Fig. 63

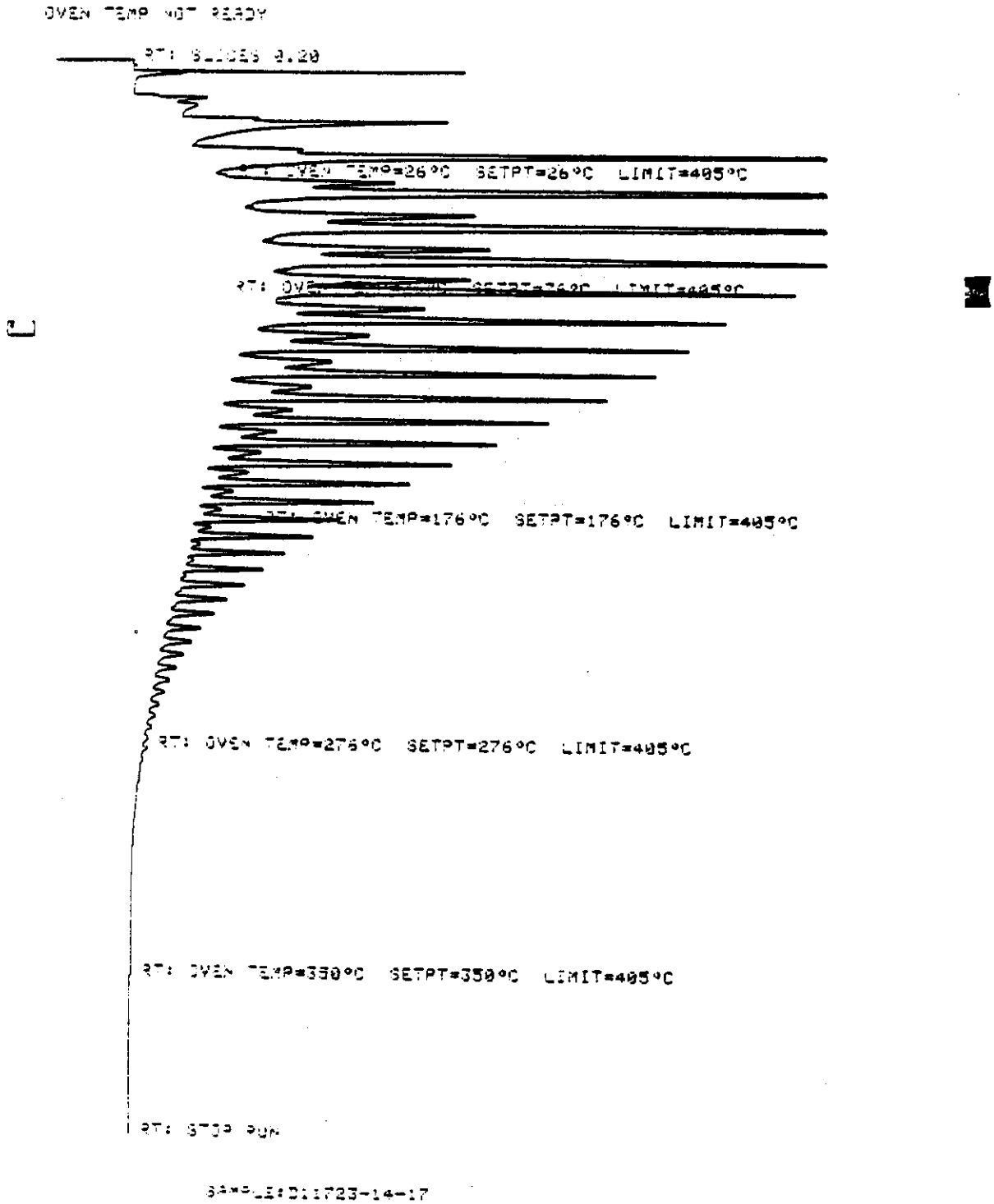

OVEN TEMP NOT READY
RT: SLIDES 0.20
RT: OVEN TEMP=26°C SETPT=26°C LIMIT=405°C
RT: OVEN TEMP=176°C SETPT=176°C LIMIT=405°C
RT: OVEN TEMP=276°C SETPT=276°C LIMIT=405°C
RT: OVEN TEMP=350°C SETPT=350°C LIMIT=405°C
RT: STOP RUN
SAMPLE:D11723-14-17

Fig. 64

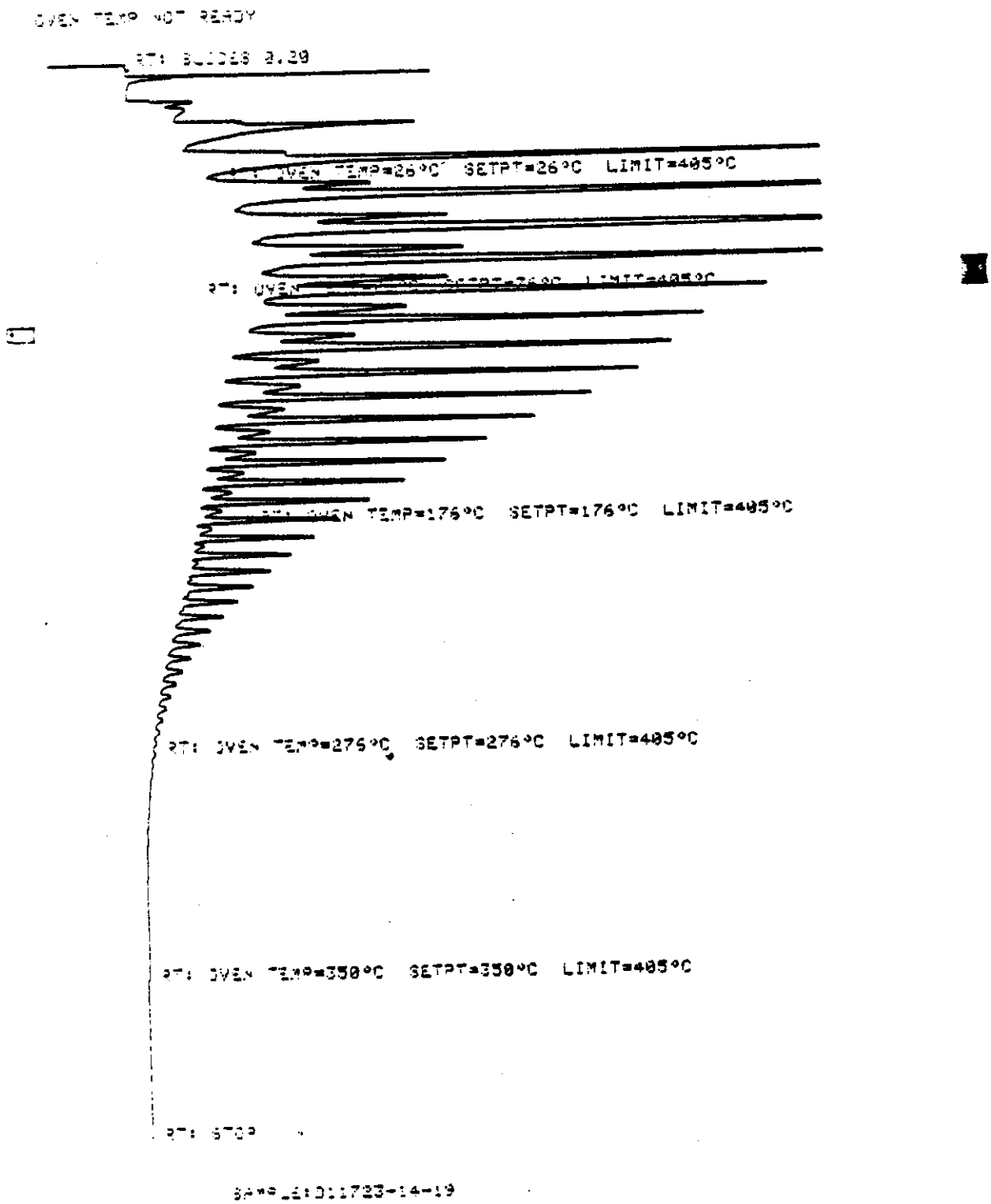

OVEN TEMP NOT READY
RT: 11:23:18 8.20
RT: OVEN TEMP=26°C SETPT=26°C LIMIT=405°C
RT: OVEN TEMP=176°C SETPT=176°C LIMIT=405°C
RT: OVEN TEMP=276°C SETPT=276°C LIMIT=405°C
RT: OVEN TEMP=350°C SETPT=350°C LIMIT=405°C
RT: 8703
SAMPLE:D11723-14-19

Fig. 65

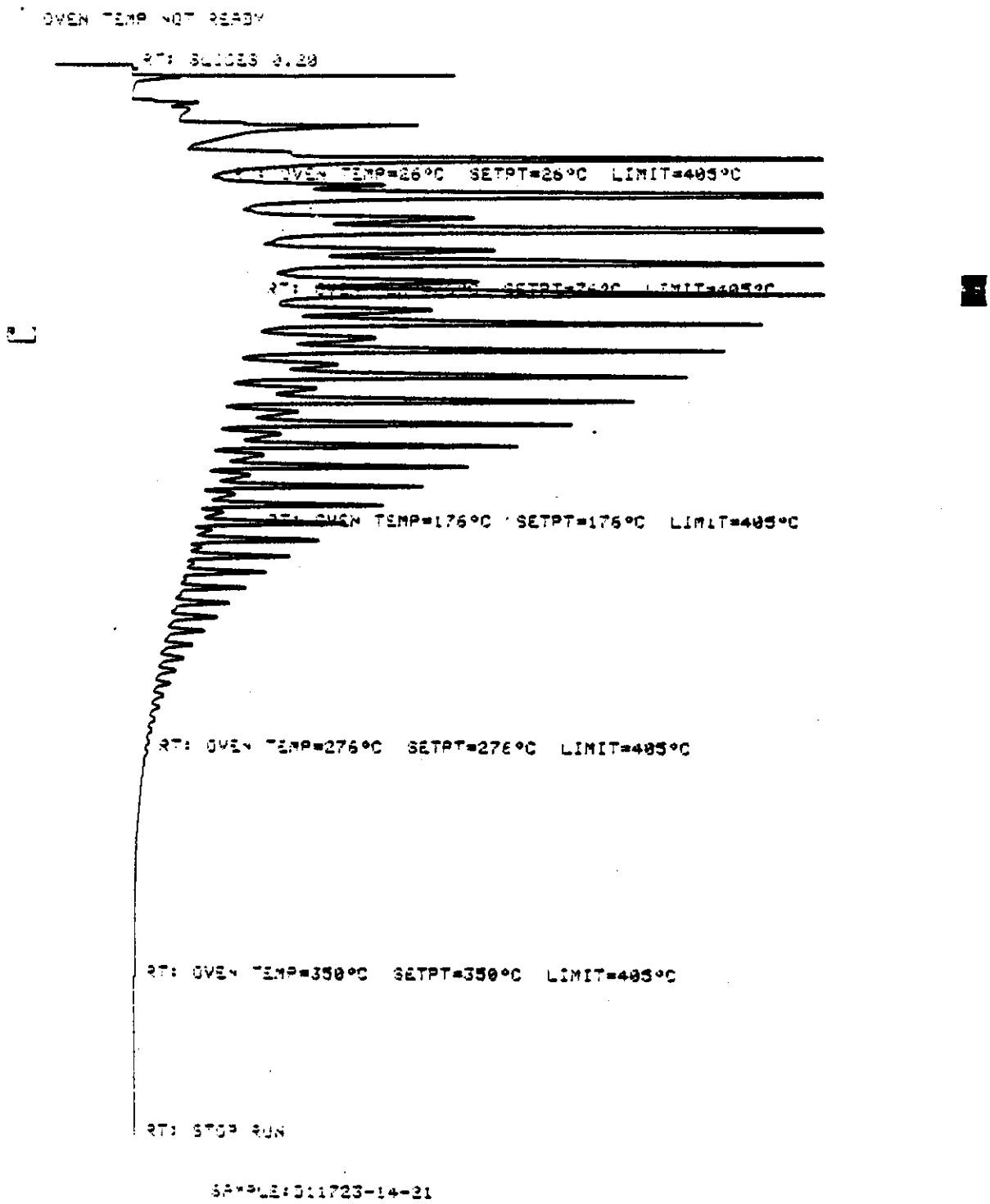

OVEN TEMP NOT READY
RT: SLICES 0.20
RT: OVEN TEMP=26°C SETPT=26°C LIMIT=405°C
RT: OVEN TEMP=176°C SETPT=176°C LIMIT=405°C
RT: OVEN TEMP=276°C SETPT=276°C LIMIT=405°C
RT: OVEN TEMP=350°C SETPT=350°C LIMIT=405°C
RT: STOP RUN
SAMPLE:011723-14-21

Table 7

RESULT OF SYNGAS OPERATION

RUN NO. 11723-14
CATALYST HiCoThU101+U101 11864-8C 250 CC 126.GM (148 AFTER RUN +22 G)
FEED H2:CO:ARGON OF 50:50:0 @ 1260 CC/MN OR 302 GHSV

RUN & SAMPLE NO.	11723-14-01	723-14-02	723-14-03	723-14-04	723-14-05
FEED H2:CO:AR	50:50: 0	50:50: 0	50:50: 0	50:50: 0	50:50: 0
HRS ON STREAM	19.5	26.5	43.5	50.5	67.5
PRESSURE,PSIG	304	303	304	303	303
TEMP. C	267	265	262	263	264
FEED CC/MIN	1260	1260	1260	1260	1260
HOURS FEEDING	19.50	7.00	24.00	7.00	24.00
EFFLNT GAS LITER	546.80	213.30	756.60	225.10	777.10
GM AQUEOUS LAYER	201.68	72.40	248.23	71.84	246.32
GM OIL	73.86	25.78	88.37	24.76	84.89
MATERIAL BALANCE					
GM ATOM CARBON %	88.85	91.22	92.37	91.55	91.77
GM ATOM HYDROGEN %	96.04	97.54	99.60	98.18	98.36
GM ATOM OXYGEN %	93.89	96.72	96.97	97.92	98.42
RATIO CHX/(H2O+CO2)	0.8818	0.8686	0.8882	0.8449	0.8388
RATIO X IN CHX	2.3604	2.3582	2.3460	2.3716	2.3885
USAGE H2/CO PRODT	1.9719	2.0469	2.0711	2.1157	2.1179
FEED H2/CO FRM EFFLNT	1.0809	1.0693	1.0783	1.0724	1.0718
RESIDUAL H2/CO RATIO	0.2843	0.3157	0.3425	0.3478	0.3469
RATIO CO2/(H2O+CO2)	0.1016	0.0808	0.0659	0.0688	0.0722
K SHIFT IN EFFLNT	0.0321	0.0278	0.0242	0.0257	0.0270
SPECIFIC ACTIVITY SA	3.0472	2.4925	2.5652	2.2514	2.1383
CONVERSION					
ON CO %	47.20	43.53	42.57	40.98	40.93
ON H2 %	86.11	83.32	81.76	80.86	80.88
ON CO+H2 %	67.41	64.09	62.90	61.62	61.60
PRDT SELECTIVITY,WT %					
CH4	13.19	13.28	12.89	14.24	15.35
C2 HC'S	2.07	2.07	1.97	2.20	2.25
C3H8	2.38	2.21	2.12	2.23	2.16
C3H6=	2.42	2.35	2.49	2.32	2.24
C4H10	2.76	2.45	2.33	2.03	1.74
C4H8=	4.23	4.25	4.18	4.04	3.63
C5H12	2.69	2.62	2.36	2.29	1.87
C5H10=	5.08	5.31	5.31	4.99	4.88
C6H14	3.51	3.20	2.74	2.48	2.26
C6H12= & CYCLO'S	3.23	3.55	3.56	3.44	3.38
C7+ IN GAS	13.45	13.42	15.06	14.24	14.64
LIQ HC'S	44.99	45.29	44.99	45.51	45.60
TOTAL	100.00	100.00	100.00	100.00	100.00

Table 7 (continued)

SUB-GROUPING					
C1 -C4	27.04	26.61	25.98	27.06	27.38
C5 -420 F	51.97	48.93	49.73	47.46	47.09
420-700 F	19.17	20.78	20.65	20.42	20.47
700-END PT	1.83	3.67	3.65	5.06	5.07
C5+-END PT	72.96	73.39	74.02	72.94	72.62
ISO/NORMAL MOLE RATIO					
C4	0.4209	0.3754	0.3152	0.2633	0.1476
C5	0.4066	0.3084	0.2200	0.1976	0.1904
C6	1.3467	1.0107	0.8002	0.6605	0.5550
C4=	0.0841	0.0814	0.0889	0.0747	0.0677
PARAFFIN/OLEFIN RATIO					
C3	0.9372	0.8947	0.8135	0.9155	0.9179
C4	0.6298	0.5570	0.5374	0.4859	0.4628
C5	0.5148	0.4785	0.4312	0.4464	0.3724
SCHULZ-FLORY DISTRBTN					
ALPHA (EXP(SLOPE))	0.7864		0.8185		0.8312
RATIO CH4/(1-A)**2	2.8888		3.9134		5.3845
LIQ HC COLLECTION					
PHYS. APPEARANCE	CLDY		CLDY		CLDY YLW
DENSITY	0.7573		0.7635		0.7643
N, REFRACTIVE INDEX	1.4255		1.4290		1.4295
SIMULT'D DISTILATN					
10 WT % @ DEG F	250		260		260
16	286		296		299
50	409		440		451
84	576		637		663
90	624		684		711
RANGE(16-84 %)	290		341		364
WT % @ 420 F	53.33	46.00	46.00	44.00	44.00
WT % @ 700 F	95.94	91.89	91.89	88.88	88.88

NEW FORMAT AUG 29,84

Table 8

RESULT OF SYNGAS OPERATION

RUN NO. 11723-14
CATALYST HiCoThU101+U101 11864-8C 250 CC 126.GM (148 AFTER RUN +22 G)
FEED H2:CO:ARGON OF 50:50:0 @ 1260 CC/MN OR 302 GHSV

RUN & SAMPLE NO.	11723-14-06	723-14-07	723-14-08	723-14-09	723-14-10
FEED H2:CO:AR	50:50: 0	50:50: 0	50:50: 0	50:50: 0	50:50: 0
HRS ON STREAM	74.5	91.5	98.0	115.0	121.0
PRESSURE,PSIG	303	304	303	302	304
TEMP. C	262	263	263	262	262
FEED CC/MIN	1260	1260	1260	1260	1260
HOURS FEEDING	7.00	24.00	6.50	23.50	6.00
EFFLNT GAS LITER	228.50	788.10	211.50	776.80	202.70
GM AQUEOUS LAYER	70.84	242.88	65.11	235.41	56.49
GM OIL	25.65	87.96	22.51	81.40	23.07
MATERIAL BALANCE					
GM ATOM CARBON %	92.09	95.22	91.39	92.58	93.89
GM ATOM HYDROGEN %	99.17	102.47	99.46	100.44	98.96
GM ATOM OXYGEN %	97.23	97.54	96.17	96.52	95.98
RATIO CHX/(H2O+CO2)	0.8721	0.9428	0.8806	0.9006	0.9444
RATIO X IN CHX	2.3641	2.3664	2.3858	2.3619	2.3799
USAGE H2/CO PRODT	2.1102	2.0226	2.0939	2.0962	2.0479
FEED H2/CO FRM EFFLNT	1.0769	1.0761	1.0884	1.0849	1.0541
RESIDUAL H2/CO RATIO	0.3658	0.3590	0.3743	0.3817	0.3816
RATIO CO2/(H2O+CO2)	0.0613	0.0690	0.0668	0.0568	0.0623
K SHIFT IN EFFLNT	0.0239	0.0266	0.0268	0.0230	0.0253
SPECIFIC ACTIVITY SA	2.1743	2.3123	2.0606	2.0879	2.0211
CONVERSION					
ON CO %	40.77	43.10	41.52	41.02	40.36
ON H2 %	79.88	81.02	79.89	79.25	78.41
ON CO+H2 %	61.05	62.75	61.52	60.91	59.88
PRDT SELECTIVITY,WT %					
CH4	14.10	14.15	15.14	13.66	14.86
C2 HC'S	2.09	2.14	2.17	2.06	2.16
C3H8	2.10	2.35	2.39	2.56	2.08
C3H6=	2.45	3.00	2.92	2.83	2.45
C4H10	1.66	2.11	2.11	2.36	1.67
C4H8=	3.79	4.20	4.22	4.77	3.73
C5H12	1.90	2.27	2.07	2.56	1.80
C5H10=	4.61	4.81	4.82	5.23	4.60
C6H14	2.18	2.24	2.23	2.42	2.03
C6H12= & CYCLO'S	3.42	3.66	3.58	4.13	3.41
C7+ IN GAS	15.04	16.27	14.57	14.11	12.94
LIQ HC'S	46.66	42.80	43.78	43.32	48.26
TOTAL	100.00	100.00	100.00	100.00	100.00

Table 8 (continued)

SUB-GROUPING					
C1 -C4	26.18	27.95	28.95	28.24	26.96
C5 -420 F	47.57	47.98	46.53	47.50	46.01
420-700 F	19.95	18.30	19.01	18.81	20.47
700-END PT	6.30	5.78	5.51	5.45	6.55
C5+-END PT	73.82	72.05	71.05	71.76	73.04
ISO/NORMAL MOLE RATIO					
C4	0.1389	0.1873	0.1895	0.1783	0.1192
C5	0.2755	0.2980	0.3377	0.2556	0.2182
C6	0.4684	0.5075	0.4924	0.4608	0.3872
C4=	0.0603	0.0754	0.0713	0.0743	0.0600
PARAFFIN/OLEFIN RATIO					
C3	0.8149	0.7476	0.7790	0.8632	0.8121
C4	0.4234	0.4844	0.4823	0.4779	0.4329
C5	0.4006	0.4581	0.4162	0.4751	0.3814
SCHULZ-FLORY DISTRBTN					
ALPHA (EXP(SLOPE))		0.8257	0.8229	0.8248	
RATIO CH4/(1-A)**2		4.6552	4.8264	4.4516	
LIQ HC COLLECTION					
PHYS. APPEARANCE		OIL/SLD		OIL/SLD	
DENSITY		0.7639		0.7631	
N, REFRACTIVE INDEX		1.4310		1.4300	
SIMULT'D DISTILATN					
10 WT % @ DEG F		270		262	
16		301		300	
50		452		451	
84		675		671	
90		738		728	
RANGE(16-84 %)		374		371	
WT % @ 420 F	43.75	43.75	44.00	44.00	44.00
WT % @ 700 F	86.50	86.50	87.42	87.42	86.42

NEW FORMAT AUG 29,84

Table 9

RESULT OF SYNGAS OPERATION

RUN NO. 11723-14
CATALYST HiCoThU101+U101 11684-8C 250 CC 126.GM (148 AFTER RUN +22 G)
FEED H2:CO:ARGON OF 50:50:0 @ 1260 CC/MN OR 302 GHSV

RUN & SAMPLE NO.	11723-14-11	723-14-12	723-14-13	723-14-14	723-14-15
FEED H2:CO:AR	50:50: 0	50:50: 0	50:50: 0	50:50: 0	50:50: 0
HRS ON STREAM	139.0	145.0	163.5	170.5	187.5
PRESSURE,PSIG	301	304	305	302	304
TEMP. C	263	262	262	262	262
FEED CC/MIN	1260	1260	1260	1260	1260
HOURS FEEDING	24.00	6.00	24.50	6.50	24.00
EFFLNT GAS LITER	774.10	204.50	843.45	226.95	842.55
GM AQUEOUS LAYER	225.94	58.71	239.72	63.14	233.13
GM OIL	92.28	23.56	96.19	26.16	96.60
MATERIAL BALANCE					
GM ATOM CARBON %	89.32	93.52	93.55	94.81	95.47
GM ATOM HYDROGEN %	96.40	100.67	101.01	100.62	102.08
GM ATOM OXYGEN %	92.88	97.23	97.51	98.71	98.49
RATIO CHX/(H2O+CO2)	0.9050	0.9045	0.8977	0.8989	0.9217
RATIO X IN CHX	2.3898	2.3778	2.3909	2.3888	2.3882
USAGE H2/CO PRODT	2.0977	2.1025	2.1211	2.1137	2.0955
FEED H2/CO FRM EFFLNT	1.0792	1.0765	1.0798	1.0613	1.0693
RESIDUAL H2/CO RATIO	0.3889	0.3967	0.4021	0.3930	0.4018
RATIO CO2/(H2O+CO2)	0.0590	0.0560	0.0542	0.0558	0.0546
K SHIFT IN EFFLNT	0.0244	0.0235	0.0230	0.0232	0.0232
SPECIFIC ACTIVITY SA	1.8863	1.8766	1.8043	1.8589	1.8186
CONVERSION					
ON CO %	40.40	39.85	39.43	38.84	39.41
ON H2 %	78.52	77.84	77.44	77.35	77.23
ON CO+H2 %	60.18	59.54	59.16	58.67	58.96
PRDT SELECTIVITY,WT %					
CH4	15.14	14.52	15.25	15.05	15.10
C2 HC'S	2.12	2.12	2.16	2.20	2.14
C3H8	2.23	2.26	2.14	2.21	2.24
C3H6=	2.53	2.64	2.40	2.59	2.56
C4H10	1.74	1.77	1.72	1.72	1.73
C4H8=	3.99	4.07	3.79	3.84	3.89
C5H12	1.96	1.93	1.84	1.84	1.81
C5H10=	4.53	4.65	4.65	4.37	4.70
C6H14	2.03	2.01	2.09	1.86	1.95
C6H12= & CYCLO'S	3.35	3.60	3.51	3.30	3.58
C7+ IN GAS	9.78	10.50	10.11	9.27	9.77
LIQ HC'S	50.61	49.92	50.32	51.76	50.53
TOTAL	100.00	100.00	100.00	100.00	100.00

Table 9 (continued)

SUB-GROUPING					
C1 -C4	27.75	27.39	27.47	27.60	27.65
C5 -420 F	43.91	44.66	44.35	43.93	44.56
420-700 F	21.47	21.68	21.85	22.55	22.02
700-END PT	6.87	6.28	6.33	5.92	5.78
C5+-END PT	72.25	72.61	72.53	72.40	72.35
ISO/NORMAL MOLE RATIO					
C4	0.1110	0.1084	0.0996	0.1102	0.0929
C5	0.2143	0.2044	0.1805	0.2012	0.1816
C6	0.3813	0.2950	0.3784	0.2907	0.3257
C4=	0.0613	0.0607	0.0592	0.0602	0.0585
PARAFFIN/OLEFIN RATIO					
C3	0.8411	0.8159	0.8530	0.8121	0.8356
C4	0.4206	0.4191	0.4375	0.4324	0.4292
C5	0.4200	0.4033	0.3849	0.4086	0.3747
SCHULZ-FLORY DISTRBTN					
ALPHA (EXP(SLOPE))	0.8342	0.8372	0.8324		0.8288
RATIO CH4/(1-A)**2	5.5088	5.4825	5.4261		5.1532
LIQ HC COLLECTION					
PHYS. APPEARANCE	OIL/SLD		WAXY YLW		WAXY YLW
DENSITY	0.7603		0.7498		0.7468
N, REFRACTIVE INDEX	1.4305		1.4300		1.4300
SIMULT'D DISTILATN					
10 WT % @ DEG F	263		267		264
16	300		301		300
50	451		450		445
84	675		666		652
90	744		730		717
RANGE(16-84 %)	375		365		352
WT % @ 420 F	44.00	44.00	44.00	45.00	45.00
WT % @ 700 F	86.42	87.42	87.42	88.57	88.57

Table 10

RESULT OF SYNGAS OPERATION

RUN NO. 11723-14
CATALYST HiCoThU101+U101 11864-8C 250 CC 126.GM (148 AFTER RUN +22 G)
FEED H2:CO:ARGON OF 50:50:0 @ 1260 CC/MN OR 302 GHSV

RUN & SAMPLE NO.	117233-4-16	723-14-17	723-14-19	723-14-20	723-14-21
FEED H2:CO:AR	50:50: 0	50:50: 0	50:50: 0	50:50: 0	50:50: 0
HRS ON STREAM	194.0	211.0	235.0	241.5	258.5
PRESSURE,PSIG	303	303	300	301	300
TEMP. C	262	262	261	261	262
FEED CC/MIN	1260	1260	1260	1260	1260
HOURS FEEDING	6.50	24.50	24.00	6.50	23.50
EFFLNT GAS LITER	227.90	862.90	851.60	232.10	851.15
GM AQUEOUS LAYER	61.31	231.08	228.22	60.95	220.36
GM OIL	25.38	95.67	94.68	24.22	87.57
MATERIAL BALANCE					
GM ATOM CARBON %	94.25	94.59	94.49	94.83	95.44
GM ATOM HYDROGEN %	98.35	98.55	100.37	99.17	99.99
GM ATOM OXYGEN %	98.37	98.66	98.26	98.54	99.26
RATIO CHX/(H2O+CO2)	0.8902	0.8918	0.8999	0.9002	0.8978
RATIO X IN CHX	2.4147	2.4154	2.4154	2.4147	2.4294
USAGE H2/CO PRODT	2.1291	2.1271	2.1382	2.1353	2.1377
FEED H2/CO FRM EFFLNT	1.0435	1.0418	1.0622	1.0458	1.0477
RESIDUAL H2/CO RATIO	0.3843	0.3843	0.4043	0.3952	0.4008
RATIO CO2/(H2O+CO2)	0.0573	0.0576	0.0518	0.0525	0.0546
K SHIFT IN EFFLNT	0.0234	0.0235	0.0221	0.0219	0.0232
SPECIFIC ACTIVITY SA	1.8128	1.8335	1.8265	1.8391	1.7153
CONVERSION					
ON CO %	37.78	37.73	37.94	37.39	37.24
ON H2 %	77.09	77.03	76.38	76.34	75.99
ON CO+H2 %	57.85	57.78	57.74	57.30	57.07
PRDT SELECTIVITY,WT %					
CH4	16.30	16.34	16.38	16.22	17.15
C2 HC'S	2.37	2.38	2.16	2.29	2.44
C3H8	2.16	2.17	2.26	2.40	2.23
C3H6=	2.12	2.12	2.38	2.63	2.13
C4H10	1.69	1.70	1.68	2.16	1.70
C4H8=	3.39	3.40	3.31	3.79	3.53
C5H12	1.57	1.57	1.56	1.67	1.62
C5H10=	3.76	3.77	3.76	3.94	3.87
C6H14	2.57	2.57	2.74	2.78	2.74
C6H12= & CYCLO'S	3.58	3.58	3.47	3.81	3.60
C7+ IN GAS	8.55	8.57	8.50	8.82	9.55
LIQ HC'S	51.95	51.84	51.79	49.50	49.45
TOTAL	100.00	100.00	100.00	100.00	100.00

Table 10 (continued)

SUB-GROUPING					
C1 -C4	28.04	28.10	28.18	29.49	29.18
C5 -420 F	43.74	43.74	43.68	43.62	43.95
420-700 F	22.36	22.31	22.25	21.64	21.61
700-END PT	5.86	5.85	5.88	5.26	5.25
C5+-END PT	71.96	71.90	71.82	70.51	70.82
ISO/NORMAL MOLE RATIO					
C4	0.1019	0.1019	0.1361	0.1502	0.0905
C5	0.0882	0.0882	0.0779	0.1080	0.0779
C6	0.6642	0.6642	0.7638	0.7568	0.6496
C4=	0.0641	0.0641	0.0639	0.0772	0.0631
PARAFFIN/OLEFIN RATIO					
C3	0.9744	0.9744	0.9071	0.8733	0.9961
C4	0.4817	0.4817	0.4909	0.5491	0.4655
C5	0.4059	0.4059	0.4034	0.4114	0.4057
SCHULZ-FLORY DISTRBTN					
ALPHA (EXP(SLOPE))		0.8308	0.8326		0.8266
RATIO CH4/(1-A)**2		5.7079	5.8491		5.7024
LIQ HC COLLECTION					
PHYS. APPEARANCE		WAXY YLW	WAXY YLW		WAXY YLW
DENSITY		0.758	0.752		0.754
N, REFRACTIVE INDEX		1.4300	1.4298		1.4296
SIMULT'D DISTILATN					
10 WT % @ DEG F		264	264		269
16		300	300		301
50		442	442		443
84		649	651		645
90		714	716		708
RANGE(16-84 %)		349	351		344
WT % @ 420 F	45.67	45.67	45.67	45.67	45.67
WT % @ 700 F	88.71	88.71	88.64	89.38	89.38

NEW FORMAT AUG 29,84

V. Run 4 (11677-17) with Catalyst 4 (Co/Th/X_4/UCC-103+UCC-101)

This catalyst was prepared in the same way as the highly stable Catalyst 6 of the Third Annual Report except that the X_4 was obtained from a different source. The new source offered certain perceived advantages over the one previously used for intimately mixed catalyst formulations; it also contained, however, a component deleterious to the catalytic activity. A known chemical way to remove this component was attempted but proved ineffectual, and two runs had to be aborted in consequence. Since the unwanted component can form a volatile compound, the catalyst was calcined at 400C in air in an attempt to remove it completely.

The catalyst resembles Catalyst 1 except for the addition of X_4, the higher calcination temperature, and a lower cobalt loading; the final cobalt content was about 3.3 percent.

Conversion, product selectivity, isomerization of the pentane, and percent olefins of the C_4's are plotted against time on stream in Figs. 66-69. Simulated distillations of the C_5^+ product are plotted in Figs. 70-72. Carbon number product distributions are plotted in Figs. 73-76. Detailed material balances appear in Tables 11-12.

It would ordinarily be expected that when the cobalt is loaded at lower concentrations it will be used more efficiently. The

syngas conversion activity of this catalyst, however, proved to be very low even for its low cobalt loading level--per gram cobalt, only one quarter to one third the activity of Catalyst 1.

As usual when a catalyst's activity is low, the selectivity was poor. Methane production was high, and production of C_2-C_4 was more like that of an iron than a cobalt catalyst. As can be seen from the plots of the simulated distillations, most of the C_5^+ was gasoline with very little diesel and essentially no heavies.

This is not a useful catalyst, probably because of the high calcination temperature required to remove the deleterious volatile component from the X_4.

Fig. 66

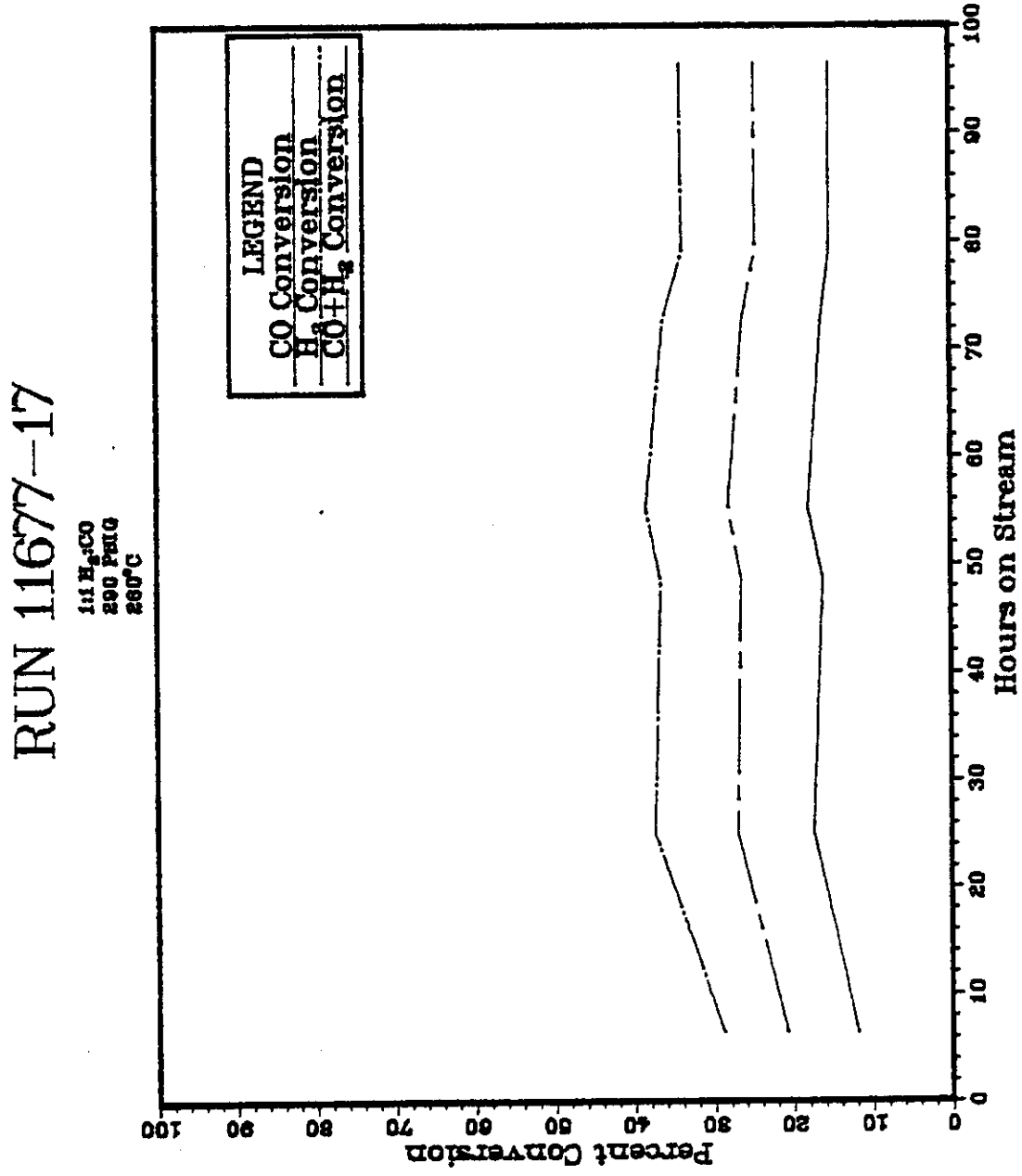

RUN 11677-17
1:1 H2:CO
290 PSIG
260°C
LEGEND
CO Conversion
H2 Conversion
CO+H2 Conversion
Percent Conversion
Hours on Stream
0
10
20
30
40
50
60
70
80
90
100

Fig. 67

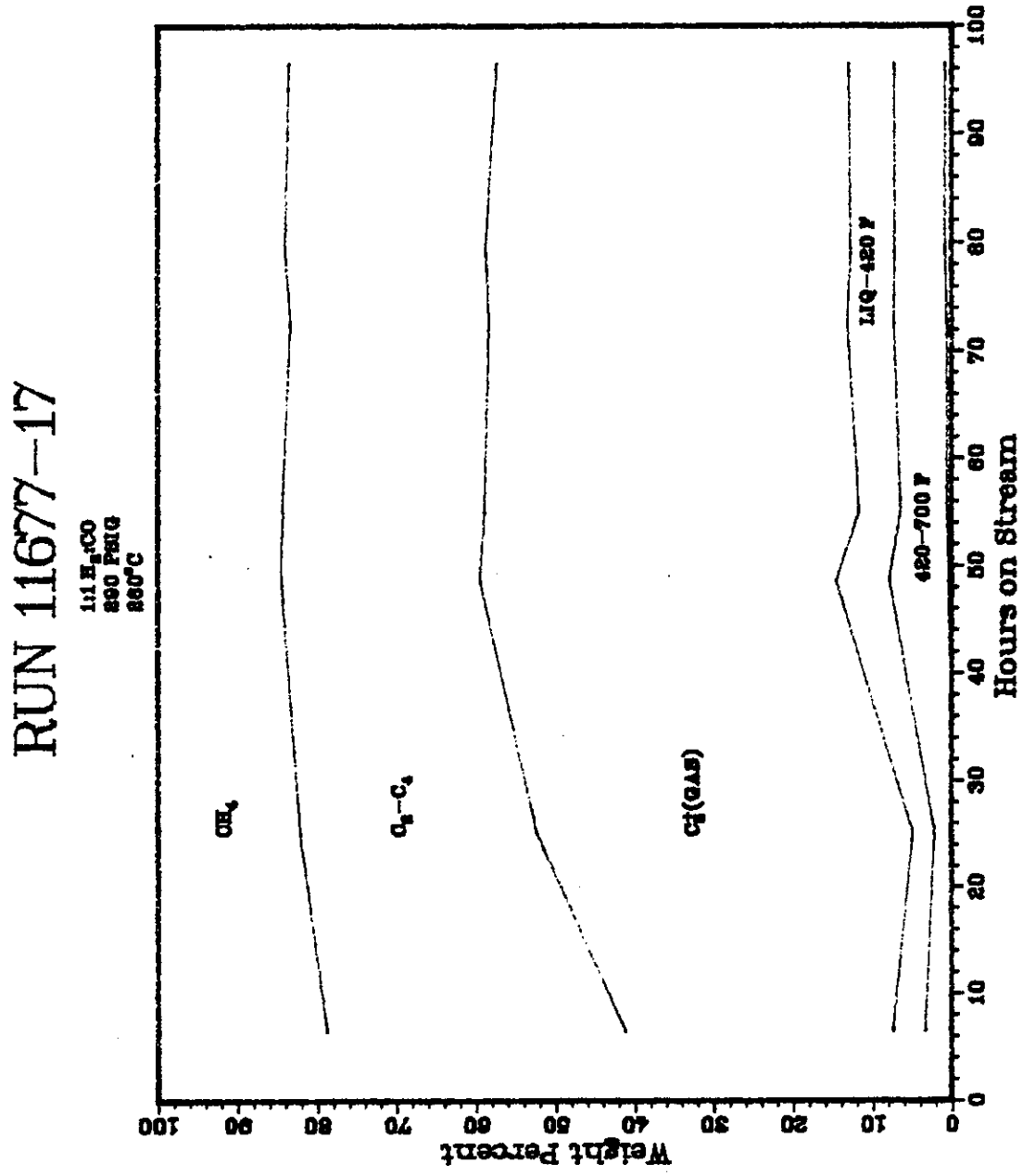

RUN 11677-17
1:1 H2:CO
890 PSIG
880°C
CH4
C2-C4
C5(870)
LIQ-420 F
420-700 F
Weight Percent
Hours on Stream
0
10
20
30
40
50
60
70
80
90
100

Fig. 68

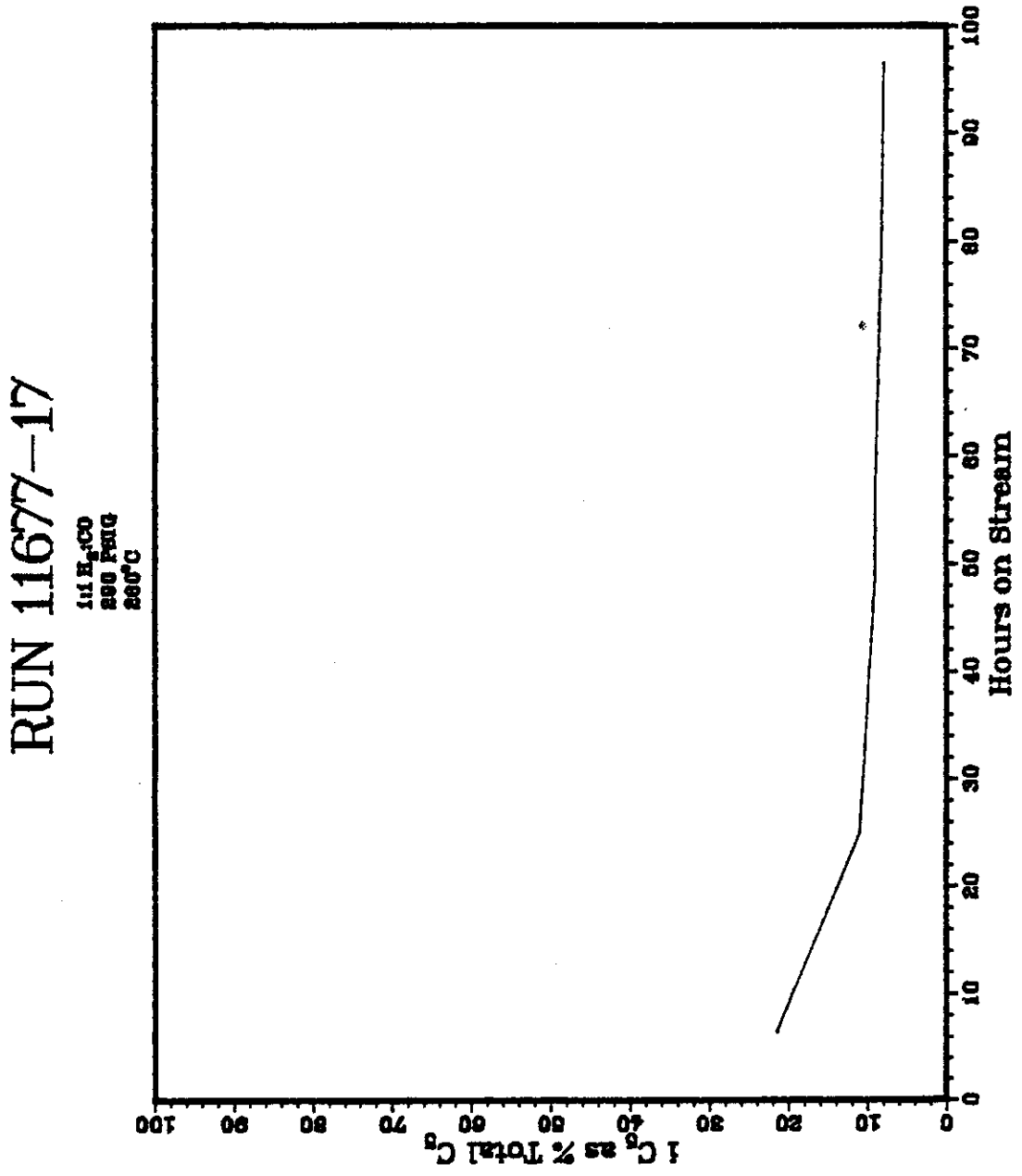

RUN 11677-17
1:1 H2:CO
280 PSIG
280°C
i C5 as % Total C5
Hours on Stream
0
10
20
30
40
50
60
70
80
90
100

Fig. 69

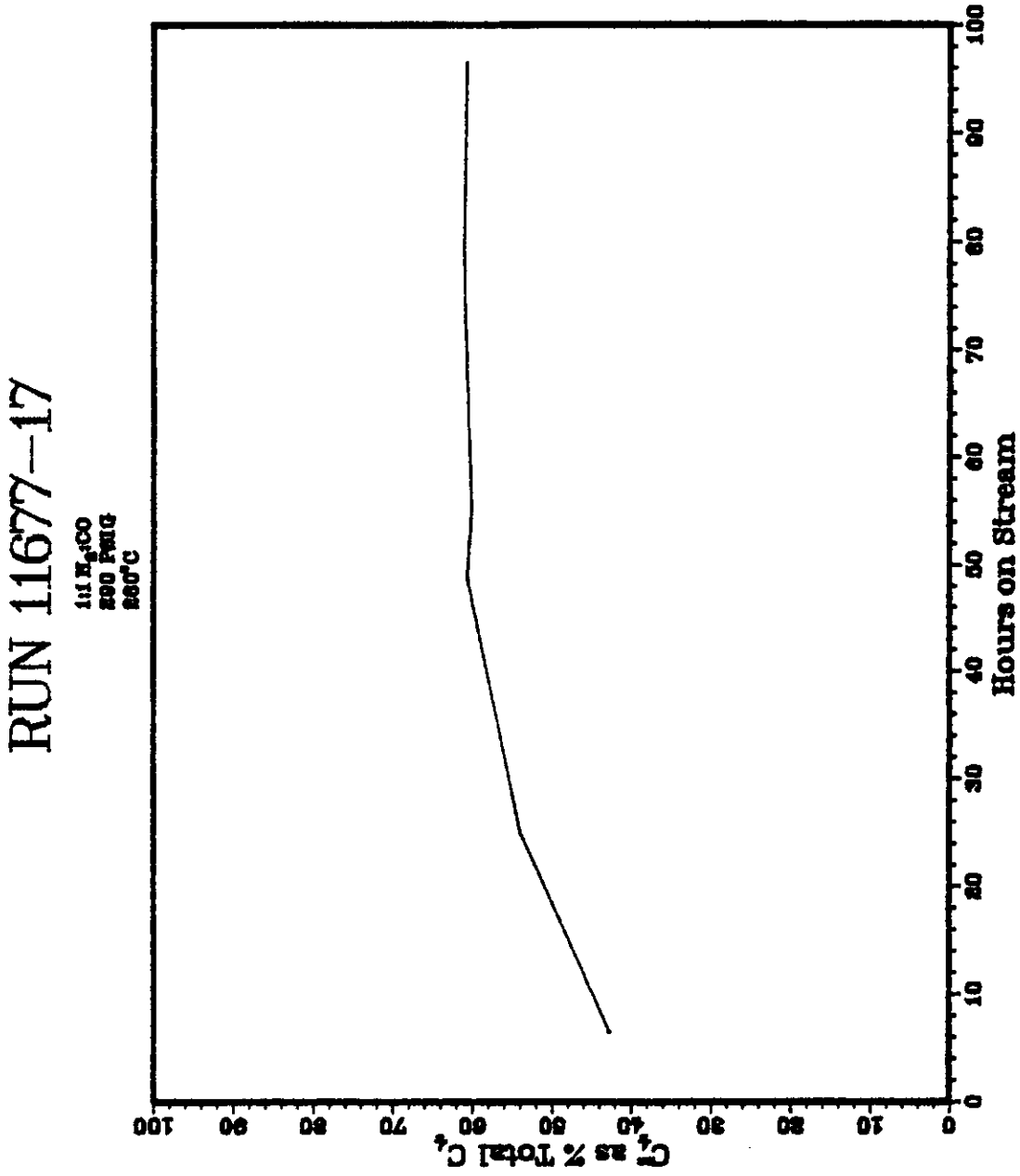

RUN 11677-17
1:1 H2:CO
200 Psig
260°C
C4 as % Total C4
Hours on Stream
0
10
20
30
40
50
60
70
80
90
100

Fig. 70

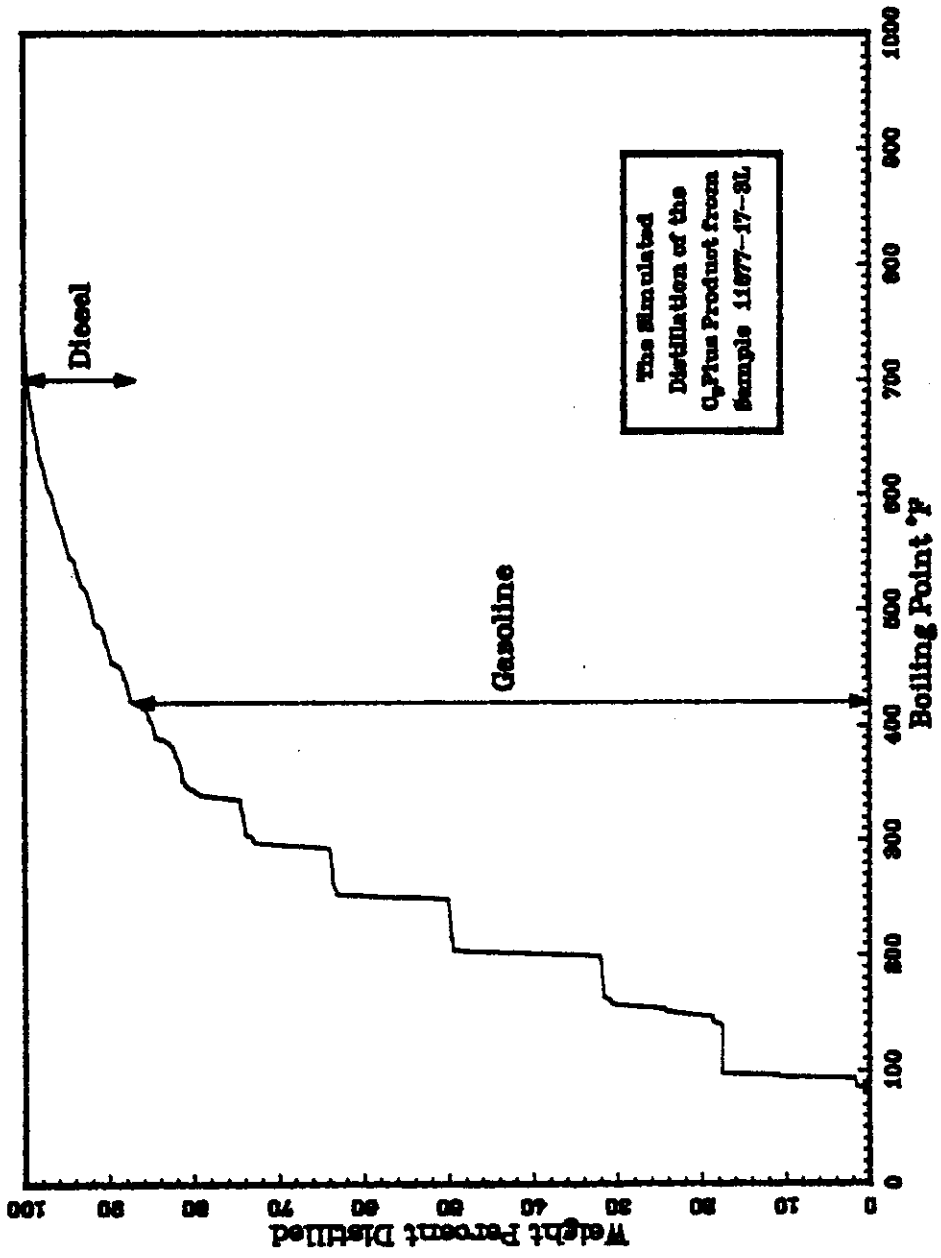

Diesel
Gasoline
The Simulated Distillation of the C5Plus Product from Sample 11877-17-9L
Weight Percent Distilled
Boiling Point °F
0
10
20
30
40
50
60
70
80
90
100
100
200
300
400
500
600
700
800
900
1000

Fig. 71

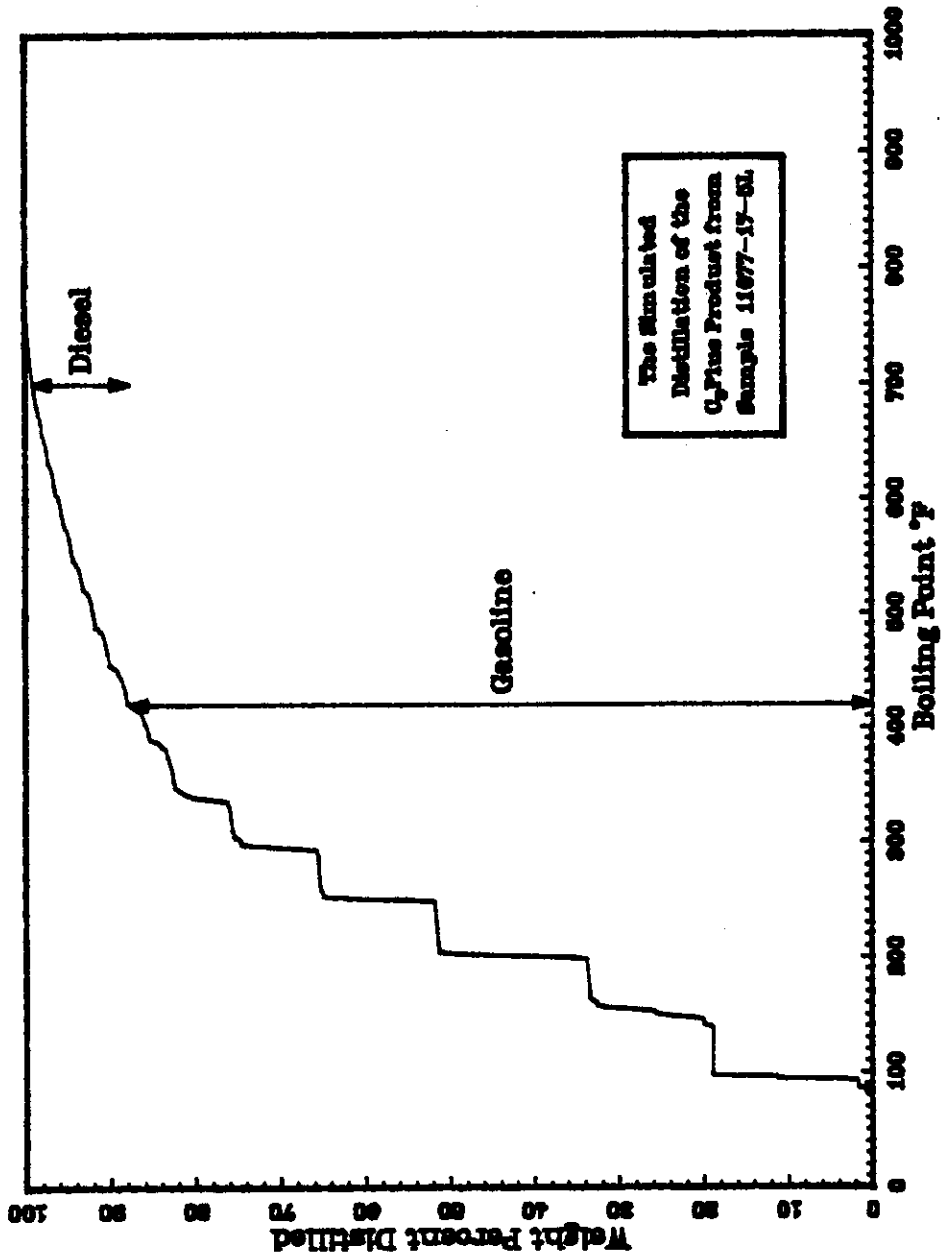
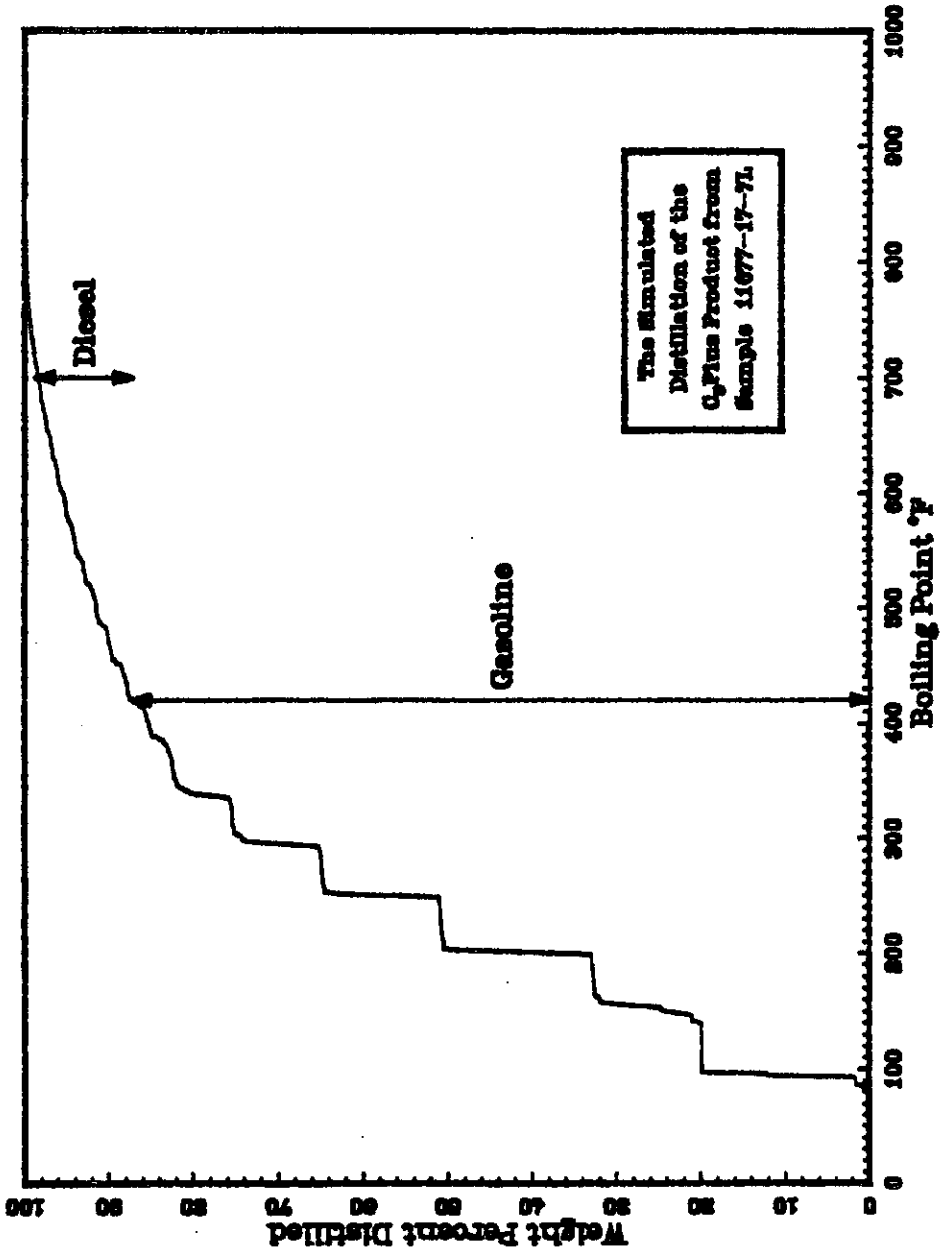

Diesel
Gasoline
Weight Percent Distilled
Boiling Point °F
0
10
20
30
40
50
60
70
80
90
100
100
200
300
400
500
600
700
800
900
1000

Fig. 72


Diesel
Gasoline
The Simulated Distillation of the C5 Plus Product from Sample 11077-17-71
Boiling Point °F
Weight Percent Distilled
0
100
200
300
400
500
600
700
800
900
1000
10
20
30
40
50
60
70
80
90
100