2000.000	2090.000	2060.000	2050.000	2040.000	2040.000
SPACE VEL, V/V/HR	206.700	195.600	195.600	210.000	201.900	206.700	199.500
INLET H2 FLOW, CC/MIN	129.17	122.26	122.26	131.27	126.17	129.17	124.67
MMOL/MIN	5277.90	4995.56	4995.66	5734.01	5155.32	5277.90	5094.03
INLET CO FLOW, CC/MIN	43.05	40.75	40.75	43.76	42.05	43.05	41.55
MMOL/MIN	1759.30	1645.22	1645.22	1738.00	1718.44	1759.30	1698.01
REACTOR TEMP, C	351.0	351.0	352.0	350.0	349.0	348.0	350.0

EXIT GAS COMPOSITION, MOLE PCT

H2	68.50	66.45	71.61	72.66	71.07	73.19	72.36
CO	7.84	3.84	11.26	10.12	10.01	10.73	4.51
CO2	12.47	14.28	10.52	11.12	11.12	11.12	11.49
CH4	13.94	15.46	8.04	7.37	10.11	7.07	7.94
C2H6+C2H4	1.79	2.09	1.40	2.99	1.70	2.40	2.47
C3H8	0.02	0.30	0.18	0.44	0.19	0.37	0.37
C3H6	0.00	0.00	0.02	0.00	0.03	0.01	0.01
I-C4H10	0.00	0.00	0.00	0.01	0.03	0.01	0.01
I-C4H8	0.00	0.01	0.02	0.05	0.03	0.07	0.07
I-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C15-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I-C5H12	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AVG CONTRACTION, PCT	38.01	37.43	37.89	40.01	33.22	32.79	34.42
CO2-FREE CONTRACTION, PCT	45.75	46.36	44.42	46.66	40.65	40.76	41.96
H2 CONVERTED, CC/MIN	56.04	54.48	49.75	54.98	46.31	46.45	45.66
H2 CONVERTED, MMOL/MIN	2290.02	2226.03	2032.32	2276.50	1892.34	1816.10	1837.76
H2 CONVERSION, PCT	43.18	44.55	40.69	47.30	36.70	34.61	34.46
CO CONVERTED, CC/MIN	34.60	36.43	27.36	33.12	30.81	31.20	31.19
CO CONVERTED, MMOL/MIN	1417.25	1504.98	1199.05	1351.57	1258.92	1274.98	1274.15
CO CONVERSION, PCT	80.55	90.37	72.00	74.70	73.25	72.67	75.03
TOTAL H2+CO CONV	52.68	56.01	48.52	50.33	45.94	43.97	46.11
ACTUAL H2 COIV, PCT	53.69	56.47	49.40	50.77	46.50	44.38	46.52
ACTUAL CO CONV, PCT	49.62	54.63	45.86	43.01	43.54	42.56	44.87
H2 USAGE RATIO	0.617	0.596	0.629	0.624	0.600	0.597	0.593

GASEOUS PRODUCTS, MMOL/MIN

CH4	603.35876	644.53796	365.94091	316.24523	464.36364	372.54795	351.04113
C2H6+C2H4	73.38888	212.53912	69.90180	128.59637	78.25631	113.62095	110.14201
C3H8	1.11340	12.76640	7.64374	19.13132	8.70338	18.16567	17.54039
C3H6	0.01976	0.00000	0.02940	0.03897	0.03170	0.56904	0.48445
I-C4H10	0.01506	0.14390	0.29570	0.52590	0.19018	0.56341	0.55362
I-C4H8	0.08538	0.47121	0.07467	2.33525	1.36570	3.35102	3.33055
I-C4H6	0.00000	0.00000	0.07694	0.00000	0.00000	0.09760	0.06127
I-C4H8	0.00000	0.00000	0.06835	0.07000	0.00000	0.09767	0.07358
C15-2-C4H8	0.00000	0.00000	0.11627	0.00000	0.00000	0.11076	0.08344
CO2	544.10445	597.15159	435.31256	477.23156	510.54675	526.09034	512.14890

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-9

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS), MMOL/ MIN	687.98	870.46	445.81	466.89	552.92	509.12	486.31
CO CONV TO GAS, MMOL/ MIN	1313.13	1705.54	972.40	1119.82	1163.92	1198.96	1156.95
CO TO HC(GAS), MMOL/ MIN	768.93	1110.38	537.09	642.59	653.37	672.87	644.80
CO CONVERTED TO C5+ HYDROCARBONS MMOL/ MIN	104.12	0.00	226.65	233.74	95.00	76.02	117.19
CC/ MIN	2.54	0.00	5.54	5.72	2.32	1.86	2.36
SELECTIVITY							
CO TO C5+, PCT	7.34	0.00	18.90	17.26	7.54	5.96	9.19
CO TO CO2, PCT	38.39	39.54	36.30	35.25	40.25	41.26	40.19
CO TO CH4, PCT	42.92	42.82	30.51	23.36	36.88	29.21	27.78
CO C5+/CO HC(GAS)	0.13	0.00	0.42	0.36	0.14	0.11	0.18

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-10

REACTION TIME, HRS = 3.7 ROOM TEMP, °C = 28.5 HYDROGEN/CO RATIO = 3.960

REACTOR ALKALI PROMOTER	1 NO	2 NO	3 YES	4 YES	5 NO	6 YES	7 YES
NOMINAL S, WT PCT	1.000	*****	0.980	*****	0.000	0.000	0.000
PRESSURE, KPA	2050.0JC	2010.000	2100.000	2085.000	2085.000	2050.000	2075.000
SPACE VEL, V/V/HR	209.600	207.200	208.100	211.500	211.500	228.800	211.500
INLET H2 FLOW, CC/MIN	139.29	137.85	138.43	140.73	140.73	152.22	140.73
INLET CO FLOW, CC/MIN	5625.41	5567.37	5590.59	5733.45	5683.45	6147.42	5683.45
INLET H2 FLOW, CC/MIN	35.17	34.81	34.95	35.53	35.53	38.43	35.53
INLET CO FLOW, CC/MIN	1420.55	1405.90	1411.76	1435.21	1435.21	1552.38	1435.21
REACTOR TEMP, °C	352.0	352.0	352.0	351.0	350.0	351.0	352.0

EXIT GAS COMPOSITION, MOLE PCT

H2	75.31	74.78	76.92	76.92	75.21	76.92	76.38
CO	6.01	3.31	9.44	8.29	6.20	8.65	8.60
CO2	9.01	9.62	7.59	8.34	9.31	8.11	8.41
CH4	10.47	11.70	5.72	5.92	5.39	5.56	5.88
C2H6+C2H4	1.04	5.13	1.01	1.97	1.11	1.51	1.58
C3H8	0.01	0.13	0.07	0.24	0.13	0.21	0.22
C3H6	0.00	0.00	0.01	0.00	0.00	0.01	0.00
1-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C1S-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C5H12	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AVG CONTRACTION, PCT	20.33	21.81	22.86	16.60	26.24	17.91	14.90
CO2-FREE CONTRACTION, PCT	27.51	29.33	28.71	23.56	33.12	24.57	22.06
H2 CONVERTED, CC/MIN	34.60	36.90	35.54	27.65	42.82	31.03	26.15
H2 CONVERTED, MMOL/MIN	1397.61	1490.29	1435.67	1116.92	1729.39	1285.70	1056.26
H2 CONVERSION, PCT	24.34	26.76	25.68	19.65	30.42	20.71	18.58
CO CONVERTED, CC/MIN	26.81	30.34	22.33	23.33	27.47	24.55	22.63
CO CONVERTED, MMOL/MIN	1082.92	1225.33	901.81	942.54	1109.44	991.78	914.04
CO CONVERSION, PCT	76.25	87.15	63.87	65.67	77.30	63.88	63.68
TOTAL H2+CO CONV	35.20	38.94	33.38	28.93	39.87	29.57	27.67
ACTUAL H2 CONV, PCT	33.84	36.18	33.01	28.36	39.03	29.26	27.55
ACTUAL CO CONV, PCT	40.59	49.84	34.83	31.16	43.20	30.63	28.15
H2 USAGE RATIO	0.563	0.548	0.614	0.542	0.609	0.564	0.536

GASEOUS PRODUCTS, MMOL/MIN

CH4	588.22876	638.28149	363.02807	351.79907	493.23071	351.69690	356.78973
C2H6+C2H4	50.63452	170.84158	54.76049	117.36146	74.19264	95.62693	96.02861
C3H8	0.71647	7.22365	4.13648	14.57690	9.57263	13.67511	13.47532
C3H6	0.02544	0.00000	0.72221	0.02690	0.04759	0.65985	0.54012
1-C4H10	0.01938	0.07330	0.11190	0.32798	0.23379	0.37100	0.35559
N-C4H10	0.07692	0.23480	0.41239	1.54569	1.67527	2.38795	2.31249
1-C4H8	0.00000	0.00000	0.05573	0.00000	0.00000	0.08395	0.08334
1-C4H6	0.00000	0.00000	0.04462	0.00000	0.00000	0.07831	0.06255
C1S-2-C4H8	0.00000	0.00000	0.05060	0.00000	0.00000	0.11842	0.07093
CO2	506.29443	524.50647	410.03625	495.27612	489.29657	513.03296	509.93682

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-10

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS),MMOLES/MIN	647.70	816.65	423.32	485.63	578.97	464.70	469.72
CO CONV TO GAS,MMOLE/MIN	1214.40	1527.38	899.86	1133.10	1167.48	1111.15	1112.39
CO TO HC(GAS),MMOLES/MIN	708.10	1002.87	439.62	637.82	678.19	598.12	602.45
CO CONVERTED TO C5+ HYDROCARBONS							
MMOLES/MIN	0.00	0.00	1.95	0.00	0.00	0.00	0.00
CC/MIN	0.00	0.00	0.04	0.00	0.00	0.00	0.00
SELECTIVITY							
CO TO C5+, PCT	0.00	0.00	0.21	0.00	0.00	0.00	0.00
CO TO CO2, PCT	46.75	42.80	45.46	52.54	44.10	51.72	55.78
CO TO CH4, PCT	54.31	52.09	40.25	37.32	44.45	35.46	39.03
CO C5+7CO HC(GAS)	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-11

REACTION TIME, HRS = 3.6 ROOM TEMP, C = 26.0 HYDROGEN/CO RATIO = 3.380

REACTOR ALKALI PROMOTER	1 NO	2 NO	3 YES	4 YES	5 NO	6 YES	7 YES
NOMINAL S, WT PCT	1.000	*****	0.980	*****	0.000	0.000	0.000
PRESSURE, KPA	2025.000	2000.000	2100.000	2075.000	2075.000	2050.000	2050.000
SPACE VEL, V/V/HR	177.800	192.600	196.900	201.200	190.500	196.500	192.600
INLET H2 FLOW, CC/MIN	127.16	123.86	126.61	129.36	122.49	126.34	123.86
MMOL/MIN	5178.57	5044.07	5156.25	5288.13	4988.13	5144.74	5044.07
INLET CO FLOW, CC/MIN	37.62	36.64	37.46	37.82	36.23	37.37	36.64
MMOL/MIN	1532.12	1492.32	1525.52	1556.61	1475.77	1522.17	1492.32
REACTOR TEMP, C	401.0	401.0	401.0	393.0	397.0	398.0	399.0

EXIT GAS COMPOSITION, MOLE PCT

H2	67.47	64.93	72.13	71.61	70.02	73.72	73.72
CO	5.10	3.35	8.79	8.03	5.29	6.61	6.20
CO2	11.42	11.64	10.52	10.37	10.37	9.50	9.39
CH4	19.80	21.24	12.43	11.85	15.97	11.12	11.34
C2H6+C2H4	0.85	2.65	1.29	2.04	1.25	2.17	2.20
C3H8	0.03	0.05	0.08	0.17	0.13	0.24	0.24
C3H6	0.00	0.00	0.01	0.00	0.00	0.00	0.00
I-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C4H10	0.00	0.00	0.00	0.01	0.02	0.03	0.03
I-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C15-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C5H12	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AVG CONTRACTION, PCT	37.08	33.96	34.58	29.61	32.90	26.70	26.48
CO2-FREE CONTRACTION, PCT	44.27	41.65	41.46	36.91	39.86	33.67	33.39
H2 CONVERTED, CC/MIN	57.21	55.03	49.19	44.85	47.88	37.37	36.07
H2 CONVERTED, MMOL/MIN	2329.92	2241.04	2003.20	1826.80	1949.98	1542.42	1501.59
H2 CONVERSION, PCT	44.99	44.42	38.84	34.67	39.09	29.97	29.76
CO CONVERTED, CC/MIN	32.33	33.38	28.02	24.79	30.60	29.38	29.32
CO CONVERTED, MMOL/MIN	1316.75	1347.31	1141.16	1172.64	1246.29	1196.52	1194.15
CO CONVERSION, PCT	85.94	90.28	74.80	75.23	84.44	78.61	80.01
TOTAL H2+CO CONV	54.34	54.89	47.05	43.93	49.44	41.03	41.24
ACTUAL H2 CONV, PCT	54.30	54.39	47.76	44.13	49.11	39.00	38.71
ACTUAL CO CONV, PCT	54.45	56.58	44.65	43.25	53.96	48.08	49.76
H2 USAGE RATIO	0.638	0.624	0.637	0.609	0.610	0.563	0.557

GASEOUS PRODUCTS, MMOL/MIN

CH4	835.95568	917.13403	563.28686	569.51538	692.66235	543.85302	545.20678
C2H6+C2H4	35.92597	114.57646	56.39572	98.17015	67.95025	106.13935	105.84660
C3H8	0.25658	2.48712	3.87843	8.41119	5.79902	12.05841	11.85744
C3H6	0.00956	0.00000	0.57449	0.02177	0.01965	0.29900	0.27224
I-C4H10	0.00728	0.01490	0.11621	0.18251	0.14226	0.31216	0.30696
N-C4H10	0.03636	0.05406	0.37990	0.64908	0.89147	1.91329	1.91903
I-C4H8	0.00000	0.00000	0.05261	0.00000	0.00000	0.03361	0.03305
I-C4H6	0.00000	0.00000	0.01805	0.00000	0.00000	0.02018	0.01984
C15-2-C4H8	0.00000	0.00000	0.04913	0.00000	0.00000	0.05493	0.05402
CO2	482.30297	502.87591	459.90942	498.40722	449.83361	464.61688	451.45581

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-11

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS),MMOLES/MIN	872.19	1034.26	604.75	676.95	767.46	664.68	665.51
CO CONV TO GAS,MMOLE/MIN	1391.08	1656.89	1131.81	1292.88	1299.98	1267.15	1254.07
CO TO HC(GAS),MMOLES/MIN	908.78	1154.02	671.90	794.48	850.15	802.54	802.62
CO CONVERTED TO C5+ HYDROCARBONS							
MMOLES/MIN	0.00	0.00	9.35	0.00	0.00	0.00	0.00
CC/MIN	0.00	0.00	0.22	0.00	0.00	0.00	0.00
SELECTIVITY							
CO TO C5+, PCT	0.00	0.00	0.82	0.00	0.00	0.00	0.00
CO TO CO2, PCT	36.62	37.32	40.30	42.50	36.59	38.82	37.80
CO TO CH4, PCT	63.48	68.07	47.60	48.56	55.57	45.44	45.65
CO C5+/CO HC(GAS)	0.00	0.00	0.01	0.00	0.00	0.00	0.00

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-12

REACTION TIME, HRS = 6.3 ROOM TEMP, C = 26.0 HYDROGEN/CO RATIO = 2.990

REACTOR ALKALI PROMOTER 2 NO 5 NO

NOMINAL S.WT PCT ***** 0.000
PRESSURE, KPA 2000.000 2080.000
SPACE VEL, V/V/HR 500.000 500.000
INLET H2 FLOW, CC/MIN 312.48 12.48
INLET CO FLOW, CC/MIN 12725.38 12725.38
INLET CO FLOW, CC/MIN 104.51 104.51
INLET CO FLOW, CC/MIN 4255.98 4255.98
REACTOR TEMP, C 350.0 349.0

EXIT GAS COMPOSITION, MOLE PCT

H2 71.09 72.66
CO 9.09 15.39
CO2 11.42 7.14
CH4 8.55 5.85
C2H6+C2H4 3.49 1.11
C3H8 0.24 0.12
C3H6 0.00 0.00
I-C4H10 0.00 0.00
N-C4H10 0.01 0.01
I-C4H8 0.00 0.00
I-C4H6 0.00 0.00
C15-2-C4H8 0.00 0.00
I-C5H10 0.00 0.00
N-C5H12 0.00 0.00

AVG CONTRACTION, PCT 15.82 15.82
CO2-FREE CONTRACTION, PCT 25.44 21.83
H2 CONVERTED, CC/MIN 62.95 57.43
H2 CONVERTED, MMOL/MIN 2563.57 2338.66
H2 CONVERSION, PCT 20.14 18.37
CO CONVERTED, CC/MIN 72.57 50.46
CO CONVERTED, MMOL/MIN 2955.50 2054.97
CO CONVERSION, PCT 69.44 48.28
TOTAL H2+CO CONV 32.50 25.87
ACTUAL H2 CONV, PCT 32.97 26.39
ACTUAL CO CONV, PCT 31.07 24.30
H2 USAGE RATIO 0.464 0.532

GASEOUS PRODUCTS, MMOL/MIN

CH4 1223.03369 836.70385
C2H6+C2H4 499.27905 166.86547
C3H8 34.57586 18.41729
C3H6 0.00000 0.03239
I-C4H10 0.39484 0.41532
N-C4H10 1.62295 2.71425
I-C4H8 0.00000 0.00000
I-C4H6 0.00000 0.00000
C15-2-C4H8 0.00000 0.00000
CO2 1632.35410 1020.53631

FISCHER-TROPSCH PROGRAM

EXPERIMENT 6-12

REACTOR	2	5
TOTAL HC(GAS), MMOL/MI	1758.90	1025.15
CO CONV TO GAS, MMOL/MI	3966.34	2258.91
CO TO HC(GAS), MMOL/MI	2333.39	1238.31
CO CONVERTED TO C5+ HYDROCARBONS		
MMOL/MI	0.00	0.00
CC/MIN	0.00	0.00
SELECTIVITY		
CO TO C5+, PCT	0.00	0.00
CO TO CO2, PCT	55.25	49.56
CO TO CH4, PCT	41.38	40.71
CO C5+/CO HC(GAS)	0.00	0.00

Experimental Conditions and Results

Run 7

- Catalysts -- (a) 3% Ni-oxide + 10% WO_3 Supported on Alumina (Ni-W)
[Used without Alkali Promoter or with 3.3% K_2O Promoter]
- (b) 10% WO_3 Supported on Alumina (W)
[Used with 3.42% K_2O Promoter]
- (c) Molybdenum Disulfide (MoS_2)
[Used with 3% KOH Promoter]

Note: The pretreatment and sulfiding procedures of the catalyst in each reactor and the longitudinal sulfur gradients in the catalyst beds are given in Sections 3.4.1 and 3.5.1, pages 81 and 88 . respectively.
Nominal S, wt% = ***** = fully sulfided catalyst.
MMOLES = Micromoles

FISCHER-TROPSCH PROGRAM

EXPERIMENT 7-1

REACTION TIME, HRS = 4.9 ROOM TEMP, C = 26.0 HYDROGEN/CO RATIO = 1.970

REACTOR CATALYST ALKALI PROMOTER	1 W YES	2 NI-W NO	3 NI-W YES	4 MoS ₂ YES	5 W YES	6 NI-W NO	7 NI-W YES
NOMINAL S, WT PCT	*****	*****	*****	*****	*****	*****	*****
PRESSURE, KPA	2000.000	2000.000	2100.000	2050.000	2060.000	2025.000	2025.000
SPACE VEL, V/V/HR	199.100	210.200	195.500	178.900	191.800	201.700	202.800
INLET H ₂ FLOW, CC/MIN	110.07	116.19	108.03	98.8	106.00	111.50	112.11
MMOL/MIN	4482.53	4731.57	4399.60	4026.04	4316.60	4540.87	4565.72
INLET CO FLOW, CC/MIN	55.87	58.97	54.84	50.18	53.00	56.60	56.91
MMOL/MIN	2275.39	2401.41	2233.30	2043.67	2191.21	2305.01	2317.62
REACTOR TEMP, C	349.0	349.0	348.0	353.0	345.0	350.0	359.0
EXIT GAS COMPOSITION, MOLE PCT							
H ₂	63.92	63.92	65.44	65.44	65.94	65.94	66.45
CO	29.26	27.58	29.38	29.08	31.97	31.52	30.75
CO ₂	1.50	3.49	1.69	1.84	0.15	0.51	1.09
CH ₄	2.07	3.14	1.29	0.5	0.10	0.52	0.68
C ₂ H ₆ +C ₂ H ₄	0.20	0.90	0.36	0.20	0.02	0.12	0.12
C ₃ H ₆	0.02	0.05	0.05	0.02	0.00	0.01	0.02
C ₃ H ₈	0.01	0.00	0.00	0.03	0.00	0.00	0.00
1-C ₄ H ₁₀	0.01	0.01	0.01	0.00	0.00	0.00	0.00
N-C ₄ H ₁₀	0.02	0.01	0.01	0.00	0.00	0.00	0.00
1-C ₄ H ₈	0.01	0.00	0.00	0.00	0.00	0.00	0.00
1-C ₄ H ₆	0.01	0.00	0.00	0.00	0.00	0.00	0.00
C ₁₅ -2-C ₄ H ₈	0.01	0.00	0.00	0.00	0.00	0.00	0.00
1-C ₅ H ₁₀	0.01	0.00	0.01	0.00	0.00	0.00	0.00
N-C ₅ H ₁₂	0.01	0.00	0.00	0.00	0.00	0.00	0.00
1-C ₅ H ₁₀	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG CONTRACTION, PCT	2.38	0.09	9.13	48.33	0.50	0.06	0.60
CO ₂ -FREE CONTRACTION, PCT	3.84	3.58	10.67	49.29	0.65	0.58	1.64
H ₂ CONVERTED, CC/MIN	6.50	4.31	11.18	48.47	1.14	0.71	0.47
H ₂ CONVERTED, MMOL/MIN	265.02	175.02	455.51	1974.04	46.64	29.14	19.23
H ₂ CONVERSION, PCT	5.91	3.71	10.35	4.03	1.08	0.64	0.42
CO CONVERTED, CC/MIN	8.46	10.71	11.34	27.79	2.96	3.64	2.23
CO CONVERTED, MMOL/MIN	344.77	436.31	462.07	1111.70	120.72	148.58	213.28
CO CONVERSION, PCT	15.15	18.16	20.69	55.37	5.50	6.44	9.20
TOTAL H ₂ +CO CONV	9.02	8.57	13.83	51.16	2.57	2.59	3.37
ACTUAL H ₂ CONV, PCT	8.12	8.97	12.67	50.46	1.30	1.42	2.06
ACTUAL CO CONV, PCT	10.79	7.79	16.12	52.55	5.06	4.91	5.97
H ₂ USAGE RATIO	0.434	0.206	0.496	0.635	0.278	0.163	0.082
GASEOUS PRODUCTS, MMOL/MIN							
CH ₄	136.92361	224.06991	78.24023	30.0033	6.69080	35.64977	46.64682
C ₂ H ₆ +C ₂ H ₄	13.53720	64.39479	21.91402	6.32146	1.39858	8.49703	8.86647
C ₃ H ₈	1.76016	4.23055	1.15692	0.68252	0.28262	0.99542	2.31075
C ₃ H ₆	1.18311	0.59338	0.54043	1.01081	0.29030	0.27752	0.43819
1-C ₄ H ₁₀	1.31591	0.81562	0.70949	0.10255	0.24348	0.40268	0.60402
N-C ₄ H ₁₀	1.38004	0.91539	0.85157	0.20714	0.27327	0.50215	0.50718
1-C ₄ H ₈	1.06212	0.51562	0.54339	0.18174	0.18764	0.30841	0.17623
1-C ₄ H ₆	0.94585	0.52468	0.46708	0.07290	0.17563	0.29161	0.39765
C ₁₅ -2-C ₄ H ₈	0.95680	0.59509	0.47679	0.06464	0.17074	0.30068	0.18040
CO ₂	99.16725	249.06591	101.92190	57.74647	9.73308	35.35128	74.81617

FISCHER-TROPSCH PROGRAM

EXPERIMENT 7-1

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS), MMOL/HR	159.07	296.73	106.90	38.69	9.71	47.22	59.82
CO CONV TO GAS, MMOL/HR	294.65	630.18	247.28	108.12	25.14	99.03	154.00
CO TO HC(GAS), MMOL/HR	195.48	381.12	145.36	50.38	15.40	63.68	79.18
CO CONVERTED TO C5+ HYDROCARBONS MMOL/HR	50.12	0.00	214.78	1023.57	95.57	49.54	59.27
CC/HR	1.23	0.00	5.27	25.13	2.34	1.21	1.45
SELECTIVITY							
CO TO C5+, PCT	14.53	0.00	46.48	90.44	79.17	33.34	27.19
CO TO CO2, PCT	28.76	57.08	22.05	5.10	8.06	21.79	35.07
CO TO CH4, PCT	39.71	51.35	16.93	2.65	5.54	23.99	21.87
CO C5+/CO HC(GAS)	0.25	0.00	1.47	20.31	6.20	0.77	0.74

FISCHER-TROPSCH PROGRAM

EXPERIMENT 7-2

REACTION TIME, HRS =		4.1	ROOM TEMP, C =		25.0	HYDROGEN/CO RATIO =		1.940		
REACTOR CATALYST	1	2	3	5	6	7				
ALKALI PROMOTER	W	NI-W	NI-W	W	NI-W	NI-W				
	YES	NO	YES	YES	NO	YES				
NOMINAL S.WT PCT	*****	*****	*****	*****	*****	*****				
PRESSURE, KPA	2050.000	2000.000	2100.000	2060.000	2025.000	2025.000			0.000	
SPACE VEL, V/V/HR	195.400	212.000	203.700	216.200	212.000	212.000			2025.000	
INLET H2 FLOW, CC/MIN	107.45	116.60	112.03	118.88	116.60	116.60			214.500	
MMOL/MIN	4390.69	4764.38	4577.54	4857.67	4764.38	4764.38			117.97	
INLET CO FLOW, CC/MIN	55.39	60.10	57.74	61.28	60.10	60.10			4820.46	
MMOL/MIN	2263.24	2455.86	2359.55	2503.95	2455.86	2455.86			60.81	
REACTOR TEMP, C	399.0	398.0	398.0	398.0	398.0	398.0			2484.77	
EXIT GAS COMPOSITION, MOLE PCT										
H2	65.94	62.13	64.43	66.96	66.45	66.45			65.44	
CO	30.91	24.66	26.55	32.12	31.36	31.36			29.99	
CO2	1.12	5.59	4.24	0.41	0.77	0.77			1.76	
CH4	1.11	5.75	3.96	0.43	0.71	0.71			1.45	
C2H6+C2H4	0.22	1.24	0.86	0.05	0.22	0.22			0.28	
C3H8	0.02	0.03	0.13	0.00	0.01	0.01			0.06	
C3H6	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
1-C4H10	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
N-C4H10	0.00	0.00	0.01	0.00	0.00	0.01			0.01	
1-C4H8	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
1-C4H6	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
C15-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
N-C5H12	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
GASEOUS PRODUCTS, MMOL/MIN										
CO2-FREE CONTRACTION, PCT	0.52	3.79	11.65	1.75	1.93	1.93			1.56	
H2 CONVERTED, CC/MIN	1.64	9.18	15.40	2.16	2.29	2.29			3.29	
MMOL/MIN	0.62	10.46	15.38	0.35	0.97	0.97			2.80	
H2 CONVERSION, PCT	25.49	427.78	628.55	14.70	39.71	39.71			114.45	
CO CONVERTED, CC/MIN	0.58	8.97	13.73	0.30	0.83	0.83			2.37	
MMOL/MIN	5.31	18.16	17.91	4.41	5.52	5.52			8.01	
CO CONVERSION, PCT	217.16	742.40	732.18	180.32	225.75	225.75			327.57	
TOTAL H2+CO CONV	9.59	30.22	31.03	7.20	9.19	9.19			13.18	
ACTUAL H2 CONV, PCT	3.64	16.20	19.61	2.64	3.67	3.67			6.05	
ACTUAL CO CONV, PCT	2.28	17.14	19.41	0.91	1.98	1.98			5.00	
H2 USAGE RATIO	6.29	14.39	20.00	6.00	6.96	6.96			8.07	
	0.105	0.365	0.461	0.075	0.149	0.149			0.258	
GASEOUS PRODUCTS, MMOL/MIN										
CH4	73.66072	399.98797	242.93746	31.29822	50.86077	50.86077			104.79655	
C2H6+C2H4	15.01237	86.52046	53.17435	4.10060	16.06041	16.06041			20.19301	
C3H8	1.42538	2.26386	8.45383	0.50509	1.40613	1.40613			4.90051	
C3H6	0.37308	0.02965	0.02093	0.54041	0.09562	0.09562			0.70011	
1-C4H10	0.07359	0.04542	0.37076	0.26959	0.07904	0.07904			1.43443	
N-C4H10	0.14575	0.11471	1.06167	0.07471	0.15916	0.15916			0.78119	
1-C4H8	0.01491	0.00094	0.00789	0.03027	0.01144	0.01144			0.04631	
1-C4H6	0.02051	0.01614	0.1424	0.31387	0.02479	0.02479			0.70222	
C15-2-C4H8	0.02327	0.01131	0.01077	0.03814	0.02187	0.02187			0.05688	
CO2	74.62501	388.94067	260.26623	29.89607	54.77187	54.77187			127.01608	

FISCHER-TROPSCH PROGRAM

EXPERIMENT 7-2

REACTOR	1	2	3	5	6	7
TOTAL HC(GAS),MMOLES/MIN	90.74	489.00	306.05	37.17	68.72	133.69
CO CONV TO GAS,MMOLES/MIN	184.81	989.66	640.83	75.43	143.64	301.32
CO TO HC(GAS),MMOLES/MIN	110.19	580.72	380.57	45.54	88.67	174.30
CO CONVERTED TO C5+ HYDROCARBONS MMOLES/MIN	32.34	0.00	91.34	104.88	82.30	26.25
CC/MIN	0.79	0.00	2.23	2.56	2.01	0.64
SELECTIVITY						
CO TO C5+,PCT	14.89	0.00	12.47	58.16	36.45	8.01
CO TO CO2, PCT	34.36	52.38	35.54	16.57	24.26	38.77
CO TO CH4, PCT	33.91	53.87	33.17	17.35	22.52	31.99
CO C5+/CO HC(GAS)	0.29	0.00	0.24	2.30	0.92	0.15

FISCHER-TROPSCH PROGRAM

EXPERIMENT 7-3

REACTION TIME, HRS =		3.7	ROOM TEMP, C =		25.0	HYDROGEN/CO RATIO =		2.020		
REACTOR CATALYST	1	W	2	NI-W	3	4	5	6	7	NI-W
ALKALI PROMOTER	YES	YES	NO	NO	YES	YES	YES	NO	YES	YES
NOMINAL S.WT PCT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
SPACE PRESSURE, KPA	2050.0	2050.0	2050.0	2050.0	2050.0	2050.0	2050.0	2050.0	2050.0	2050.0
SPACE VEL, V/V/HR	203.700	203.700	203.700	203.700	203.700	203.700	203.700	203.700	203.700	203.700
INLET H2 FLOW, CC/MIN	111.38	111.38	113.73	113.73	107.87	113.73	113.73	112.09	106.69	106.69
INLET CO FLOW, CC/MIN	4551.22	4551.22	4647.15	4647.15	4407.74	4647.15	4647.15	4580.19	4359.64	4359.64
INLET CO FLOW, CC/MIN	55.14	55.14	56.30	56.30	53.40	56.30	56.30	55.49	52.82	52.82
REACTOR TEMP, C	2253.08	2253.08	2300.57	2300.57	2182.05	2300.57	2300.57	2267.42	2158.23	2158.23
EXIT GAS COMPOSITION, MOLE PCT	449.0	449.0	449.0	449.0	450.0	449.0	449.0	443.0	464.0	464.0
H2	66.45	61.93	61.93	61.93	61.93	67.47	67.47	66.45	64.93	64.93
CO	30.60	22.53	22.53	22.53	22.53	31.52	31.52	29.99	27.25	27.25
CO2	1.27	6.68	6.68	6.68	6.83	0.71	0.71	1.80	3.64	3.64
CH4	1.47	7.80	7.80	7.80	7.94	0.83	0.83	1.73	3.60	3.60
C2H6+C2H4	0.16	1.06	1.06	1.06	0.85	0.07	0.07	0.44	0.60	0.60
C3H8	0.01	0.03	0.03	0.03	0.06	0.00	0.00	0.05	0.09	0.09
C3H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
I-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
N-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C15-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C5H12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG CONTRACTION, PCT	0.91	16.49	16.49	16.49	21.25	1.19	1.19	0.35	8.47	8.47
CO2-FREE CONTRACTION, PCT	2.18	22.07	22.07	22.07	26.64	1.90	1.90	2.14	11.81	11.81
H2 CONVERTED, CC/MIN	1.73	23.78	23.78	23.78	29.21	0.37	0.37	1.11	11.89	11.89
H2 CONVERTED, MOLES/MIN	70.93	1057.61	1057.61	1057.61	1193.80	15.36	15.36	45.60	485.92	485.92
H2 CONVERSION, PCT	1.55	21.67	21.67	21.67	27.08	0.33	0.33	0.99	11.14	11.14
CO CONVERTED, CC/MIN	4.64	24.30	24.30	24.30	24.39	3.35	3.35	5.39	13.02	13.02
CO CONVERTED, MOLES/MIN	189.64	993.01	993.01	993.01	996.81	136.90	136.90	220.53	532.25	532.25
CO CONVERSION, PCT	8.41	43.16	43.16	43.16	45.68	5.93	5.93	9.72	24.66	24.66
TOTAL H2+CO CONV	3.82	29.45	29.45	29.45	33.24	2.19	2.19	3.88	15.62	15.62
ACTUAL H2 CONV, PCT	3.45	31.02	31.02	31.02	35.13	1.38	1.38	3.68	16.13	16.13
ACTUAL CO CONV, PCT	4.59	26.29	26.29	26.29	29.41	3.82	3.82	4.29	14.58	14.58
H2 USAGE RATIO	0.272	0.514	0.514	0.514	0.544	0.100	0.100	0.171	0.477	0.477
GASEOUS PRODUCTS, MOLES/MIN										
CH4	99.43763	452.99249	452.99249	452.99249	412.47406	56.98854	56.98854	118.11787	214.96282	214.96282
C2H6+C2H4	11.16440	61.82640	61.82640	61.82640	44.46052	4.81878	4.81878	30.46015	35.86436	35.86436
C3H8	0.90245	2.16113	2.16113	2.16113	3.29188	0.67916	0.67916	3.57415	5.83279	5.83279
C3H6	0.19431	0.00990	0.00990	0.00990	0.00775	0.62432	0.62432	0.08158	0.62152	0.62152
I-C4H10	0.08377	0.03794	0.03794	0.03794	0.06532	0.16498	0.16498	0.31461	1.18993	1.18993
N-C4H10	0.07917	0.16608	0.16608	0.16608	0.26757	0.05542	0.05542	0.33161	0.74874	0.74874
I-C4H8	0.01085	0.00373	0.00373	0.00373	0.00334	0.03094	0.03094	0.00439	0.03841	0.03841
I-C4H6	0.01828	0.00899	0.00899	0.00899	0.00804	0.19683	0.19683	0.02115	0.14563	0.14563
C15-2-C4H8	0.02074	0.01019	0.01019	0.01019	0.00444	0.03921	0.03921	0.01199	0.04457	0.04457
CO2	86.14120	388.11151	388.11151	388.11151	354.91412	69.01297	69.01297	123.08522	217.45666	217.45666

FISCHER-TROPSCH PROGRAM

EXPERIMENT 7-3

REACTOR	1	2	3	5	6	7
TOTAL HC (GAS), MMOL/HR	111.91	517.21	460.58	63.59	152.91	259.44
CO CONV TO GAS, MMOL/HR	212.04	972.17	867.61	121.49	315.82	532.18
CO TO HC (GAS), MMOL/HR	125.90	584.06	512.69	72.48	192.74	314.72
CO CONVERTED TO C5+ HYDROCARBONS						
MMOL/HR	0.00	20.83	129.19	15.40	0.00	0.07
CC/HR	0.00	0.50	3.16	0.37	0.00	0.00
SELECTIVITY						
CO TO C5+, PCT	0.00	2.09	12.96	11.24	0.00	0.01
CO TO CO2, PCT	45.42	39.08	35.60	35.80	55.81	40.85
CO TO CH4, PCT	52.43	45.61	41.37	41.62	53.56	40.38
CO C5+/CO HC (GAS)	0.00	0.03	0.25	0.21	0.00	0.00

FISCHER-TROPSCH PROGRAM

EXPERIMENT 7-4

REACTION TIME,HRS = 5.0 ROOM TEMP,C = 25.0 HYDROGEN/CO RATIO = 1.000

REACTOR	1	2	3	5	6	7
CATALYST	W	NI-W	NI-W	W	NI-W	NI-W
ALKALI PROMOTER	YES	NO	YES	YES	NO	YES
NOMINAL S.WT PCT	*****	*****	*****	0.000	0.000	0.000
PRESSURE,KPA	2025.000	1980.000	2075.000	2050.000	2025.000	2025.000
SPACE VEL,V/VHR	203.700	214.400	200.700	203.700	205.900	201.600
INLET H2 FLOW,CC/MIN	84.88	89.34	83.63	84.88	85.71	83.98
MMOL/MIN	3468.14	3650.57	3417.06	3468.14	3504.71	3431.57
INLET CO FLOW,CC/MIN	84.88	89.34	83.63	84.88	85.71	83.98
MMOL/MIN	3468.14	3650.57	3417.06	3468.14	3504.71	3431.57
REACTOR TEMP,C	440.0	450.0	449.0	444.0	450.0	454.0
EXIT GAS COMPOSITION,MOLE PCT						
H2	51.84	45.92	47.27	51.84	50.92	50.00
CO	44.15	40.50	41.26	45.83	44.92	43.09
CO2	1.25	6.23	5.18	0.78	1.93	3.64
CH4	1.13	5.36	3.99	0.67	1.41	2.61
C2H6+C2H4	0.21	1.36	1.07	0.08	0.53	0.65
C3H8	0.02	0.08	0.13	0.01	0.07	0.12
C3H6	0.00	0.00	0.00	0.00	0.00	0.04
I-C4H10	0.00	0.00	0.00	0.00	0.00	0.00
N-C4H10	0.00	0.00	0.00	0.00	0.00	0.00
I-C4H8	0.00	0.00	0.00	0.00	0.00	0.01
I-C4H6	0.00	0.00	0.00	0.00	0.00	0.00
C15-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00
I-C5H10	0.00	0.00	0.00	0.00	0.00	0.00
N-C5H12	0.00	0.00	0.00	0.00	0.00	0.00
I-C5H10	0.00	0.00	0.00	0.00	0.00	0.00
AVG CONTRACTION,PCT	3.98	9.89	13.00	3.78	2.65	2.95
CO2-FREE CONTRACTION,PCT	5.19	15.52	17.52	4.73	4.53	6.49
H2 CONVERTED,CC/MIN	0.36	15.40	14.84	0.36	0.73	2.48
H2 CONVERTED,MMOL/MIN	14.94	629.31	606.72	14.74	30.03	101.47
H2 CONVERSION,PCT	0.43	17.23	17.75	0.43	0.45	2.95
CO CONVERTED,CC/MIN	12.90	24.13	23.58	10.17	10.75	13.74
CO CONVERTED,MMOL/MIN	527.12	986.05	963.80	415.57	439.57	561.54
CO CONVERSION,PCT	15.19	27.01	28.20	11.98	12.54	16.36
TOTAL H2+CO CONV	7.81	22.12	22.98	6.20	6.69	9.66
ACTUAL H2 CONV, PCT	2.84	28.48	26.77	1.94	4.62	10.03
ACTUAL CO CONV, PCT	12.78	15.76	19.18	10.46	8.77	9.28
H2 USAGE RATIO	0.027	0.389	0.386	0.034	0.063	0.153
GASEOUS PRODUCTS,MMOL/MIN						
CH4	75.29185	393.24810	237.32955	45.17510	96.42439	174.11242
C2H6+C2H4	14.26587	89.51823	63.77832	5.94611	36.74869	43.34908
C3H8	1.58922	5.51313	8.23482	0.92640	5.40784	8.21746
C3H6	0.61853	0.03370	0.14669	0.94700	0.32624	2.84385
I-C4H10	0.18729	0.09895	0.17885	0.32994	0.26663	0.35716
N-C4H10	0.15390	0.46836	0.74618	0.07454	0.48957	1.22701
I-C4H8	0.03002	0.00423	0.00574	0.04503	0.01757	0.22732
I-C4H6	0.04903	0.01274	0.01151	0.36130	0.04759	0.36647
C15-2-C4H8	0.03805	0.0156	0.00783	0.04683	0.02099	0.23709
CO2	83.84564	410.31616	308.31182	52.55996	132.06618	242.77694

FISCHER-TROPSCH PROGRAM

EXPERIMENT 7-4

REACTOR	1	2	3	5	6	7
TOTAL HC(GAS),MMOLES/MIN	92.22	448.90	310.43	53.85	139.74	230.93
CO CONV TO GAS,MMOLES/MIN	196.12	961.68	702.13	118.67	322.53	546.43
CO TO HC(GAS),MMOLES/MIN	112.28	551.30	393.82	66.11	190.47	303.65
CO CONVERTED TO C5+ HYDROCARBONS MMOLES/MIN	331.00	24.37	261.66	296.89	117.03	15.11
CC/MIN	8.10	0.59	6.40	7.26	2.86	0.36
SELECTIVITY						
CO TO C5+, PCT	62.79	2.47	27.14	71.44	26.62	2.69
CO TO CO2, PCT	15.90	41.61	31.98	12.64	30.04	43.23
CO TO CH4, PCT	14.28	35.82	24.62	10.87	21.93	31.00
CO C5+/CO HC(GAS)	2.94	0.04	0.66	4.49	0.61	0.04

FISCHER-TROPSCH PROGRAM

EXPERIMENT 7-5

REACTION TIME, HRS = 7.7 ROOM TEMP, C = 25.0 HYDROGEN/LD RATIO = 0.990

REACTOR CATALYST	1 W	2 NI-W	3 NI-W	5 W	6 NI-W	7 NI-W
ALKALI PROMOTER	YES	NO	YES	YES	NO	YES
NOMINAL S, WT PCT	*****	*****	*****	0.000	0.000	0.000
PRESSURE, KPA	2050.000	2000.000	2100.000	2050.000	2025.000	2025.000
SPACE VEL, V/V/HR	114.100	115.900	114.100	130.700	108.900	115.200
INLET H2 FLOW, CC/MIN	47.30	48.06	47.30	54.17	45.16	47.76
MMOL/MIN	1932.89	1963.99	1932.89	2213.40	1845.48	1951.59
INLET CO FLOW, CC/MIN	47.78	48.55	47.78	54.71	45.62	48.24
MMOL/MIN	1952.41	1983.83	1952.41	2235.76	1864.13	1971.30
REACTOR TEMP, C	440.0	450.0	449.0	444.0	450.0	454.0
EXIT GAS COMPOSITION, MOLE PCT						
H2	49.54	39.82	41.53	50.46	48.34	47.27
CO	45.52	38.37	39.59	46.59	44.61	43.24
CO2	2.06	9.50	8.04	1.05	3.08	4.52
CH4	1.76	9.17	7.51	1.02	2.42	3.53
C2H6+C2H4	0.41	2.06	1.79	0.11	0.88	0.93
C3H8	0.05	0.11	0.22	0.02	0.11	0.17
C3H6	0.01	0.00	0.00	0.01	0.00	0.04
1-C4H10	0.00	0.00	0.00	0.00	0.00	0.00
N-C4H10	0.00	0.00	0.00	0.00	0.01	0.02
1-C4H8	0.00	0.00	0.00	0.00	0.00	0.00
1-C4H6	0.00	0.00	0.00	0.00	0.00	0.00
C15-2-C4H3	0.00	0.00	0.00	0.00	0.00	0.00
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00
N-C5H12	0.00	0.00	0.00	0.00	0.00	0.00
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00
AVG CONTRACTION, PCT						
CO2-FREE CONTRACTION, PCT	6.40	6.85	26.91	8.16	0.87	7.30
H2 CONVERTED, CC/MIN	8.33	15.70	32.78	9.13	3.92	11.49
H2 CONVERTED, MOLES/MIN	3.21	12.22	18.43	3.71	1.65	5.69
H2 CONVERSION, PCT	131.29	499.48	753.28	151.61	67.64	232.55
CO CONVERTED, CC/MIN	4.79	25.43	38.97	6.84	3.66	11.91
CO CONVERTED, MOLES/MIN	7.26	14.01	20.26	8.12	5.46	9.75
CO CONVERSION, PCT	296.75	572.74	828.15	331.91	223.45	398.70
TOTAL H2+CO CONV, PCT	15.19	28.87	42.41	14.86	11.98	20.22
ACTUAL H2 CONV, PCT	11.01	27.15	40.70	10.86	7.84	16.09
ACTUAL CO CONV, PCT	10.68	43.23	50.78	8.79	9.80	20.35
H2 USAGE RATIO	11.34	11.24	30.71	12.92	5.90	11.87
	0.306	0.465	0.476	0.313	0.232	0.368
GASEOUS PRODUCTS, MMOL/MIN						
CH4	71.56503	337.35986	213.37689	41.71652	89.23712	128.60180
C2H6+C2H4	14.92411	76.01799	50.93329	4.86428	32.41944	33.91644
C3H8	2.04748	4.14097	6.39551	0.87520	4.39303	6.37390
C3H6	0.46801	0.00661	0.06644	0.78695	0.13238	1.80005
1-C4H10	0.27360	0.05552	0.16315	0.38400	0.19619	0.29350
N-C4H10	0.20527	0.30218	0.59538	0.07511	0.36996	0.91604
1-C4H8	0.03254	0.00365	0.01506	0.04469	0.01219	0.15430
1-C4H6	0.05269	0.00888	0.02057	0.31576	0.0072	0.23418
C15-2-C4H8	0.03316	C.00503	0.01424	0.06657	0.01006	0.15587
CO2	75.16244	349.63195	228.37399	2.99383	113.31945	164.67404

FISCHER-TROPSCH PROGRAM

EXPERIMENT 7-5

REACTOR	1	2	3	5	6	7
TOTAL HC(GAS),MMOLES/MIN	89.60	417.93	271.58	49.08	126.79	172.44
CO CONV TO GAS,MMOLE/MIN	186.51	853.09	566.23	102.85	283.40	392.64
CO TO HC(GAS),MMOLES/MIN	111.34	503.45	317.86	59.85	170.08	227.97
CO CONVERTED TO C5+ HYDROCARBON, MMOLES/MIN	110.24	0.00	261.91	229.06	0.00	6.05
CC/MIN	2.69	0.00	6.41	5.60	0.00	0.14
SELECTIVITY						
CO TO C5+,PCT	37.14	0.00	31.62	60.01	0.00	1.51
CO TO CO2, PCT	25.32	61.04	27.57	12.95	50.71	41.30
CO TO CH4, PCT	24.11	58.90	25.76	12.56	39.93	32.25
CO C5+/CO HC(GAS)	0.99	0.00	0.77	3.82	0.00	0.02

FISCHER-TROPSCH PROGRAM

EXPERIMENT 7-6

REACTION TIME, HRS = 4.7 ROOM TEMP, C = 25.0 HYDROGEN/CO RAT, C = 3.010

REACTOR CATALYST	1	2	3	4	5	6	7
ALKALI PROMOTER	YES	NO	YES	YES	YES	NO	YES
NOMINAL S-MT PCT	*****	*****	*****	*****	0.000	0.000	0.000
PRESSURE, KPA	2050.000	2000.000	2100.000	2050.000	2050.000	2025.000	2025.000
SPACE VEL, V/V/HR	211.900	196.500	195.700	200.600	125.45	199.800	198.500
INLET H2 FLOW, CC/MIN	132.59	122.90	122.39	125.45	5126.18	124.94	124.18
MMOL/MIN	5417.85	5021.90	5001.04	5126.18	512.32	5074.04	5074.04
INLET CO FLOW, CC/MIN	44.05	40.83	40.66	41.68	1703.05	41.51	41.25
MMOL/MIN	1799.95	1668.40	1661.47	1703.05	1696.12	1685.72	1685.72
REACTOR TEMP, C	449.0	451.0	450.0	445.0	445.0	450.0	455.0
EXIT GAS COMPOSITION, MOLE PCT							
H2	74.78	73.19	74.25	75.31	74.78	74.78	74.78
CO	22.38	17.35	19.03	22.84	21.31	21.47	21.47
CO2	0.1	3.68	3.72	0.8	1.39	1.39	1.39
CH4	0.81	5.10	3.72	0.68	1.95	1.61	1.61
C2H6+C2H4	0.17	0.65	0.49	0.07	0.33	0.29	0.29
C3H8	0.01	0.01	0.03	0.00	0.02	0.04	0.04
C3H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C15-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I-C5H12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG CONTRACTION, PCT	0.93	1.01	16.90	0.68	0.27	0.26	0.26
CO2-FREE CONTRACTION, PCT	1.64	4.70	19.24	1.16	1.66	1.65	1.65
H2 CONVERTED, CC/MIN	1.72	4.33	21.78	0.43	0.81	0.79	0.79
H2 CONVERTED, MMOL/MIN	70.66	177.15	890.21	17.85	33.13	32.40	32.40
H2 CONVERSION, PCT	1.30	3.52	17.80	0.34	0.64	0.63	0.63
CO CONVERTED, CC/MIN	4.88	12.71	14.87	3.76	6.12	5.83	5.83
CO CONVERTED, MMOL/MIN	199.41	519.37	607.67	153.83	250.19	238.24	238.24
CO CONVERSION, PCT	11.07	31.13	36.57	9.03	14.75	14.13	14.13
TOTAL H2+CO CONV	3.74	10.41	22.48	2.51	4.16	4.00	4.00
ACTUAL H2 CONV, PCT	2.24	8.38	20.92	0.99	2.49	2.48	2.48
ACTUAL CO CONV, PCT	8.24	16.51	27.18	7.08	9.19	8.57	8.57
H2 USAGE RATIO	0.261	0.254	0.594	0.104	0.116	0.119	0.119
GASEOUS PRODUCTS, MMOL/MIN							
CH4	58.1914	337.90393	206.44244	46.41720	132.47720	108.73505	108.73505
C2H6+C2H4	12.60755	43.26317	27.26586	5.15481	22.68118	19.88019	19.88019
C3H8	1.15877	1.05324	1.86356	0.65170	1.48605	3.11923	3.11923
C3H6	0.27671	0.01787	0.01494	0.54939	0.02136	0.24270	0.24270
I-C4H10	0.08559	0.02263	0.05585	0.12526	0.04407	0.23748	0.23748
N-C4H10	0.07962	0.06354	0.12862	0.05469	0.10287	0.33913	0.33913
I-C4H8	0.01042	0.00000	0.00000	0.02098	0.00000	0.01117	0.01117
I-C4H6	0.02302	0.00532	0.00445	0.08736	0.00546	0.04884	0.04884
C15-2-C4H8	0.01630	0.00000	0.00000	0.02783	0.00000	0.01352	0.01352
CO2	51.05517	243.77502	156.04458	33.13596	94.31004	93.74191	93.74191

FISCHER-TROPSCH PROGRAM

EXPERIMENT 7-6

REACTOR	1	2	3	5	6	7
TOTAL HC(GAS),MMOLES/MIN	72.44	382.32	235.77	53.09	156.81	132.62
CO CONV TO GAS,MMOLES/MIN	139.62	671.70	423.40	94.75	277.28	254.92
CO TO HC(GAS),MMOLES/MIN	88.57	428.00	267.36	61.61	182.97	161.18
CO CONVERTED TO C5+ HYDROCARBONS MMOLES/MIN	59.78	0.00	184.26	59.08	0.00	0.00
CC/MIN	1.46	0.00	4.50	1.44	0.00	0.00
SELECTIVITY						
CO TO C5+,PCT	29.97	0.00	30.00	38.40	0.00	0.00
CO TO CO2, PCT	25.60	46.93	25.67	21.53	37.69	39.34
CO TO CH4, PCT	29.18	65.05	33.97	30.17	52.95	45.64
CO C5+/CO HC(GAS)	0.67	0.00	0.68	0.95	0.00	0.00

FISCHER-TROPSCH PROGRAM

EXPERIMENT 7-7

REACTION TIME,HRS = 5.1 ROOM TEMP,C = 25.0 HYDROGEN/CO RATIO = 1.090

REACTOR
CATALYST MoS₂
ALKALI PROMOTER YES
NOMINAL S.WT PCT *****
PRESSURE,KPA 2050.000
SPACE VEL,V/V/HR 99.300
INLET H₂ FLOW,CC/MIN 43.13
MMOL/MIN .762.50
INLET CO FLOW,CC/MIN 39.57
MMOL/MIN 1616.97
REACTOR TEMP,C 351.0

EXIT GAS COMPOSITION,MOLE PCT
H₂ 52.31
CO 42.38
CO₂ 2.63
CH₄ 1.43
C₂H₆+C₂H₄ 0.21
C₃H₈ 0.02
C₃H₆ 0.02
I-C₄H₁₀ 0.00
N-C₄H₁₀ 0.00
I-C₄H₈ 0.00
I-C₄H₆ 0.00
C₁₅-2-C₄H₈ 0.00
I-C₅H₁₀ 0.00
N-C₅H₁₂ 0.00
I-C₅H₁₀ 0.00

AVG CONTRACTION,PCT 60.10
CO₂-FREE CONTRACTION,PC 61.15
H₂ CONVERTED,CC/MIN 25.87
H₂ CONVERTED,MMOLES/MIN 1057.10
H₂ CONVERSION,PCT 59.9
CO CONVERTED,CC/MIN 25.58
CO CONVERTED,MMOLES/MIN 1045.42
CO CONVERSION,PCT 64.65
TOTAL H₂+CO CONV 62.71
ACTUAL H₂ CONV, PCT 61.99
ACTUAL CO CONV, PCT 62.45
H₂ USAGE RATIO 0.502

GASEOUS PRODUCTS,MMOLES/MIN
CH₄ 19.39274
C₂H₆+C₂H₄ 2.84881
C₃H₈ 0.37248
C₃H₆ 0.34221
I-C₄H₁₀ 0.01198
N-C₄H₁₀ 0.05125
I-C₄H₈ 0.03236
I-C₄H₆ 0.00976
C₁₅-2-C₄H₈ 0.01168
CO₂ 35.46990

FISCHER-TROPSCH PROGRAM

EXPERIMENT 7-8

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS),MMOLES/MIN	5.14	55.88	14.44	21.61	2.44	17.45	10.91
CO CONV TO GAS,MMOLE/MIN	13.96	138.38	45.45	52.39	7.50	35.65	33.55
CO TO HC(GAS),MMOLES/MIN	6.33	80.91	19.82	25.28	2.77	22.07	13.93
CO CONVERTED TO C5+ HYDROCARBONS MMOLES/MIN	73.19	24.56	151.89	457.02	74.41	49.69	51.34
CC/MIN	1.79	0.60	3.72	11.20	1.82	1.21	1.25
SELECTIVITY							
CO TO C5+,PCT	83.97	15.07	76.96	89.71	90.83	58.22	60.47
CO TO CO2, PCT	8.75	35.26	12.98	5.32	5.53	15.90	23.11
CO TO CH4, PCT	4.74	20.07	4.93	3.66	2.45	15.51	9.95
CO C5+/CO HC(GAS)	11.56	0.30	7.66	18.07	25.03	2.25	3.68

FISCHER-TROPSCH PROGRAM

EXPERIMENT 7-9

REACTION TIME,HRS = 18.1 ROOM TEMP,C = 25.0 HYDROGEN/CO RATIO = 2.990

REACTOR CATALYST ⁴MoS₂
ALKALI PROMOTER YES

NOMINAL S,NT PCT *****
PRESSURE,KPA 2050.000
SPACE VEL,V/V/HR 206.500
INLET H2 FLOW,CC/MIN 120.95
MMOL/MIN 5269.20
INLET CO FLOW,CC/MIN 43.13
MMOL/MIN 1762.27
REACTOR TEMP,C 400.0

EXIT GAS COMPOSITION,MOLE PCT
H2 73.19
CO 23.44
CO2 1.01
CH4 0.85
C2H6+C2H4 0.11
C3H8 0.01
C3H6 0.01
I-C4H10 0.00
N-C4H10 0.00
I-C4H8 0.00
I-C4H6 0.00
C1S-2-C4H8 0.00
I-C5H10 0.00
N-C5H12 0.00
I-C5H10 0.00

AVG CONTRACTION,PCT 30.26
CO2-FREE CONTRACTION,PC 30.97
H2 CONVERTED,CC/MIN 41.12
H2 CONVERTED,MMOLS/MIN 1680.50
H2 CONVERSION,PCT 31.89
CO CONVERTED,CC/MIN 14.99
CO CONVERTED,MMOLS/MIN 612.50
CO CONVERSION,PCT 34.75
TOTAL H2+CO CONV 32.61
ACTUAL H2 CONV, PCT 32.83
ACTUAL CO CONV, PCT 31.93
H2 USAGE RATIO 0.732

GASEOUS PRODUCTS,MMOLES/MIN
CH4 41.71653
C2H6+C2H4 5.58955
C3H8 0.91221
C3H6 0.64868
I-C4H10 0.00553
N-C4H10 0.15627
I-C4H8 0.07314
I-C4H6 0.02960
C1S-2-C4H8 0.02235
CO2 49.75000

FISCHER-TROPSCH PROGRAM

EXPERIMENT 7-9

REACTOR

4

TOTAL HC(GAS), MMOL/MI 49.15
CO CONV TO GAS, MMOL/MI 108.48
CO TO HC(GAS), MMOL/MI 58.73

CO CONVERTED TO C5+ HYDROCARBONS
MMOL/MI 504.01
CC/MIN 12.33

SELECTIVITY

CO TO C5+, PCT 82.28
CO TO CO2, PCT 8.12
CO TO CH4, PCT 6.81
CO C5+/CO HC(GAS) 8.58

Experimental Conditions and Results

Run 8

Catalyst -- 1% Ru Supported on Alumina
[Used without Alkali Promoter or with 10% KOH
Promoter]

Note: The pretreatment and sulfiding procedures of the catalyst in each reactor and the longitudinal sulfur gradients in the catalyst beds are given in Section 3.6.1, page 96..

Nominal S, wt%:

A = catalyst sulfided with 260 ppm H_2S in 2.1 H_2/CO gas mixture flowing at a space velocity of 300 $\bar{V}/V/h$ for 3.5 h.

B = same as above except sulfiding time was increased to 20.5 h.

MMOLES = Micromoles

FISCHER-TROPSCH PROGRAM

EXPERIMENT 8-1

REACTION TIME, HRS = 5.4 ROOM TEMP, C = 25.0 HYDROGEN/CO RATIO = 2.040

REACTOR ALKALI PROMOTER	1 NO	2 NO	3 YES	4 YES	5 YES	6 YES	7 NO
NOMINAL S, WT PCT	A	B	"	"	"	"	"
PRESSURE, KPA	2200.000	2200.000	2200.000	2200.000	2200.000	2200.000	2200.000
SPACE VEL, V/V/HR	214.700	210.500	202.100	210.500	212.200	225.700	212.200
INLET H2 FLOW, CC/MIN	120.46	118.10	113.38	113.10	119.04	126.60	119.04
MMOL/MIN	4922.30	4825.76	4632.66	4825.76	864.27	3173.16	4866.27
INLET CO FLOW, CC/MIN	58.48	57.33	55.03	57.33	57.79	61.46	57.79
MMOL/MIN	2389.47	2342.60	2248.86	2342.60	2361.29	2511.24	2361.29
REACTOR TEMP, C	241.0	239.0	244.0	240.0	242.0	240.0	245.0
EXIT GAS COMPOSITION, MOLE PCT							
H2	67.98	67.98	67.98	63.50	68.50	60.50	58.50
CO	30.75	30.75	31.06	30.91	30.75	30.75	21.92
CO2	0.00	0.00	0.01	0.02	0.01	0.01	5.22
CH4	0.00	0.00	0.06	0.02	0.06	0.07	7.78
C2H6+C2H4	0.00	0.00	0.00	0.00	0.00	0.00	0.83
C3H8	0.00	0.00	0.00	0.00	0.00	0.00	0.67
C3H6	0.00	0.00	0.00	0.00	0.00	0.00	1.68
I-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.54
I-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.96
I-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C15-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.12
I-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.03
N-C5H12	0.00	0.00	0.00	0.00	0.00	0.00	0.13
I-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.19
AVG CONTRACTION, PCT	4.44	8.23	2.03	4.24	6.69	5.35	84.73
CO2-FREE CONTRACTION, PCT	4.44	8.23	2.04	4.26	6.71	5.37	85.52
H2 CONVERTED, CC/MIN	4.20	8.64	1.20	3.02	6.02	4.67	103.25
H2 CONVERTED, MMOL/MIN	172.00	353.25	49.04	123.52	246.00	191.04	4218.87
H2 CONVERSION, PCT	3.49	7.32	1.05	2.55	5.05	3.69	86.73
CO CONVERTED, CC/MIN	5.89	7.81	3.78	5.40	7.03	6.70	51.87
CO CONVERTED, MMOL/MIN	240.35	319.16	154.63	220.77	287.59	274.16	2119.39
CO CONVERSION, PCT	10.05	13.62	6.07	9.42	12.17	10.91	89.75
TOTAL H2+CO CONV	5.63	9.38	2.95	4.80	7.32	6.05	87.72
ACTUAL H2 CONV, PCT	3.47	7.32	1.08	2.52	5.08	3.71	87.91
ACTUAL CO CONV, PCT	10.05	13.62	6.81	9.34	12.12	10.86	87.31
H2 USAGE RATIO	0.417	0.525	0.240	0.358	0.461	0.410	0.665
GASEOUS PRODUCTS, MMOL/MIN							
CH4	0.37219	0.31232	4.60612	1.86005	4.49682	5.15431	85.84855
C2H6+C2H4	0.06925	0.06986	0.13092	0.14579	0.14637	0.15791	9.16452
C3H8	0.02150	0.01127	0.12082	0.07417	0.09791	0.11124	7.44502
C3H6	0.03165	0.02830	0.16797	0.05997	0.13132	0.16473	18.63070
I-C4H10	0.02445	0.02302	0.04617	0.03008	0.05073	0.03161	0.03088
N-C4H10	0.02707	0.02362	0.09280	0.07668	0.07397	0.07299	5.98641
I-C4H8	0.02089	0.02492	0.03522	0.06357	0.07432	0.07612	10.64148
I-C4H6	0.04007	0.02548	0.06305	0.06196	0.04333	0.07131	0.04749
C15-2-C4H8	0.03077	0.02534	0.08164	0.07557	0.04538	0.04604	1.33608
CO2	0.00000	0.00000	1.26678	1.93572	1.26578	1.36658	57.62709

FISCHER-TROPSCH PROGRAM

EXPERIMENT 8-1

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS),MMOLES/MIN	0.63	0.55	5.47	2.50	5.19	5.83	139.13
CO CONV TO GAS,MMOLE/MIN	1.23	1.07	8.69	5.93	7.97	8.66	312.20
CO TO HC(GAS),MMOLES/MIN	1.23	1.07	7.42	4.00	6.70	7.30	254.57
CO CONVERTED TO C3+ HYDROCARBONS MMOLES/MIN	239.12	318.09	145.93	214.80	279.61	265.49	1807.19
CC/MIN	5.85	7.78	3.57	5.25	6.84	6.49	44.22
SELECTIVITY							
CO TO C5+,PCT	99.48	99.66	94.37	97.31	97.22	96.83	85.26
CO TO CO2, PCT	0.00	0.00	0.81	0.87	0.44	0.49	2.71
CO TO CH4, PCT	0.15	0.09	2.97	0.84	1.56	1.88	4.05
CO C5+/CO HC(GAS)	193.04	294.94	19.64	53.67	41.68	36.35	7.09

FISCHER-TROPSCH PROGRAM

EXPERIMENT 8-2

REACTION TIME, HRS = 6.1 ROOM TEMP, C = 24.5 HYDROGEN/CO RATIO = 2.010

REACTOR	1	2	3	4	5	6	7
ALKALI PROMOTER	NO	NO	YES	YES	YES	YES	NO
NOMINAL S, WT PCT	A	B	A	B	A	B	A
PRESSURE, KPA	2200.000	2200.000	2200.000	2200.000	2200.000	2200.000	2200.000
SPACE VEL, V/V/HR	199.800	197.800	191.600	197.600	201.000	205.700	200.200
INLET H2 FLOW, CC/MIN	111.20	110.08	106.48	108.96	111.87	114.57	111.43
INLET CO FLOW, CC/MIN	4551.37	4505.45	4358.42	4459.54	4578.97	4689.19	4560.66
INLET H2+CO FLOW, CC/MIN	55.32	54.76	52.96	54.20	55.66	57.00	55.43
REACTOR TEMP, C	2264.36	2241.52	2168.67	2218.67	2278.09	2331.03	2268.98
	226.0	224.0	220.0	225.0	227.0	220.0	229.0

EXIT GAS COMPOSITION, MOLE PCT	1	2	3	4	5	6	7
H2	67.98	67.98	67.98	67.98	67.98	67.98	65.94
CO	31.21	31.67	31.21	31.36	31.21	31.21	30.75
CO2	0.00	0.00	0.00	0.00	0.00	0.00	0.43
CH4	0.00	0.00	0.00	0.00	0.00	0.00	1.29
C2H6+C2H4	0.00	0.00	0.00	0.00	0.00	0.00	0.09
C3H8	0.00	0.00	0.00	0.00	0.00	0.00	0.11
C3H6	0.00	0.00	0.00	0.00	0.00	0.00	0.30
1-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.11
1-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.23
1-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C1S-2-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.01
N-C5H12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.05
							0.10

AVG CONTRACTION, PCT	1	2	3	4	5	6	7
CO2-FREE CONTRACTION, PCT	12.92	5.97	2.80	3.16	7.48	5.58	44.86
H2 CONVERTED, CC/MIN	12.93	5.98	2.89	3.18	7.54	5.68	45.10
H2 CONVERTED, MOLES/MIN	12.62	4.70	1.10	1.53	6.49	4.43	50.75
H2 CONVERSION, PCT	516.57	192.39	45.35	63.00	265.91	181.54	2077.49
CO CONVERTED, CC/MIN	11.34	4.27	1.04	1.41	5.80	3.87	45.55
CO CONVERTED, MOLES/MIN	10.06	5.67	4.35	4.88	7.04	6.43	27.14
CO CONVERSION, PCT	411.34	232.26	178.43	200.07	288.16	263.32	1110.79
TOTAL H2+CO CONV	18.18	10.36	8.22	9.01	12.64	11.28	48.95
ACTUAL H2 CONV, PCT	13.62	6.29	3.42	3.93	8.08	6.33	46.68
ACTUAL CO CONV, PCT	11.35	4.28	1.17	1.43	5.85	4.03	45.90
H2 USAGE RATIO	18.18	10.33	7.95	8.96	12.46	10.96	48.23
	0.556	0.453	0.202	0.239	0.479	0.408	0.651

GASEOUS PRODUCTS, MMOL/MIN	1	2	3	4	5	6	7
CH4	0.1517	0.1397	1.27823	0.28455	1.38107	1.36467	48.83544
C2H6+C2H4	0.02240	0.02545	0.04491	0.03052	0.04192	0.03946	3.69669
C3H8	0.00183	0.00196	0.02058	0.00739	0.02156	0.03482	4.28158
C3H6	0.00537	0.00718	0.03735	0.00292	0.03879	0.06157	11.46240
1-C4H10	0.00000	0.00000	0.00111	0.00226	0.00111	0.00116	0.02635
N-C4H10	0.00000	0.00000	0.01012	0.00258	0.01012	0.01987	4.17663
1-C4H8	0.00000	0.00000	0.01311	0.00000	0.0111	0.01427	8.66511
1-C4H6	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.06483
C1S-2-C4H6	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.45602
CO2	0.11151	0.59600	5.96004	1.71507	4.17202	7.47504	16.27283

FISCHER-TROPSCH PROGRAM

EXPERIMENT 8-2

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS),MMOLES/MIN	0.18	0.17	1.40	0.33	1.50	1.55	81.66
CO CONV TO GAS,MMOLE/MIN	0.32	0.81	7.59	1.61	5.91	9.39	173.28
CO TO HC(GAS),MMOLES/MIN	0.21	0.21	1.63	0.39	1.74	1.91	157.01
CO CONVERTED TO C5+ HYDROCARBONS MMOLES/MIN	411.51	231.45	170.83	198.46	282.24	253.93	937.50
CC/MIN	10.09	5.65	4.17	4.84	6.89	6.20	22.90
SELECTIVITY							
CO TO C5+, PCT	99.72	99.64	95.74	99.19	97.94	96.43	84.39
CO TO CO2, PCT	0.02	0.21	3.34	0.60	1.44	2.83	1.46
CO TO CH4, PCT	0.03	0.06	0.71	0.14	0.47	0.51	4.39
CO C5+/CO HC(GAS)	1890.83	1062.11	104.21	501.23	161.89	132.53	5.97

FISCHER-TROPSCH PROGRAM

EXPERIMENT 8-3

REACTION TIME, HRS = 4.6 ROOM TEMP, C = 25.0 HYDROGEN/CO RATIO = 2.940

REACTOR	1	2	3	4	5	6	7
ALALI PROMOTER	NO	NO	YES	YES	YES	YES	NO
NOMINAL S.W. PCT	A	B	A	B			
PRESSURE, KPA	2200.000	2200.000	2200.000	2200.000	0.000	0.000	0.000
SPACE VEL, V/V/HR	204.200	198.100	200.000	198.100	206.200	215.900	194.100
INLET H2 FLOW, CC/MIN	126.97	121.94	124.45	123.20	120.23	134.26	120.68
INLET CO FLOW, CC/MIN	5187.99	4982.50	5085.25	5034.03	5239.52	5485.87	4931.28
INLET CO FLOW, CC/MIN	43.14	41.47	42.33	41.90	43.61	45.66	41.05
REACTOR TEMP, C	1764.62	1694.72	1729.67	1712.25	1782.15	1865.94	1677.30
	240.0	238.0	242.0	240.0	241.0	239.0	244.0
EXIT GAS COMPOSITION, MOLE PCT							
H2	75.84	75.84	75.84	75.84	75.84	75.84	41.97
CO	25.12	25.12	24.82	25.18	24.82	24.21	0.69
CO2	0.01	0.01	0.20	0.01	0.29	0.42	0.06
CH4	0.00	0.00	0.01	0.00	0.01	0.01	42.74
C2H6+C2H4	0.00	0.00	0.00	0.00	0.00	0.00	11.93
C3H8	0.00	0.00	0.00	0.00	0.00	0.00	1.89
C3H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.14
N-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C1S-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C5H12	0.00	0.00	0.00	0.00	0.00	0.00	0.03
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG CONTRACTION, PCT	5.97	2.70	2.87	2.48	5.73	5.51	77.74
CO2-FREE CONTRACTION, PCT	5.98	2.72	3.07	2.50	6.00	5.91	77.75
H2 CONVERTED, CC/MIN	5.61	1.34	1.58	1.08	5.35	5.31	105.57
H2 CONVERTED, MMOL/MIN	229.38	54.88	64.65	44.42	218.93	217.35	4313.90
H2 CONVERSION, PCT	4.42	1.10	1.27	0.88	4.17	3.96	87.48
CO CONVERTED, CC/MIN	2.98	1.52	2.12	1.36	3.50	4.50	40.80
CO CONVERTED, MMOL/MIN	122.08	62.45	86.76	55.69	139.24	184.21	1667.08
CO CONVERSION, PCT	6.91	3.68	5.01	3.25	7.81	9.87	94.39
TOTAL H2+CO CONV	5.05	1.75	2.22	1.48	5.10	5.46	90.50
ACTUAL H2 CONV, PCT	4.44	1.12	1.54	0.90	4.54	4.49	87.49
ACTUAL CO CONV, PCT	6.84	3.61	4.22	3.18	6.73	8.29	99.33
H2 USAGE RATIO	0.652	0.467	0.426	0.443	0.611	0.541	0.721
GASEOUS PRODUCTS, MMOL/MIN							
CH4	0.25739	0.23885	1.31038	0.30470	1.16508	1.01348	8.79297
C2H6+C2H4	0.04474	0.02821	0.11466	0.04812	0.14996	0.21638	175.51446
C3H8	0.00202	0.00100	0.06381	0.01719	0.08794	0.14273	27.85293
C3H6	0.01184	0.00882	0.13493	0.00446	0.19640	0.33753	0.06663
1-C4H10	0.00000	0.00000	0.00231	0.00345	0.00115	0.00121	2.18286
N-C4H10	0.00000	0.00000	0.02005	0.00262	0.03961	0.06791	.11285
1-C4H8	0.00000	0.00000	0.04332	0.00000	0.06156	0.10385	.00506
1-C4H6	0.00562	0.00559	0.00000	0.00000	0.00000	0.00000	0.00000
C1S-2-C4H8	0.00000	0.00000	0.00074	0.00000	0.01457	0.02294	0.00300
CO2	1.22839	1.2771	13.68125	1.23607	19.27812	29.36832	0.96736

EXPERIMENT 8-3

FISCHER-TROPSCH PROGRAM

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS),MMOLES/MIN	0.32	0.28	1.71	0.37	1.71	1.89	836.52
CO CONV TO GAS,MMOLE/MIN	1.63	1.56	16.15	1.71	22.06	33.00	1081.75
CO TO HC(GAS),MMOLES/MIN	0.41	0.34	2.47	0.47	2.78	3.63	1080.78
CO CONVERTED TO C5+ HYDROCARBONS							
MMOLES/MIN	120.44	60.08	70.60	53.98	117.17	151.20	585.33
CC/MIN	2.94	1.49	1.72	1.32	2.86	3.70	14.32
SELECTIVITY							
CO TO C5+,PCT	98.65	97.48	81.37	96.92	84.15	82.08	35.11
C7 TO CO2, PCT	1.00	1.95	15.76	2.21	12.84	15.94	0.05
CO TO CH4, PCT	0.21	0.38	1.51	0.54	0.83	0.55	37.71
CO C5+/CO HC(GAS)	293.06	175.39	28.49	113.58	42.06	41.55	0.54

FISCHER-TROPSCH PROGRAM

EXPERIMENT 8-4

REACTION TIME, HRS = 5.0 ROOM TEMP, C = 25.5 HYDROGEN/CO RATIO = 2.000

REACTOR	1	2	3	4	5	6	7
ALKALI PROMOTER	NO	NO	YES	YES	YES	YES	NO
NOMINAL S, WT PCT	A	B	A	B			
PRESSURE, KPA	2200.000	2200.000	2200.000	2200.000	2200.000	2200.000	2200.000
SPACE VEL, V/V/HR	197.900	193.900	200.800	203.600	197.500	197.500	194.700
INLET H2 FLOW, CC/MIN	109.96	107.71	111.54	113.12	109.74	109.74	108.40
PMOL/MIN	4485.63	4393.72	4549.81	4616.26	4476.39	4476.39	4422.00
INLET CO FLOW, CC/MIN	54.98	53.85	55.77	56.56	54.87	54.87	54.20
MMOL/MIN	2242.81	2196.86	2274.90	2307.13	2238.19	2238.19	2211.00
REACTOR TEMP, C	241.0	238.0	244.0	240.0	241.0	240.0	245.0
EXIT GAS COMPOSITION, MOLE PCT							
H2	69.01	69.01	69.01	69.01	69.01	69.01	44.92
CO	33.10	32.89	31.42	32.97	32.73	32.58	34.26
CO2	0.01	0.01	0.19	0.03	0.30	0.48	8.07
CH4	0.00	0.00	0.01	0.00	0.01	0.00	9.61
C2H6+C2H4	0.00	0.00	0.00	0.00	0.03	0.00	0.75
C3H8	0.00	0.00	0.00	0.00	0.00	0.00	0.62
C3H6	0.00	0.00	0.00	0.00	0.00	0.00	0.90
1-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.46
1-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.89
1-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C1S-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.06
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.02
N-C5H12	0.00	0.00	0.00	0.00	0.00	0.00	0.05
1-C5H18	0.00	0.00	0.00	0.00	0.00	0.00	0.04
AVG CONTRACTION, PCT							
CO2-FREE CONTRACTION, PCT	6.03	4.06	4.36	3.93	4.01	4.01	87.70
H2 CONVERTED, CC/MIN	6.04	4.08	4.55	3.97	4.30	4.48	88.69
H2 CONVERTED, MMOL/MIN	2.98	0.73	1.11	0.62	0.69	0.69	99.42
H2 CONVERSION, PCT	121.95	30.04	45.37	25.36	28.25	28.25	4055.47
CO CONVERTED, CC/MIN	2.71	0.68	0.99	0.54	0.63	0.63	91.71
CO CONVERTED, MMOL/MIN	3.67	2.87	5.48	2.85	3.14	3.38	47.35
CO CONVERSION, PCT	150.03	117.31	223.93	116.45	128.21	138.02	1931.49
TOTAL H2+CO CONV	6.68	5.34	9.84	5.04	5.72	6.16	87.35
ACTUAL H2 CONV, PCT	4.04	2.23	3.94	2.04	2.33	2.47	90.26
ACTUAL CO CONV, PCT	2.74	0.71	1.28	0.60	1.06	1.33	93.20
H2 USAGE RATIO	6.63	5.28	9.27	4.93	4.86	4.76	84.37
	0.448	0.203	0.168	0.178	0.100	0.169	0.677
GASEOUS PRODUCTS, MMOL/MIN							
CH4	0.215.9	0.20866	0.82379	0.24638	0.67915	0.61198	78.45877
C2H6+C2H4	0.04028	0.04028	0.07393	0.05021	0.09582	0.14601	6.16105
C3H8	0.00195	0.00195	0.03630	0.01540	0.05277	0.08662	5.06192
C3H6	0.01145	0.01145	0.08721	0.00602	0.14013	0.24670	7.42087
1-C4H10	0.00000	0.00000	0.00228	0.00465	0.00112	0.00112	0.03711
N-C4H10	0.00000	0.00000	0.01692	0.00397	0.02571	0.04114	3.80197
1-C4H8	0.00000	0.00000	0.03147	0.00000	0.0462	0.08215	7.32976
1-C4H6	0.00816	0.00544	0.00000	0.00000	0.00000	0.00000	0.02809
C1S-2-C4H8	0.00000	0.00000	0.00000	0.00000	0.00851	0.01419	0.49401
CO2	1.18801	1.18801	12.87654	2.49866	19.3713	31.48621	65.91564

FISCHER-TROPSCH PROGRAM

EXPERIMENT 8-4

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS),MMOLES/MIN	0.27	0.26	1.07	0.32	1.04	1.22	108.79
CO CONV TO GAS,MMOLE/MIN	1.55	1.53	14.42	2.94	21.15	33.94	240.90
CO TO HC(GAS),MMOLES/MIN	0.36	0.35	1.54	0.44	1.77	2.45	174.99
CO CONVERTED TO C5+ HYDROCARBONS MMOLES/MIN	140.47	115.77	209.51	113.51	107.06	104.08	1690.58
CC/MIN	3.63	2.83	5.13	2.78	2.62	2.55	41.44
SELECTIVITY							
CO TO C5+,PCT	98.96	98.68	93.55	97.47	83.50	75.40	87.52
CO TO CO2, PCT	0.79	1.01	5.75	2.14	15.11	22.81	3.41
CO TO CH4, PCT	0.14	0.17	0.36	0.21	0.52	0.44	4.06
CO C5+/CO HC(GAS)	401.08	329.61	135.60	254.72	60.23	42.33	9.66

FISCHER-TROPSCH PROGRAM

EXPERIMENT 8-5

REACTION TIME, HRS = 4.8 ROOM TEMP, C = 27.0 HYDROGEN/CO RATIO = 2.040

REACTOR ALKALI PROMOTER	1 NO	2 NO	3 YES	4 YES	5 YES	6 YES	7 NO
NOMINAL S, WT PCT	A	B	A	B	0.000	0.000	0.000
PRESSURE, KPA	3100.000	3100.000	3100.000	3100.000	3100.000	3100.000	3100.000
SPACE VEL, V/V/HR	219.400	191.800	202.500	206.100	208.700	209.200	193.300
INLET H2 FLOW, CC/MIN	122.71	107.22	113.25	115.25	116.68	116.97	108.09
INLET CO FLOW, CC/MIN	4980.64	4352.03	4596.61	4676.05	4736.06	4747.77	4387.17
INLET CO FLOW, CC/MIN	60.15	52.56	55.51	56.50	57.20	57.34	52.98
REACTOR TEMP, C	2441.49	2133.35	2253.24	2293.16	2321.60	2327.34	2150.57
REACTOR TEMP, C	241.0	238.0	242.0	240.0	240.0	238.0	241.0

EXIT GAS COMPOSITION, MOLE PCT							
H2	70.05	71.72	69.53	69.01	69.53	69.01	80.53
CO	28.93	22.84	30.14	31.21	29.84	29.69	2.89
CO2	0.01	0.03	0.01	0.01	0.86	1.13	0.03
CH4	0.00	0.01	0.01	0.01	0.03	0.02	1.01
C2H6+C2H4	0.00	0.00	0.00	0.00	0.00	0.00	0.56
C3H8	0.00	0.00	0.00	0.00	0.00	0.00	0.04
C3H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C15-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C5H12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AVG CONTRACTION, PCT	43.67	51.18	12.89	35.95	47.81	40.33	95.03
CO2-FREE CONTRACTION, PCT	43.68	51.20	13.17	35.96	49.26	41.01	95.03
H2 CONVERTED, CC/MIN	50.56	49.72	11.03	39.34	54.80	45.19	101.01
H2 CONVERTED, MMOL/MIN	2052.13	2018.20	448.01	1596.72	2224.32	1834.52	4099.69
H2 CONVERSION, PCT	41.20	46.37	9.74	34.13	46.96	38.63	93.44
CO CONVERTED, CC/MIN	30.35	34.74	11.19	22.16	30.63	26.46	52.75
CO CONVERTED, MMOL/MIN	1232.01	1410.26	454.41	890.51	1243.51	1073.98	2141.18
CO CONVERSION, PCT	50.46	66.10	20.16	39.22	51.56	46.14	99.56
TOTAL H2+CO CONV	44.24	52.86	13.17	35.80	49.13	41.10	95.45
ACTUAL H2 CONV, PCT	41.21	46.40	10.16	34.15	47.62	39.65	93.45
ACTUAL CO CONV, PCT	50.42	66.04	19.32	39.18	52.21	44.08	99.55
H2 USAGE RATIO	0.624	0.588	0.496	0.639	0.641	0.630	0.656

GASEOUS PRODUCTS, MMOL/MIN							
CH4	0.32192	0.40692	1.09161	0.41339	1.09593	1.00692	3.30877
C2H6+C2H4	0.04538	0.04781	0.09856	0.01955	0.14321	0.20222	1.84888
C3H8	0.00258	0.00361	0.05991	0.01483	0.11273	0.16303	0.15892
C3H6	0.01230	0.01218	0.11351	0.00606	0.23399	0.3151	0.00147
1-C4H10	0.00146	0.00221	0.00417	0.00625	0.00126	0.00147	0.00738
N-C4H10	0.00033	0.00063	0.02737	0.00445	0.05476	0.08252	0.01509
1-C4H8	0.00000	0.00000	0.03699	0.01000	0.07466	0.12941	0.00178
1-C4H6	0.00519	0.00817	0.00000	0.00000	0.00000	0.00000	0.00000
C15-2-C4H8	0.00000	0.00000	0.00328	0.00000	0.01990	0.02323	0.00089
CO2	0.78550	1.11970	19.05809	0.81884	31.22202	47.98460	0.12202

FISCHER-TROPSCH PROGRAM

EXPERIMENT 8-5

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS),MMOLES/MIN	0.38	0.48	1.43	0.61	1.73	1.98	5.34
CO CONV TO GAS,MMOLE/MIN	1.27	1.78	21.15	1.63	34.23	51.97	7.71
CO TO HC(GAS),MMOLES/MIN	0.48	0.59	2.09	0.79	3.00	3.98	7.58
CO CONVERTED TO C5+ HYDROCARBONS MMOLES/MIN	1230.74	1408.47	433.26	897.87	1209.28	1022.01	2133.46
CC/MIN	30.32	34.70	10.67	22.12	29.79	25.18	52.56
SELECTIVITY							
CO TO C5+,PCT	99.89	99.87	95.34	99.81	97.24	95.16	99.63
CO TO CO2, PCT	0.06	0.01	4.19	0.09	2.51	4.46	0.00
CO TO CH4, PCT	0.02	0.02	0.24	0.05	0.08	0.09	0.15
CO C5+/CO HC(GAS)	2521.21	2370.84	206.67	1125.12	401.89	256.22	281.14

FISCHER-TROPSCH PROGRAM

EXPERIMENT 8-6

REACTION TIME, HRS = 2.9 ROOM TEMP, C = 27.0 HYDROGEN/CO RATIO = 0.970

REACTOR 7
ALKALI PROMOTER NO

NOMINAL S.WT PCT 0.000
PRESSURE, KPA 2200.000
SPACE VEL, V/V/HR 197.200
INLET H₂ FLOW, CC/MIN 80.93
MMOL/MIN 3284.84
INLET CO FLOW, CC/MIN 83.43
MMOL/MIN 3386.43
REACTOR TEMP, C 243.0

EXIT GAS COMPOSITION, MOLE PCT

H₂ 36.67
CO 58.16
CO₂ 0.74
CH₄ 0.50
C₂H₆+C₂H₄ 0.05
C₃H₈ 0.04
C₃H₆ 0.17
1-C₄H₁₀ 0.07
N-C₄H₁₀ 0.05
1-C₄H₈ 0.16
1-C₄H₆ 0.00
C₁₅-2-C₄H₈ 0.00
1-C₅H₁₀ 0.00
N-C₅H₁₂ 0.03
1-C₅H₁₀ 0.09

AVG CONTRACTION, PCT 41.59
CO₂-FREE CONTRACTION, PC 42.01
H₂ CONVERTED, CC/MIN 45.72
MMOLTS/MIN 1855.89
H₂ CONVERSION, PCT 56.49
CO CONVERTED, CC/MIN 27.59
MMOLTS/MIN 1120.01
CO CONVERSION, PCT 33.07
TOTAL H₂+CO CONV 44.60
ACTUAL H₂ CONV, PCT 57.34
ACTUAL CO CONV, PCT 32.25
H₂ USAGE RATIO 0.623

GASEOUS PRODUCTS, MMOLTS/MIN

CH₄ 19.63609
C₂H₆+C₂H₄ 2.22160
C₃H₈ 1.67592
C₃H₆ 6.66481
1-C₄H₁₀ 0.02318
N-C₄H₁₀ 2.13918
1-C₄H₈ 6.29266
1-C₄H₆ 0.02683
C₁₅-2-C₄H₈ 0.21449
CO₂ 27.82069

FISCHER-TROPSCH PROGRAM

EXPERIMENT 8-6	
REACTOR	7
TOTAL HC(GAS), MMOL/MI	28.89
CO CONV TO GAS, MMOL/MI	111.70
CO TO HC(GAS), MMOL/MI	83.88
CO CONVERTED TO C5+ HYDROCARBONS	
MMOL/MI	1008.30
CC/MI	24.84
SELECTIVITY	
CO TO C5+, PCT	90.02
CO TO CO2, PCT	2.48
CO TO CH4, PCT	1.75
CO C5+/CO HC(GAS)	12.01

FISCHER-TROPSCH PROGRAM

EXPERIMENT 8-7

REACTION TIME, HRS = 5.2 ROOM TEMP, C = 27.0 HYDROGEN/CO RATIO = 2.020

REACTOR ALKALI PROMOTER	1 NO	2 NO	3 YES	4 YES	5 YES	6 YES	7 NO
NOMINAL S.W.T. PCT	3100.000	3100.000	3100.000	3100.000	3100.000	3100.000	3100.000
PRESSURE, MPa	200.300	209.200	202.900	194.000	208.200	201.400	214.500
SPACE VEL, V/V/HR	111.64	116.61	113.11	108.14	116.03	112.52	119.54
INLET H2 FLOW, CC/MIN	4531.47	4733.17	4590.92	4389.21	4709.55	4567.03	4851.81
INLET CO FLOW, CC/MIN	55.27	57.73	55.99	53.53	57.44	54.70	59.17
REACTOR TEMP, C	2263.30	2343.15	2272.73	2172.88	2331.46	2260.90	2401.88
	301.0	299.0	304.0	303.0	302.0	301.0	302.0

EXIT GAS COMPOSITION, MOLE PCT

H2	65.94	65.94	67.47	66.96	67.47	67.10	6.83
CO	33.49	33.04	29.84	33.47	12.48	0.76	1.08
CO2	0.35	0.65	3.46	0.27	16.23	26.49	35.38
CH4	0.12	0.17	0.28	0.08	2.08	42.07	46.61
C2H6+C2H4	0.01	0.01	0.04	0.02	0.33	4.97	4.87
C3H8	0.00	0.00	0.01	0.00	0.17	3.50	2.24
C3H6	0.00	0.00	0.07	0.00	0.65	0.07	0.00
1-C4H10	0.00	0.00	0.00	0.00	0.00	0.03	0.03
N-C4H10	0.00	0.00	0.01	0.00	0.13	1.87	0.63
1-C4H8	0.00	0.00	0.03	0.00	0.38	0.03	0.00
1-C4H6	0.00	0.00	0.00	0.00	0.00	0.01	0.00
C1S-2-C4H8	0.00	0.00	0.00	0.00	0.01	0.06	0.00
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C5H12	0.00	0.00	0.00	0.00	0.05	0.41	0.00
1-C5H10	0.00	0.00	0.01	0.00	0.14	0.00	0.00

AVG CONTRACTION, PCT	28.10	42.64	11.30	25.77	61.37	89.30	94.40
CO2-FREE CONTRACTION, PCT	28.36	43.02	14.37	25.98	67.64	92.13	96.38
H2 CONVERTED, CC/MIN	32.51	50.67	11.89	27.78	70.82	108.54	118.05
H2 CONVERTED, MMOL/MIN	1319.54	2056.57	482.96	1127.73	2874.67	4405.56	4824.07
H2 CONVERSION, PCT	29.11	43.45	10.52	25.69	61.03	96.46	99.42
CO CONVERTED, CC/MIN	15.07	24.68	11.22	12.78	49.07	55.56	59.07
CO CONVERTED, MMOL/MIN	611.71	1002.04	455.73	519.04	1991.92	2255.34	2397.48
CO CONVERSION, PCT	27.26	42.76	20.05	23.80	85.43	99.75	99.81
TOTAL H2+CO CONV	28.50	43.22	13.67	26.09	64.11	97.55	99.55
ACTUAL H2 CONV, PCT	29.50	44.01	15.11	25.99	70.41	100.70	102.38
ACTUAL CO CONV, PCT	26.49	41.62	10.76	23.27	66.50	91.19	93.83
H2 USAGE RATIO	0.683	0.672	0.514	0.684	0.590	0.661	0.668

GASEOUS PRODUCTS, MMOL/MIN

CH4	6.31675	7.23795	17.37108	4.26381	56.83277	307.39209	189.21136
C2H6+C2H4	0.69894	0.7030	3.03447	1.39769	9.20028	36.37638	19.77504
C3H8	0.07223	0.0723	1.05347	0.46847	4.73240	25.59943	9.12685
C3H6	0.22965	0.24820	4.30229	0.13237	17.73870	0.5243	0.03557
1-C4H10	0.01108	0.02912	0.05113	0.07159	0.05862	0.26948	0.14113
N-C4H10	0.00971	0.00971	0.07506	0.08550	3.77410	13.66385	2.59107
1-C4H8	0.01174	0.01258	2.09733	0.03691	10.39631	0.25167	0.02253
1-C4H6	0.27806	0.32149	0.01048	0.01677	0.03746	0.09435	0.00000
C1S-2-C4H8	0.01876	0.01787	0.07373	0.01000	0.43113	0.45244	0.00000
CO2	17.38703	26.63200	211.05749	13.26974	471.47058	193.55517	143.60299

FISCHER-TROPSCH PROGRAM

EXPERIMENT 8-7

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS), MMOL/HR	7.64	8.66	28.74	6.45	103.20	384.62	220.90
CO CONV TO GAS, MMOL/HR	27.32	37.89	262.49	22.91	642.90	711.00	410.87
CO TO HC(GAS), MMOL/HR	9.94	11.20	71.44	9.64	201.43	517.44	267.26
CO CONVERTED TO C5+ HYDROCARBONS, MMOL/HR	584.38	964.14	193.24	496.12	1349.01	1544.34	1986.61
CC/HR	14.39	23.75	4.76	12.22	33.13	38.05	48.94
SELECTIVITY							
CO TO C5+ (C5+)	95.53	96.21	42.40	75.58	67.72	68.47	82.86
CO TO CO2, PCT	2.84	2.66	46.31	2.55	22.16	8.58	5.98
CO TO CH4, PCT	1.03	0.72	3.81	0.82	2.85	13.62	7.89
CO C5+/CO HC(GAS)	58.79	86.04	3.75	51.43	6.69	2.98	7.43

FISCHER-TROPSCH PROGRAM

EXPERIMENT: a-8

REACTION TIME, MIN: 4.0 ROOM TEMP, C: 27.0 HYDROGEN/CO RATIO: 2.050

REACTOR ALKALI PROMOTER	1 NO	2 NO	3 YES	4 YES	5 YES	6 YES	7 NO
NOMINAL S.WT PCT	A	B	A	B	0	0	0
PRESSURE, KPA	3100.000	3100.000	3100.000	3100.000	3100.000	3100.000	3100.000
SPACE VEL, VV/HR	207.900	202.900	194.500	193.700	197.900	189.400	193.700
INLET H2 FLOW, CC/MIN	116.48	113.65	108.93	108.46	110.82	106.10	108.46
INLET CO FLOW, CC/MIN	4727.85	4612.73	4421.50	4402.40	4498.15	4306.65	4402.40
INLET CO FLOW, CC/MIN	56.82	55.43	53.14	52.91	54.06	51.76	52.91
REACTOR TEMP, C	2306.27	2250.11	2156.83	2147.51	2194.22	2100.80	2147.51
	350.0	348.0	354.0	353.0	355.0	348.0	352.0

EXIT GAS COMPOSITION, MOLE PCT

H2	67.47	67.98	64.43	69.53	4.91	4.53	1.53
CO	20.23	29.23	6.20	30.30	0.60	0.59	0.47
CO2	1.24	1.39	17.06	7.79	22.88	23.61	24.52
CH4	0.68	0.75	9.74	0.47	52.25	63.74	72.23
C2H6+C2H4	0.02	0.09	1.16	0.08	5.37	4.40	0.17
C3H8	0.01	0.01	0.17	0.02	7.16	1.58	0.03
C3H6	0.01	0.01	0.81	0.01	0.00	0.00	0.00
1-C4H10	0.00	0.00	0.00	0.00	0.01	0.02	0.00
N-C4H10	0.00	0.00	0.10	0.00	0.92	0.91	0.01
1-C4H8	0.00	0.00	0.41	0.00	0.00	0.00	0.00
1-C4H6	0.01	0.02	0.00	0.00	0.01	0.01	0.00
C15-2-C4H8	0.00	0.00	0.01	0.00	0.02	0.00	0.00
1-C5H10	0.00	0.00	0.01	0.00	0.04	0.03	0.00
1-C5H12	0.00	0.00	0.01	0.00	0.31	0.36	0.03
1-C5H10	0.00	0.00	0.15	0.00	0.00	0.00	0.00

AVG CONTRACTION, PCT

CO2-FREE CONTRACTION, PCT	13.44	23.11	32.74	4.57	80.89	78.46	71.99
H2 CONVERTED, CC/MIN	14.52	24.18	44.22	5.33	85.26	83.55	78.85
H2 CONVERTED, MMOL/MIN	15.27	25.26	38.70	1.38	109.27	104.56	107.72
H2 CONVERTED, PCT	619.89	1025.47	1571.03	56.25	4435.30	4244.13	4372.32
CO CONVERTED, CC/MIN	13.11	22.23	35.53	1.27	98.60	98.54	99.31
CO CONVERTED, MMOL/MIN	12.96	17.43	46.37	6.24	53.87	51.56	52.69
CO CONVERTED, PCT	526.35	707.52	1882.31	251.51	2186.43	2092.66	2138.78
TOTAL H2+CO CONV	22.82	31.44	87.27	11.80	98.64	99.61	99.59
ACTUAL H2 CONV, PCT	16.29	25.25	52.49	4.72	98.94	98.89	99.40
ACTUAL CO CONV, PCT	14.70	23.82	52.60	2.41	105.10	104.11	109.53
ACTUAL CO CONV, PCT	19.54	28.18	52.27	7.48	86.31	84.09	78.64
H2 USAGE RATIO	0.540	0.591	0.454	0.181	0.669	0.669	0.671

CASEOUS PRODUCTS, MMOL/MIN

CH4	41.41988	39.88581	431.14886	29.41503	795.91150	879.65332	1325.22363
C2H6+C2H4	1.74712	4.78159	51.45121	5.59578	68.66017	60.72136	3.18494
C3H8	1.10238	0.99779	7.60056	1.73368	27.72482	21.92581	0.55779
C3H6	0.87736	0.86045	36.23343	1.20052	0.05212	0.01742	0.01911
1-C4H10	0.30354	0.38965	3.30967	0.32814	0.19241	0.32939	0.02054
N-C4H10	0.15789	0.13894	4.69534	0.34904	11.88062	12.62862	0.34988
1-C4H8	0.05243	0.05089	10.28871	0.34174	0.11451	0.04373	0.01011
1-C4H6	1.15319	1.13572	0.8090	0.11032	0.18713	0.16396	0.00315
C15-2-C4H8	0.07373	0.07551	0.75497	0.04817	0.29559	0.03494	0.00201
CO2	75.50024	73.2488	754.78894	49.91405	272.59777	325.93231	449.44417

FISCHER-TROPSCH PROGRAM

EXPERIMENT 8-8

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS),MMOLES/MIN	46.91	48.31	550.86	39.16	905.01	975.55	1329.37
CO CONV TO GAS,MMOLE/MIN	133.48	135.55	1518.06	104.25	1359.84	1445.78	1784.71
CO TO HC(GAS),MMOLES/MIN	57.98	62.18	763.27	54.33	1067.24	1119.84	1334.06
CO CONVERTED TO C5+ HYDROCARBONS MMOLES/MIN	392.86	571.97	364.25	149.26	826.59	646.88	354.07
CC/MIN	9.67	14.09	8.97	3.67	20.36	15.93	8.72
SELECTIVITY							
CO TO C5+,PCT	74.63	80.84	19.35	58.87	37.80	30.91	16.55
CO TO CO2, PCT	14.34	10.36	40.09	19.68	13.38	15.57	21.03
CO TO CH4, PCT	7.86	5.63	22.90	11.60	36.40	42.03	61.96
CO C5+/CO HC(GAS)	6.77	9.19	0.47	2.74	0.77	0.57	0.26

FISCHER-TRUPSCH PROGRAM

EXPERIMENT 8-9

REACTION TIME, HRS = 4.5 ROOM TEMP, C = 28.0 HYDROGEN/CO RATIO = 2.060

REACTOR	1	2	3	4	5	6	7
ALKALI PROMOTER	NO	NO	YES	YES	YES	YES	NO
NOMINAL S.WT PCT	2200.000	2200.000	2200.000	2200.000	2200.000	2200.000	2200.000
PRESSURE, KPA	211.600	207.400	196.100	201.200	198.200	198.200	200.300
SPACE VEL, V/V/HR	118.69	116.35	110.03	112.84	111.20	111.20	111.37
INLET H2 FLOW, CC/MIN	4801.62	4706.86	4451.14	4156.97	4560.97	4424.53	4545.91
INLET CO FLOW, CC/MIN	57.62	56.48	53.41	54.78	54.78	51.98	54.55
INLET CO FLOW, MMOL/MIN	2330.80	2284.88	2160.75	2216.00	2216.00	2181.75	2206.75
REACTOR TEMP, C	240.0	238.0	242.0	241.0	240.0	240.0	241.0
EXIT GAS COMPOSITION, MOLE PCT							
H2	67.47	67.47	67.98	67.98	67.98	67.98	66.45
CO	31.67	31.82	31.72	31.81	31.21	30.91	31.06
CO2	0.01	0.01	0.06	0.03	0.26	0.51	0.32
CH4	0.00	0.00	0.00	0.00	0.00	0.01	0.92
C2H6+C2H4	0.00	0.00	0.00	0.00	0.00	0.00	0.06
C3H8	0.00	0.00	0.00	0.00	0.00	0.00	0.07
C3H6	0.00	0.00	0.00	0.00	0.00	0.00	0.18
1-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.07
1-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.15
1-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C15-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N-C5H12	0.00	0.00	0.00	0.00	0.00	0.00	0.03
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.06
AVG CONTRACTION, PCT	3.01	1.06	1.49	1.56	2.16	1.93	28.11
CO2-FREE CONTRACTION, PCT	3.03	1.08	1.56	1.60	2.42	2.43	28.34
H2 CONVERTED, CC/MIN	3.31	0.97	0.57	0.66	1.34	1.06	32.63
H2 CONVERTED, MMOL/MIN	136.11	39.34	23.21	27.03	54.54	43.09	1320.00
H2 CONVERSION, PCT	2.79	0.83	0.52	0.59	1.19	0.95	29.03
CO CONVERTED, CC/MIN	3.46	2.06	2.33	2.27	3.58	3.90	17.27
CO CONVERTED, MMOL/MIN	139.99	83.45	94.26	91.82	145.10	156.06	698.85
CO CONVERSION, PCT	6.00	3.65	4.36	4.14	6.54	7.23	31.66
TOTAL H2+CO CONV	3.84	1.75	1.77	1.75	4.94	3.51	29.89
ACTUAL H2 CONV, PCT	2.82	0.86	0.61	0.64	1.57	1.71	29.38
ACTUAL CO CONV, PCT	5.95	3.59	4.16	4.03	5.76	5.68	30.94
H2 USAGE RATIO	0.489	0.320	0.197	0.227	0.273	0.214	0.653
GASEOUS PRODUCTS, MMOL/MIN							
CH4	0.23229	0.13817	0.16969	0.08115	0.22278	1.04723	44.96980
C2H6+C2H4	0.07835	0.02938	0.07070	0.04410	0.17948	0.34024	3.37265
C3H8	0.06091	0.00641	0.05131	0.01712	0.11377	0.25109	3.61931
C3H6	0.00626	0.00940	0.07080	0.00453	0.25695	0.57003	9.14774
1-C4H10	0.00121	0.00000	0.06455	0.00934	0.00116	0.00114	0.03058
N-C4H10	0.00692	0.00552	0.04547	0.01997	0.06617	0.15165	3.56379
1-C4H8	0.00095	0.00000	0.03365	0.00229	0.09327	0.29027	7.35807
1-C4H6	0.00893	0.00119	0.00000	0.00287	0.00000	0.00282	0.02507
C15-2-C4H8	0.00076	0.00000	0.00071	0.00000	0.01095	0.02886	0.22447
CO2	1.29916	1.20976	4.28313	2.59831	17.45178	33.86223	15.96199

FISCHER-TROPSCH PROGRAM

EXPERIMENT 8-9

REACTOR	1	2	3	4	5	6	7
TOTAL HC(GAS),MMOLES/MIN	0.43	0.19	0.44	0.20	0.94	2.61	72.11
CO CONV TO GAS,MMOLE/MIN	2.12	1.57	5.29	2.94	19.84	39.69	150.18
CO TO HC(GAS),MMOLES/MIN	0.82	0.27	1.01	0.43	2.39	5.83	134.22
CO CONVERTED TO C3+ HYDROCARBONS MMOLES/MIN	137.87	81.88	88.96	80.88	125.25	118.37	548.66
CC/MIN	3.40	2.02	2.19	2.19	3.09	2.92	13.56
SELECTIVITY							
CO TO C3+,PCT	98.48	98.11	94.37	96.79	86.32	74.88	78.50
CO TO CO2, PCT	0.92	1.51	4.54	2.73	12.02	21.42	2.28
CO TO CH4, PCT	0.16	0.16	0.18	0.08	0.15	0.66	6.43
CO C5+/CO HC(GAS)	166.97	301.91	87.64	205.61	52.23	20.29	4.08

EXPERIMENT 8-10

FISCHER-TROPSCH PROGRAM

REACTION TIME, HRS *		4.3	ROOM TEMP, C =		27.0	HYDROGEN/CO RATIO =		2.010		
REACTOR	1	2	3	4	5	6	7			
ALKALI PROMOTER	NO	NO	YES	YES	YES	YES	NO			
NOMINAL S.WT PCT	A	B	A	B	B	O	O			
PRESSURE, KPA	2200.000	2200.000	2200.000	2200.000	2200.000	2200.000	2200.000			
SPACE VEL, V/V/HR	206.000	203.100	196.800	198.900	200.100	200.100	197.200			
INLET H2 FLOW, CC/MIN	114.65	113.01	109.50	110.67	111.37	111.37	109.73			
MMOL/MIN	4653.57	4586.09	4449.33	4491.76	4520.22	4520.22	4453.82			
INLET CO FLOW, CC/MIN	57.04	56.22	54.47	55.05	51.10	51.10	54.59			
MMOL/MIN	2315.20	2282.03	2211.11	2234.70	2248.86	2248.86	2215.83			
REACTOR TEMP, C	241.0	237.0	244.0	242.0	240.0	240.0	242.0			
EXIT GAS COMPOSITION, MOLE PCT										
H2	68.50	68.50	68.50	68.50	68.50	68.50	63.92			
CO	31.97	31.97	32.12	32.12	32.12	32.12	36.08			
CO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
CH4	0.00	0.00	0.01	0.01	0.01	0.01	0.01			
C2H6+C2H4	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
C3H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
C3H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
1-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
N-C4H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
1-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
1-C4H6	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
C1S-2-C4H8	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
1-C5H12	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
1-C5H10	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
CONVERSION, PCT										
AVG CONTRACTION, PCT	3.31	3.09	3.03	2.85	2.85	3.46	64.70			
CO2-FREE CONTRACTION, PCT	3.31	3.09	3.03	2.85	2.85	3.46	65.27			
H2 CONVERTED, CC/MIN	0.74	0.67	0.58	0.58	0.58	1.08	72.35			
H2 CONVERTED, MMOL/MIN	38.29	27.22	23.67	15.50	15.50	43.95	2948.88			
H2 CONVERSION, PCT	0.82	0.59	0.53	0.34	0.34	0.97	66.21			
CO CONVERTED, CC/MIN	3.96	3.78	3.39	3.33	3.33	3.68	36.75			
CO CONVERTED, MMOL/MIN	160.77	153.55	137.69	135.21	135.21	149.37	1491.75			
CO CONVERSION, PCT	6.94	6.72	6.22	6.05	6.05	6.84	67.32			
TOTAL H2+CO CONV	2.85	2.63	2.42	2.24	2.24	2.85	66.57			
ACTUAL H2 CONV, PCT	0.02	0.59	0.53	0.34	0.34	0.97	67.06			
ACTUAL CO CONV, PCT	6.94	6.72	6.22	6.05	6.05	6.84	65.60			
H2 USAGE RATIO	0.192	0.150	0.146	0.102	0.102	0.227	0.664			
GASEOUS PRODUCTS, MMOL/MIN										
CH4	0.32179	0.35263	0.28839	0.10026	0.10026	2.55762	49.72190			
C2H6+C2H4	0.04154	0.03927	0.08376	0.03551	0.03551	0.16655	3.27110			
C3H8	0.00832	0.00822	0.04366	0.03028	0.03028	0.12316	3.11308			
C3H6	0.01526	0.01507	0.06139	0.00888	0.00888	0.13240	11.02211			
1-C4H10	0.00235	0.00116	0.00271	0.00271	0.00271	0.00114	0.02636			
N-C4H10	0.01075	0.01062	0.02059	0.00782	0.00782	0.05866	3.60693			
1-C4H8	0.00928	0.00779	0.02089	0.00225	0.00225	0.05342	9.80346			
1-C4H6	0.00406	0.00373	0.00000	0.00281	0.00281	0.00000	0.04053			
C1S-2-C4H8	0.00000	0.00000	0.00000	0.00359	0.00359	0.01438	0.21028			
CO2	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	38.33992			

FISCHER-TROPSCH PROGRAM

EXPERIMENT 0-10

REACTOR	1	2	3	4	6	7
TOTAL HC(GAS),MMOLES/MIN	0.41	0.44	1.02	0.22	3.17	80.99
CO CONV TO GAS,MMOLE/MIN	0.58	0.60	1.44	0.44	4.37	192.18
CO TO HC(GAS),MMOLES/MIN	0.58	0.60	1.44	0.44	4.37	154.14
CO CONVERTED TO C5+ HYDROCARBONS MMOLES/MIN	160.11	152.95	136.24	134.76	145.00	1299.57
CC/MIN	3.94	3.76	3.35	3.32	3.57	32.01
SELECTIVITY						
CO TO C5+,PCT	99.63	99.60	98.94	99.67	97.07	87.11
CO TO CO2, PCT	0.00	0.00	0.00	0.00	0.00	2.55
CO TO CH4, PCT	0.20	0.22	0.57	0.07	1.71	3.33
CO C5+/CO HC(GAS)	274.74	253.92	94.06	302.81	33.16	8.43