

FIGURE 51

Plot of the Hydrocarbon
Product Distribution
for Sample 13011-10-13

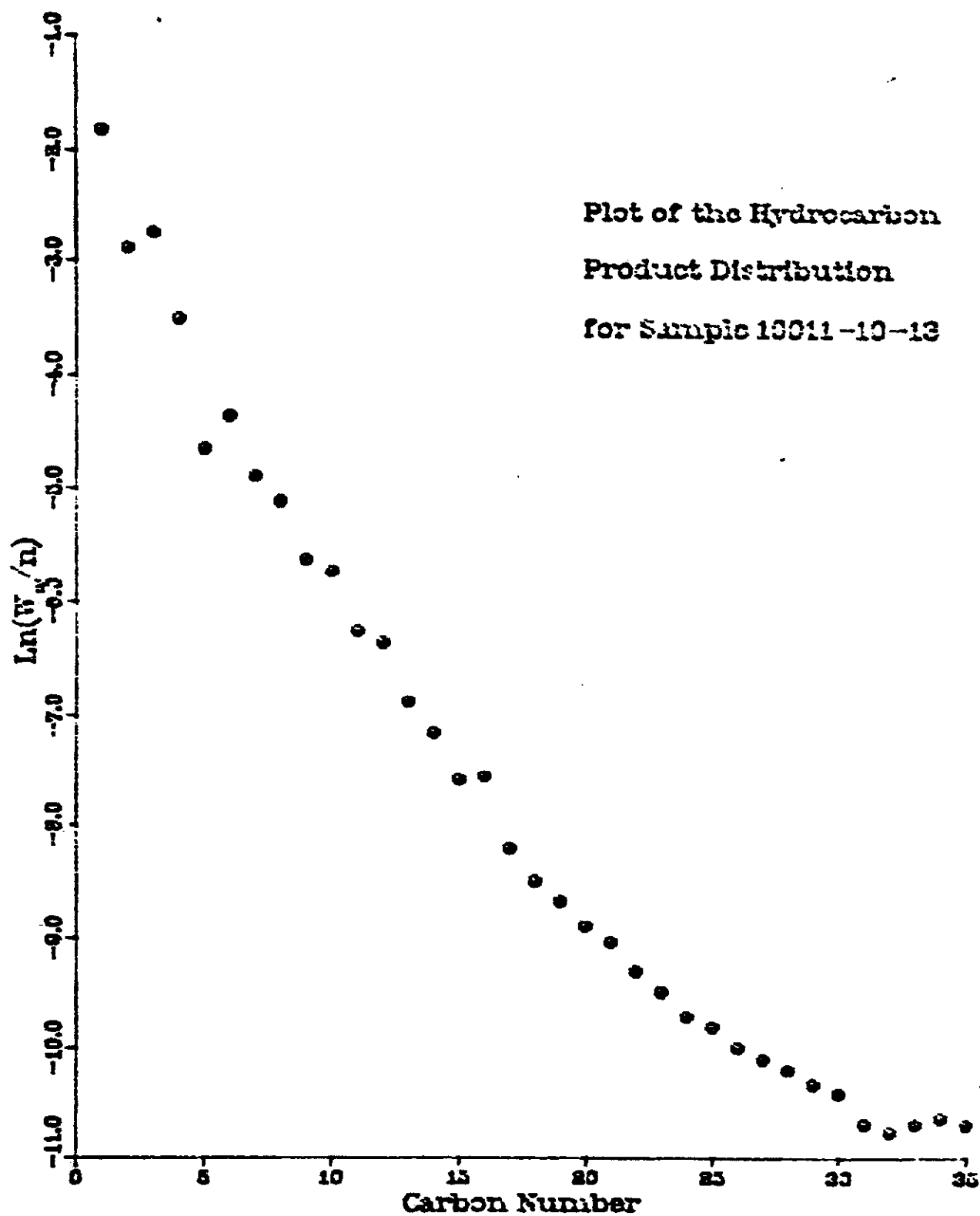


FIGURE 52

Plot of the Hydrocarbon
Product Distribution
for Sample 10011-10-15

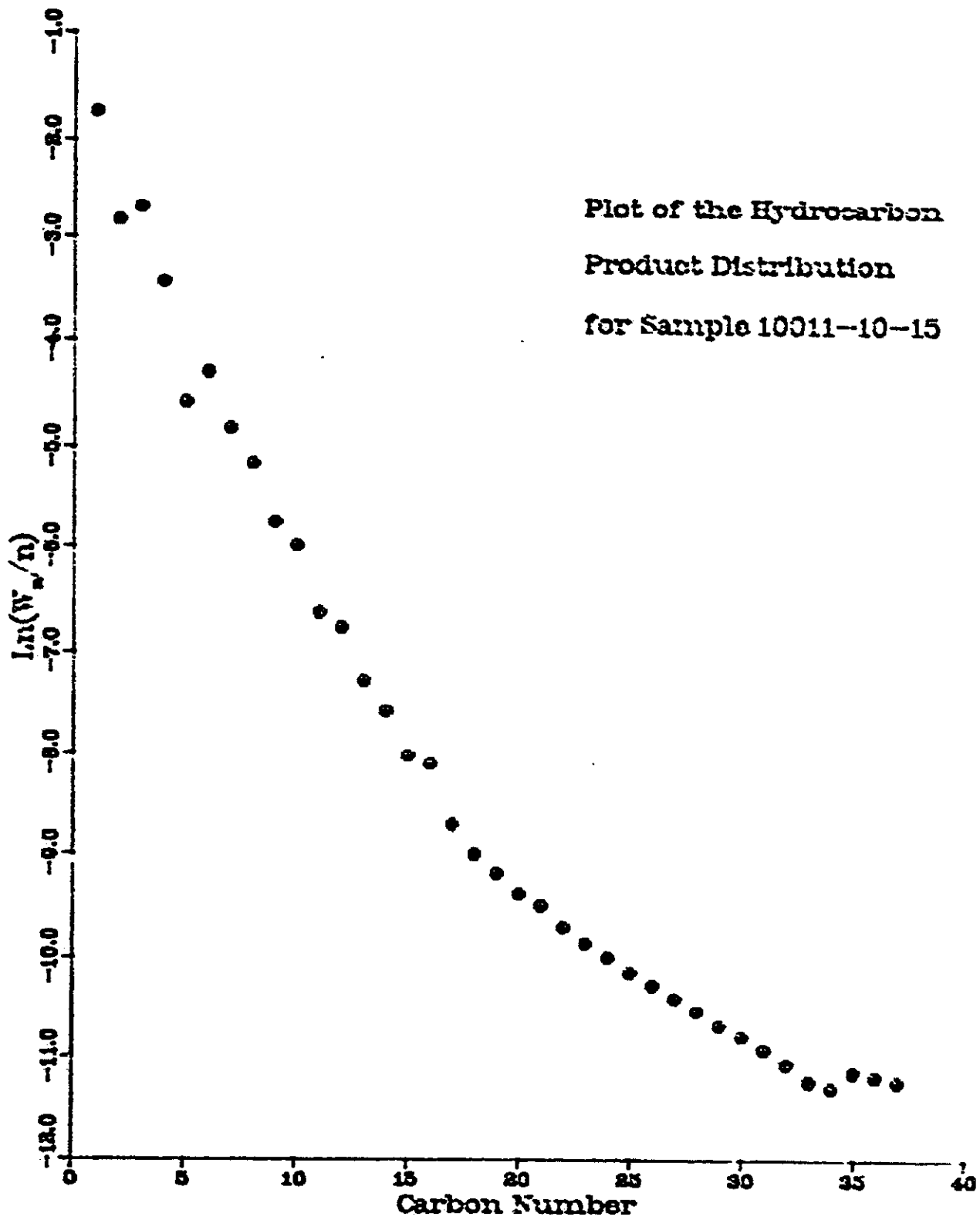


FIGURE 53

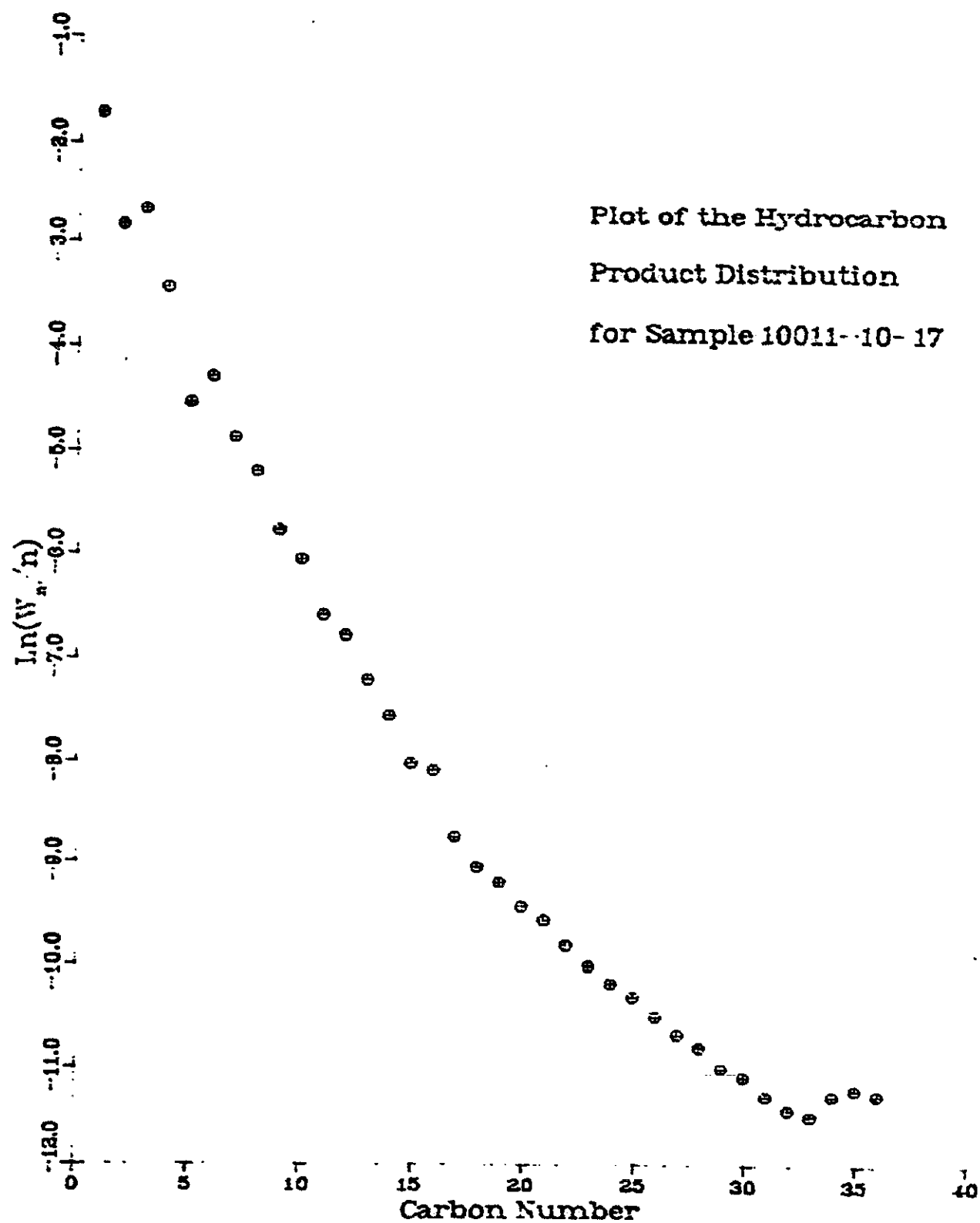


FIGURE 54

Plot of the Hydrocarbon
Product Distribution
for Sample 10011-10-19

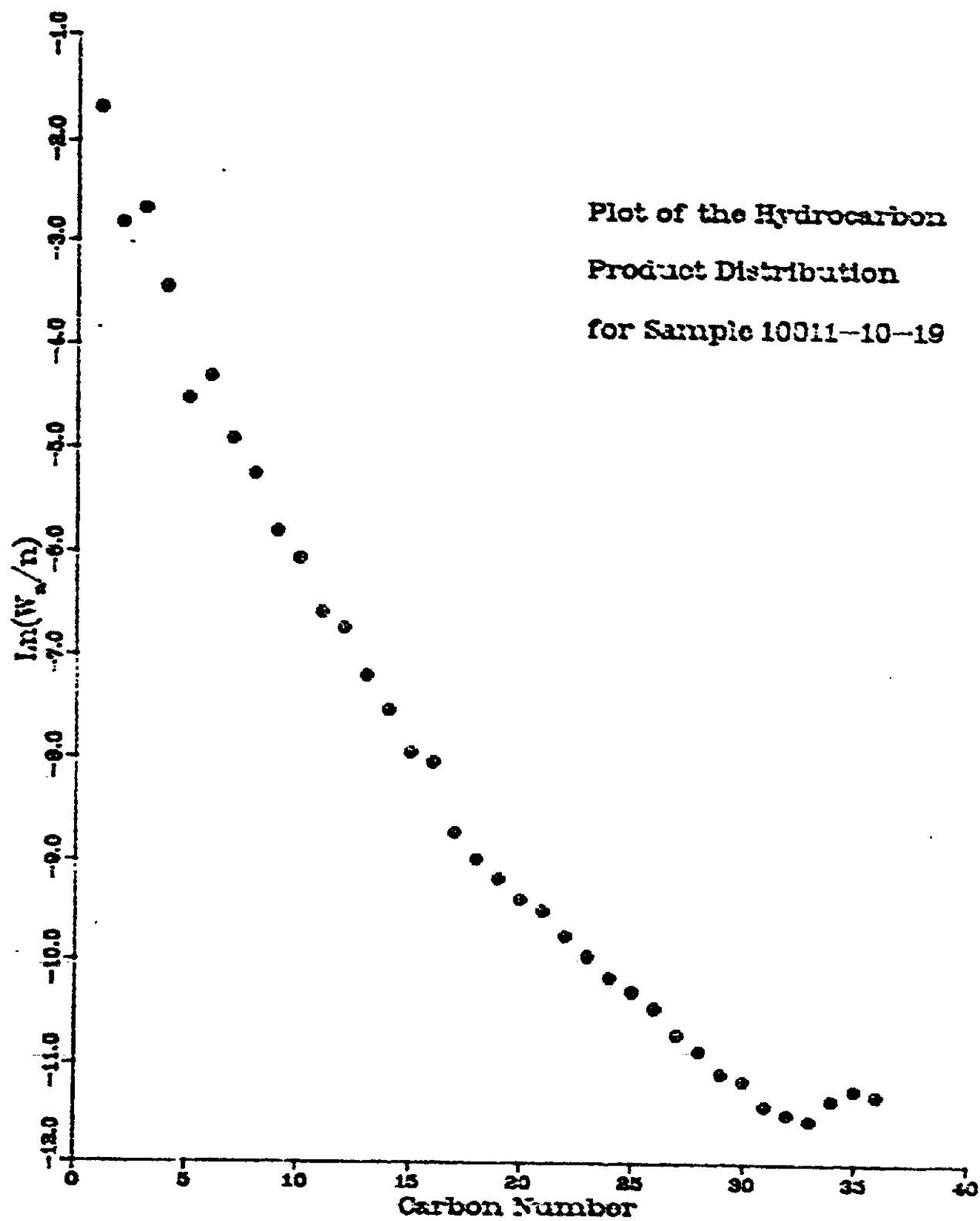


FIGURE 55

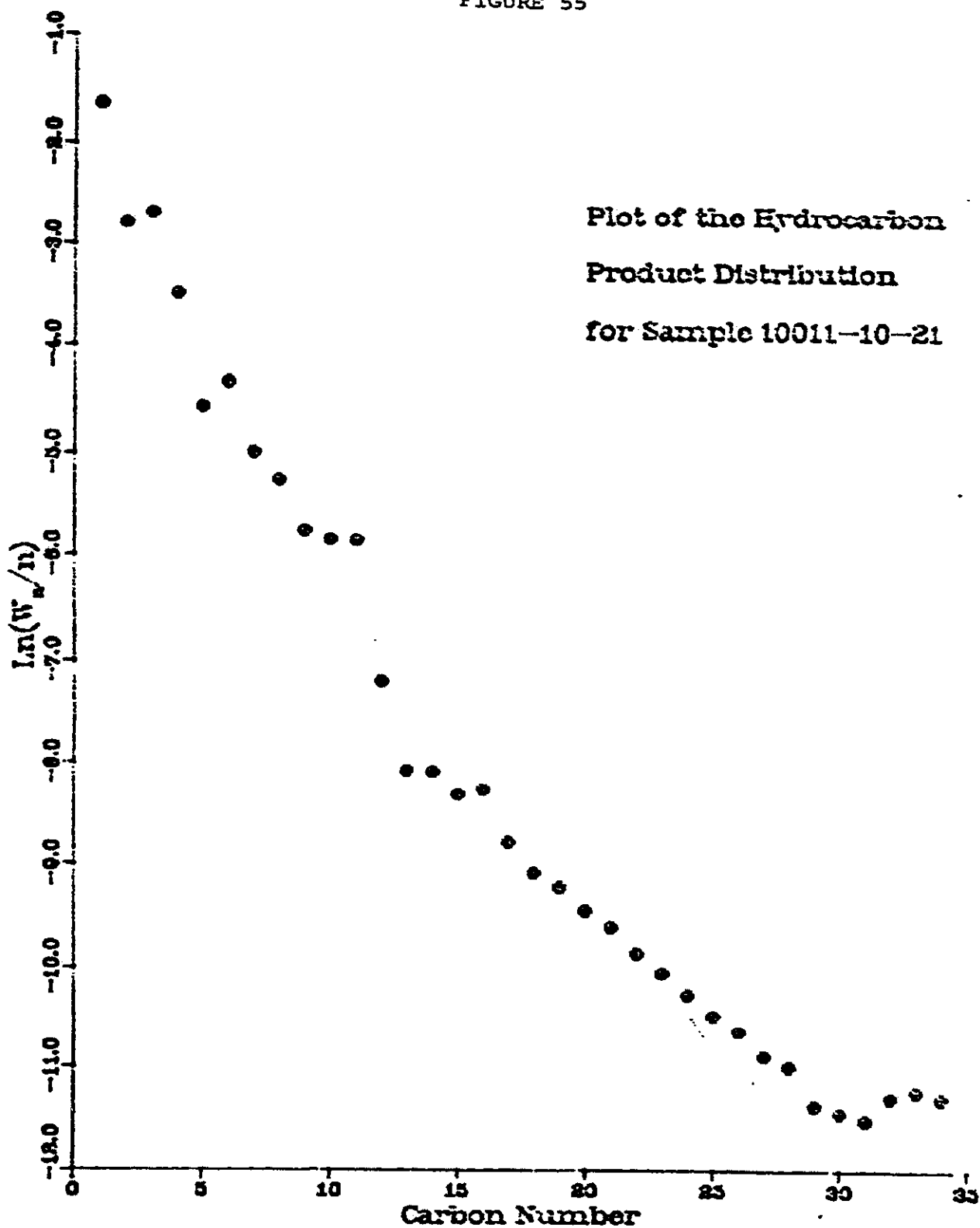


FIGURE 56

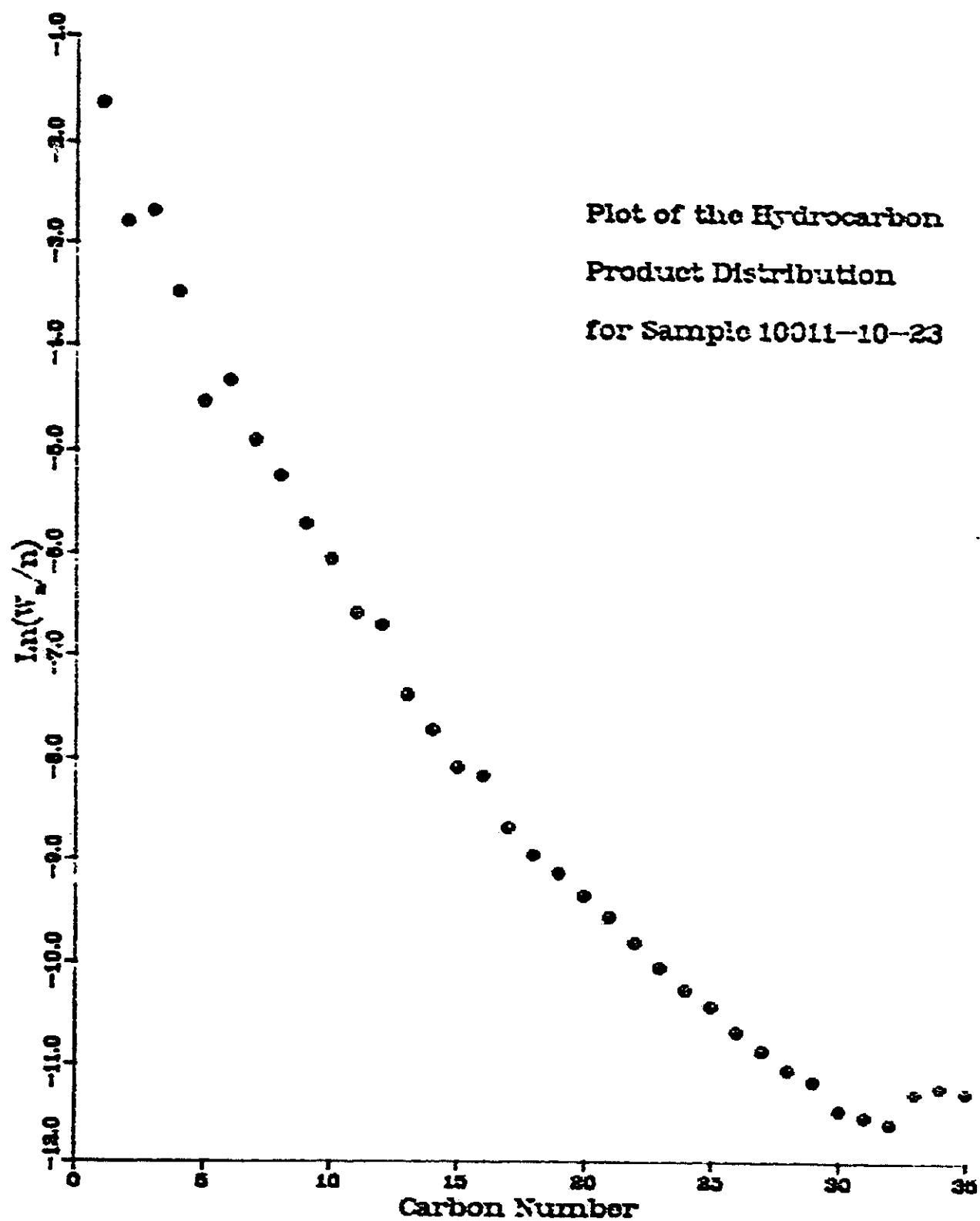


FIGURE 57

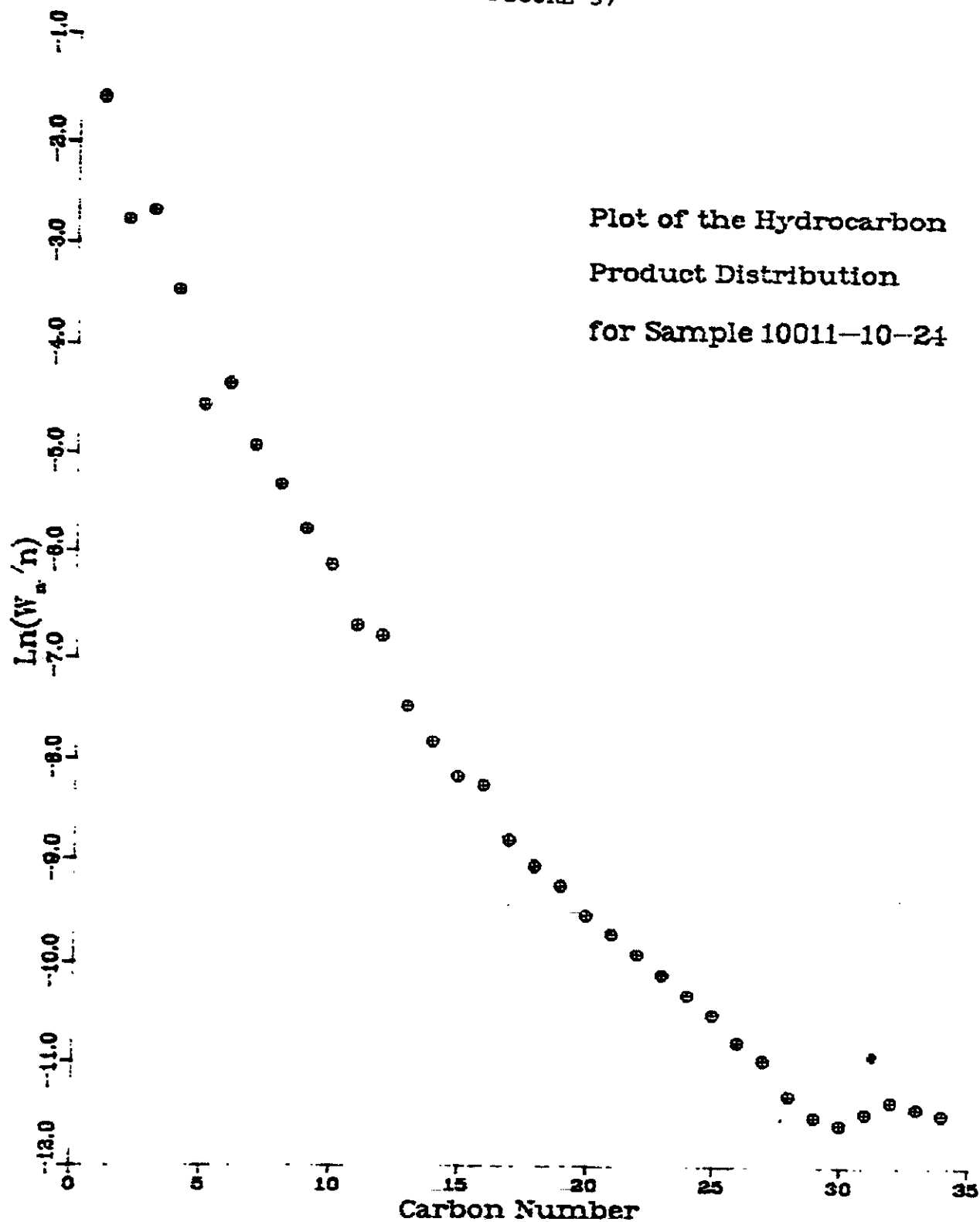


FIGURE 58

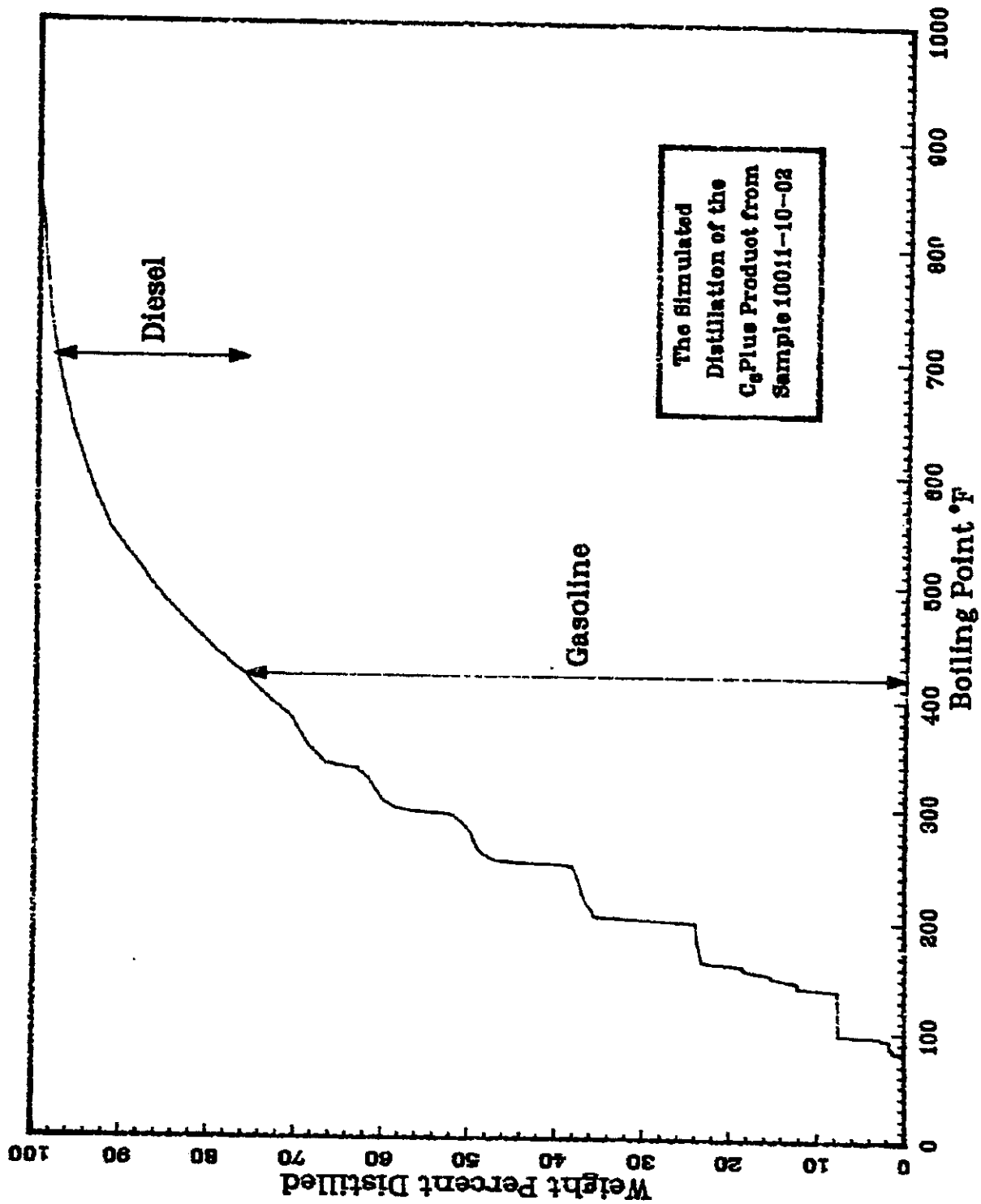


FIGURE 59

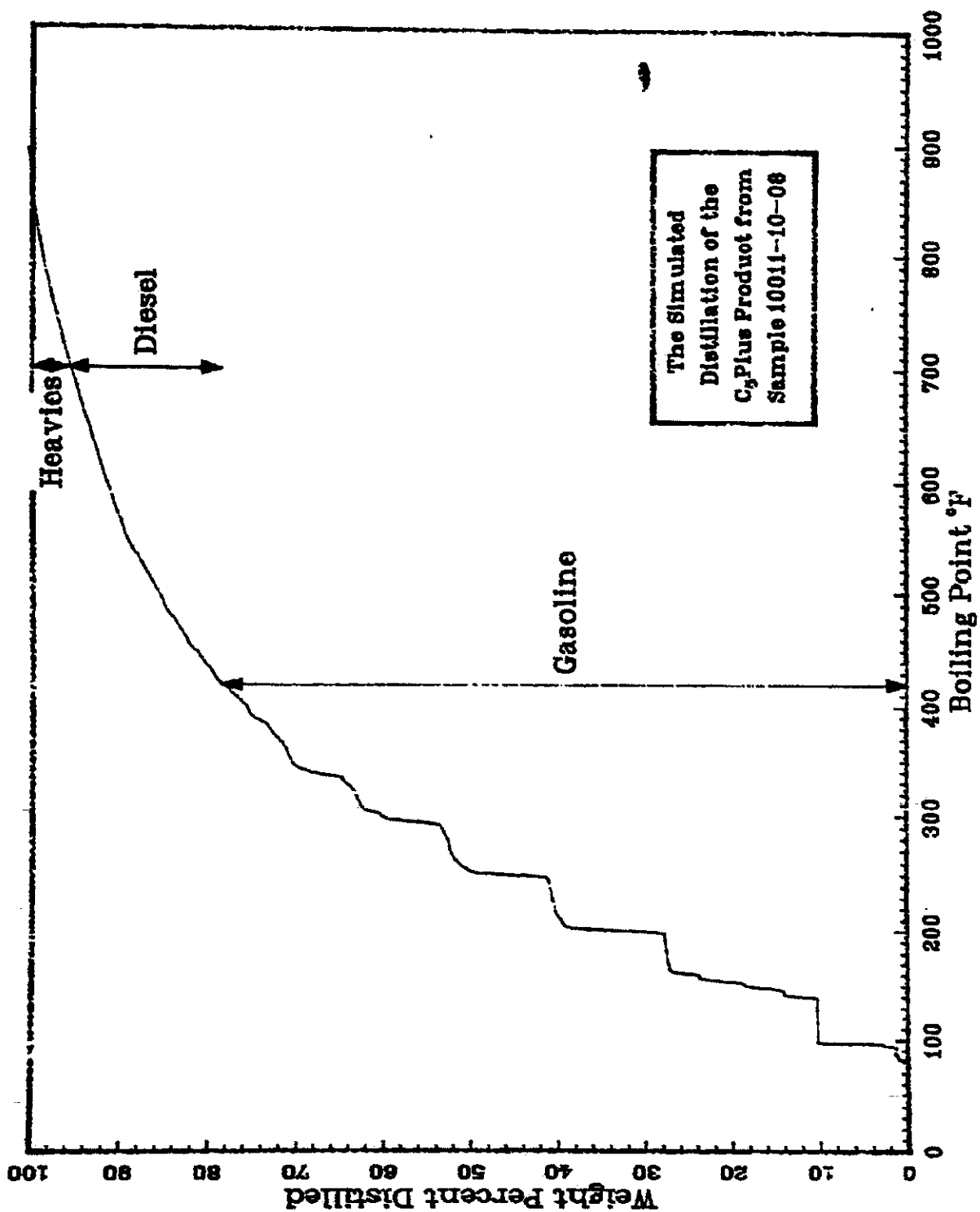


FIGURE 60

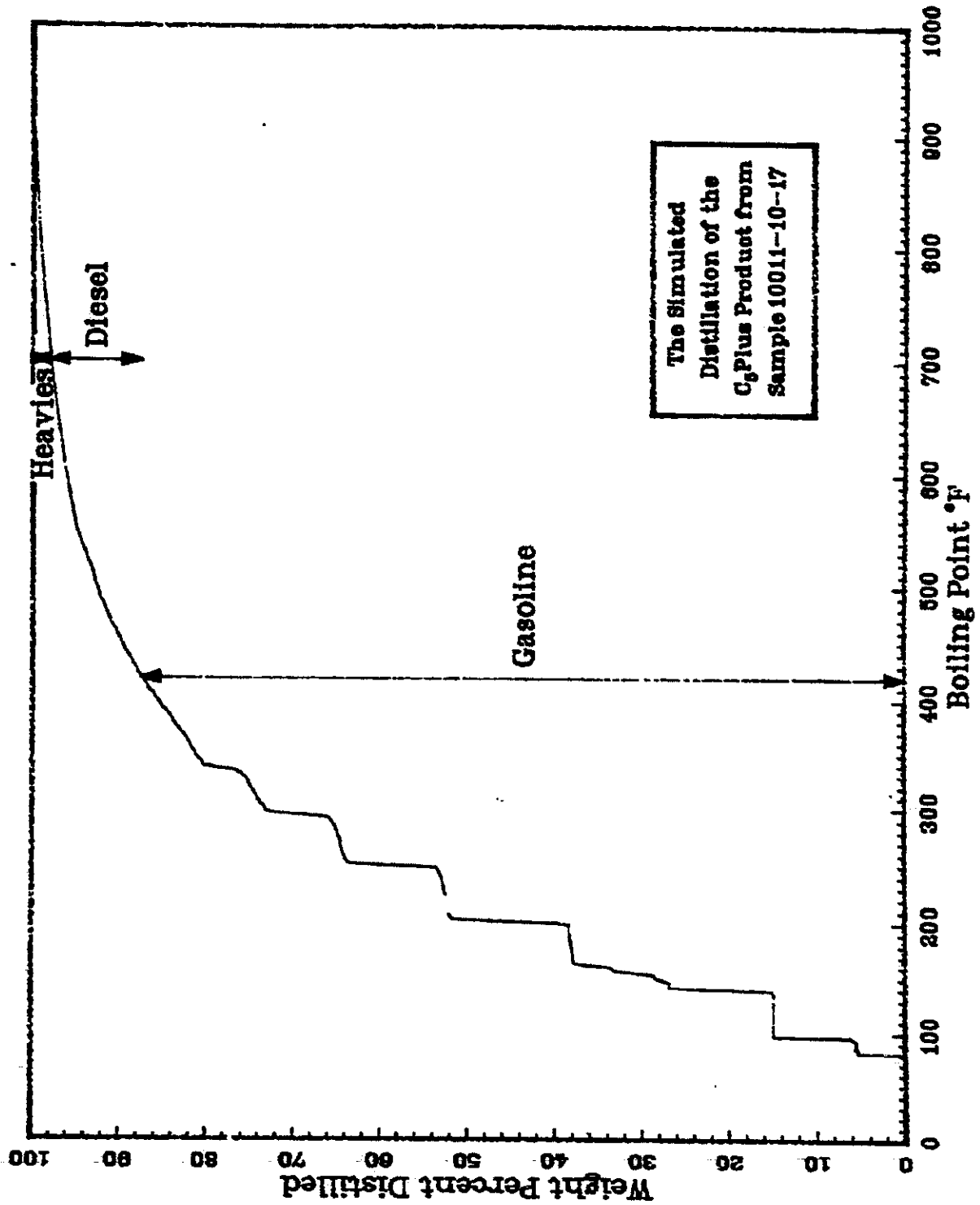


FIGURE 61

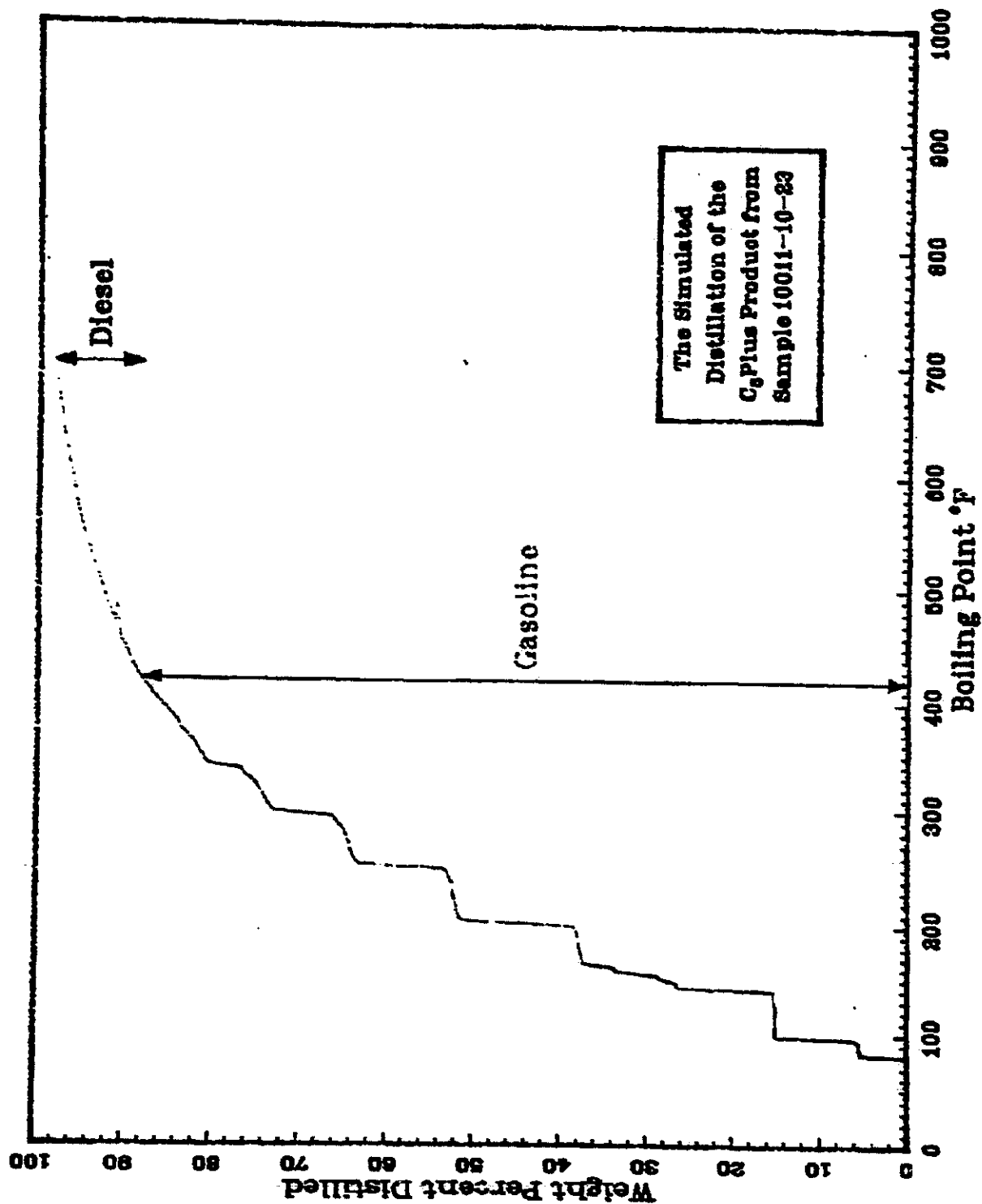
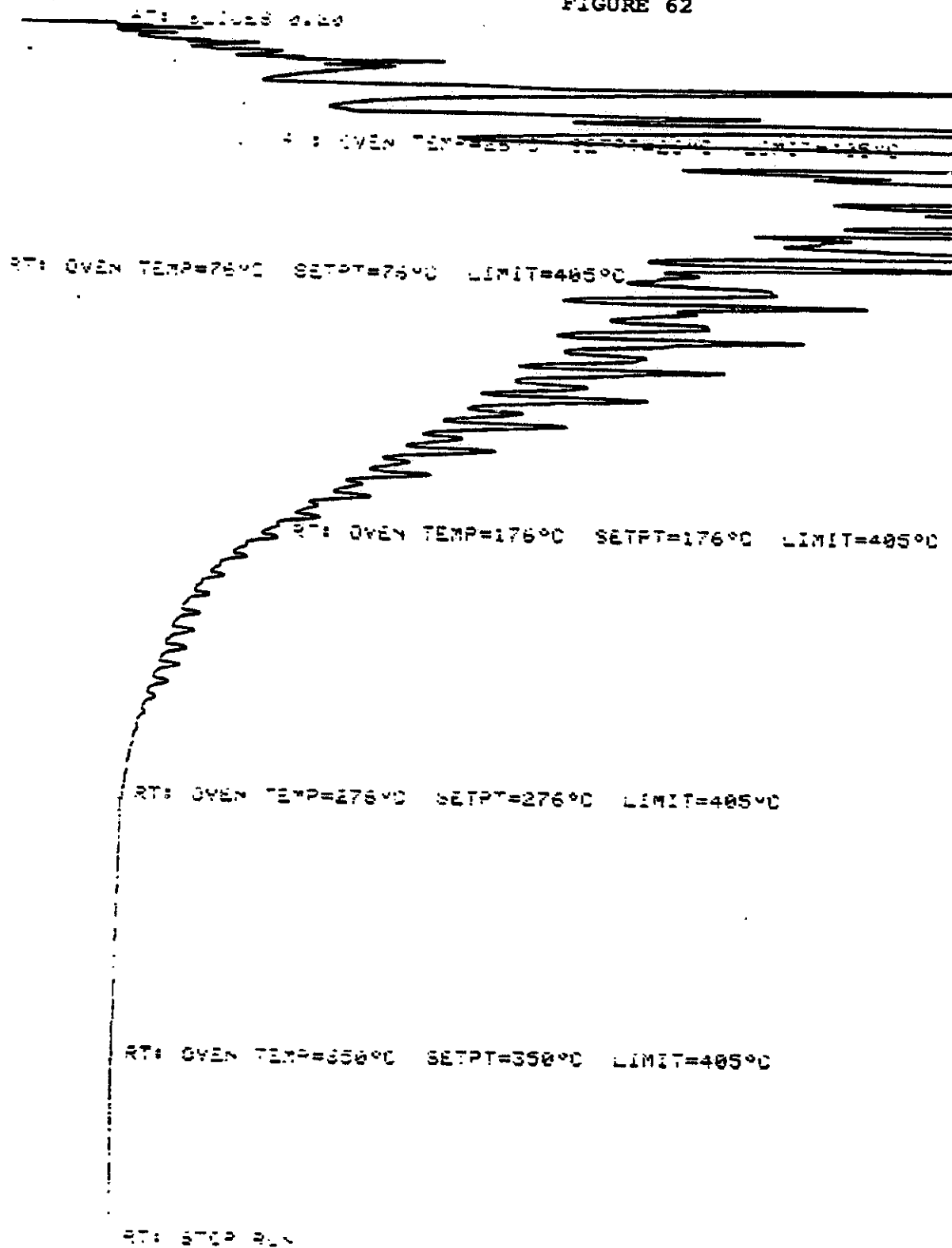


FIGURE 62



SAMPLE: 10011-10-3

FIGURE 63

RT: OVEN TEMP=25°C SETPT=25°C LIMIT=405°C

RT: OVEN TEMP=76°C SETPT=76°C LIMIT=405°C

RT: OVEN TEMP=176°C SETPT=176°C LIMIT=405°C

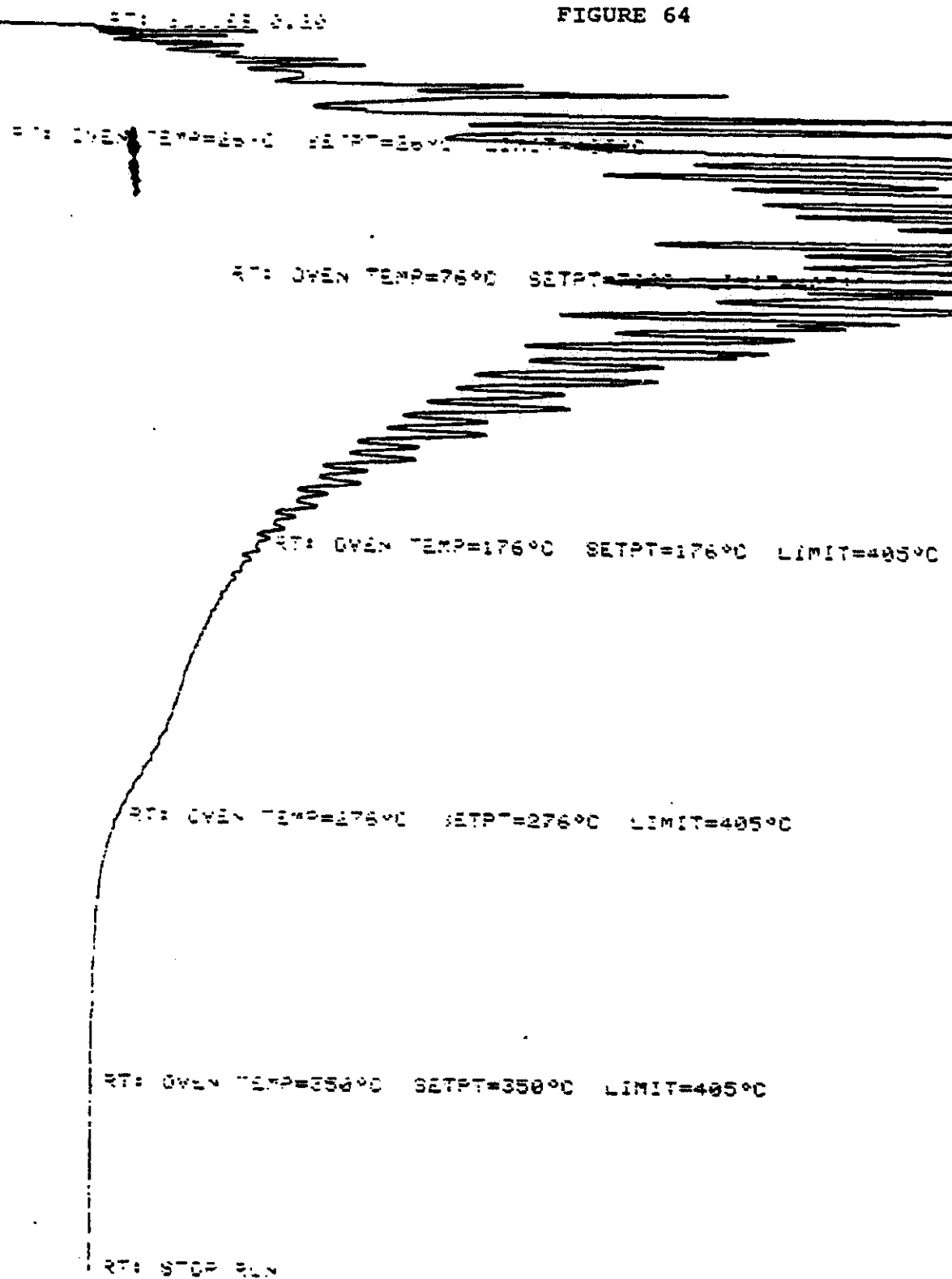
RT: OVEN TEMP=276°C SETPT=276°C LIMIT=405°C

RT: OVEN TEMP=350°C SETPT=350°C LIMIT=405°C

RT: STOP RUN

SP-11-1 12011-13-8

FIGURE 64



RT: SLICES 0.20

FIGURE 66

RT: OVEN TEMP=26°C SETPT=26°C LIMIT=405°C

RT: OVEN TEMP=76°C SETPT=76°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: D 10011-9-7L

TABLE 10A RESULT OF SYNGAS OPERATION

RUN NO. 10011-10
 CATALYST PPT(Fe,K)+UCC-104 #9674-69 80CC 58.5G(58.0G AFTER RUN,-0.6 G)
 FRED H2:CO:ARGON OF 50:50: 0 @ 400 CC/MN OR 300 GHSV

RUN & SAMPLE NO.	10011-10-01	011-10-02	011-10-03	011-10-04	011-10-05
FEED H2:CO:AR	50:50: 0	50:50: 0	50:50: 0	50:50: 0	50:50: 0
HRS ON STREAM	2.5	20.5	26.41	45.24	49.24
PRESSURE,PSIG	301	295	297	302	303
TEMP. C	254	255	255	255	256
FEED CC/MIN	400	400	400	400	400
HOURS FEEDING	2.50	20.50	5.91	24.74	4.00
EFFLNT GAS LITER	27.12	257.41	77.86	323.06	51.86
GM AQUEOUS LAYER	1.51	12.41	3.06	12.80	2.02
GM OIL	1.80	14.76	4.34	18.18	2.83
MATERIAL BALANCE					
GM ATOM CARBON %	88.82	96.68	100.47	99.84	98.72
GM ATOM HYDROGEN %	94.05	98.95	101.45	102.92	99.92
GM ATOM OXYGEN %	91.67	106.97	111.00	109.17	108.78
RATIO CHX/(H2O+CO2)	0.9408	0.8112	0.8113	0.8321	0.8153
RATIO X IN CHX	2.3941	2.4218	2.4447	2.4503	2.4737
USAGE H2/CO PRODT	0.7264	0.6556	0.6425	0.6545	0.6516
RATIO CO2/(H2O+CO2)	0.8232	0.8387	0.8583	0.8582	0.8579
K SHIFT IN EFFLNT	37.19	28.26	31.72	39.59	29.30
CONVERSION					
ON CO %	95.58	93.03	92.74	94.13	92.21
ON H2 %	66.67	63.00	62.34	62.73	62.64
ON CO+H2 %	80.71	77.84	77.46	78.19	77.34
PRDT SELECTIVITY,WT %					
CH4	13.22	13.23	14.04	14.39	14.86
C2 HC'S	10.28	10.33	10.63	10.43	10.87
C3H8	4.72	8.17	8.61	8.26	9.58
C3H6=	11.10	9.28	9.19	6.81	7.69
C4H10	3.30	3.48	3.81	3.60	4.08
C4H8=	9.15	8.87	9.01	7.17	8.16
C5H12	3.47	2.89	3.10	3.12	3.32
C5H10=	0.32	0.64	0.56	0.63	0.69
C6H14	5.91	3.65	3.29	3.90	3.58
C6H12= & CYCLO'S	3.82	3.45	3.24	4.05	3.51
C7+ IN GAS	12.39	13.20	11.81	15.42	11.40
LIQ HC'S	22.33	22.81	22.69	22.21	22.27

TOTAL	100.00	100.00	100.00	100.00	100.00
SUB-GROUPING					
C1 -C4	51.76	53.36	55.30	50.67	55.23
C5 -420 F	38.19	35.46	34.49	48.40	34.74
420-700 F	7.81	10.18	7.94	0.93	7.79
700-END PT	2.23	1.00	2.27	0.00	2.23
C5+-END PT	48.24	46.64	44.70	49.33	44.77
ISO/NORMAL MOLE RATIO					
C4	0.3287	0.1144	0.1000	0.0901	0.0896
C5	0.9389	0.2775	0.2568	0.1887	0.1925
C6	3.8677	1.4615	1.1340	0.8118	0.9154
C4=	0.0852	0.0719	0.0765	0.0761	0.0782
PARAFFIN/OLEFIN RATIO					
C3	0.4064	0.8400	0.8940	1.1576	1.1896
C4	0.3478	0.3784	0.4086	0.4852	0.4824
C5	10.7028	4.3654	5.4034	4.8451	4.6964
LIQ HC COLLECTION					
PHYS. APPEARANCE	---	CLEAR OIL	---	CLEAR OIL	---
DENSITY	---	0.765	---	0.762	---
N, REFRACTIVE INDEX	---	1.4329	---	1.4312	---
SIMULT'D DISTILATN					
10 WT % @ DEG F	---	254	---	142	---
16	---	282	---	163	---
50	---	415	---	253	---
84	---	557	---	345	---
90	---	618	---	375	---
RANGE(16-84 %)	---	275	---	182	---
WT % @ 420 F	---	51.00	---	95.80	---
WT % @ 700 F	---	95.60	---	100.00	---

TABLE 108 RESULT OF SYNGAS OPERATION

RUN NO.	10011-10				
CATALYST	PPT(FE,K)+UCC-104 #9674-69 80CC 58.5G (58.0G AFTER RUN,-0.6G)				
FEED	H2:CO:ARGON OF 50:50: 0 @ 400 CC/MN OR 300 GHSV				
RUN & SAMPLE NO.	10011-10-06	011-10-07	011-10-08	011-10-09	011-10-10
	=====	=====	=====	=====	=====
FEED H2:CO:AR	50:50: 0	50:50: 0	50:50: 0	50:50: 0	50:50: 0
HRS ON STREAM	69.66	73.24	91.91	99.41	115.58
PRESSURE,PSIG	300	297	299	297	298
TEMP. C	255	255	255	280	280
FEED CC/MIN	400	400	400	400	400
HOURS FEEDING	24.42	3.58	22.25	7.50	16.17
EFFLNT GAS LITER	318.59	46.66	291.95	94.97	204.96
GM AQUEOUS LAYER	12.35	1.69	10.49	4.37	9.24
GM OIL	17.25	2.14	13.30	5.16	9.69
MATERIAL BALANCE					
GM ATOM CARBON %	94.04	96.82	97.35	102.04	100.54
GM ATOM HYDROGEN %	104.91	98.21	97.98	102.08	101.54
GM ATOM OXYGEN %	96.52	107.81	108.88	109.78	108.92
RATIO CHX/(H2O+CO2)	0.9512	0.7936	0.7846	0.8607	0.8475
RATIO X IN CHX	2.4370	2.5161	2.5239	2.5209	2.5809
USAGE H2/CO PRODT	0.7195	0.6464	0.6429	0.6973	0.7044
RATIO CO2/(H2O+CO2)	0.8474	0.8617	0.8622	0.8461	0.8466
K SHIFT IN EFFLNT	78.73	27.17	25.55	25.63	24.47
CONVERSION					
ON CO %	97.13	91.08	90.54	93.02	92.59
ON H2 %	63.50	61.66	61.62	67.48	67.48
ON CO+H2 %	79.40	76.27	76.03	80.24	79.98
PRDT SELECTIVITY,WT %					
CH4	13.67	16.20	16.54	15.93	17.63
C2 HC'S	9.21	11.20	11.22	11.42	12.13
C3H8	8.29	10.67	10.78	11.63	13.48
C3H6=	6.18	6.98	6.31	6.47	5.02
C4H10	4.13	4.64	4.65	4.77	5.56
C4H8=	7.45	7.81	7.22	7.39	6.17
C5H12	4.24	3.75	3.77	3.56	3.96
C5H10=	0.77	0.70	0.67	0.51	0.38
C6H14	4.79	3.69	3.69	4.32	4.43
C6H12= & CYCLO'S	4.48	3.23	3.21	3.11	2.17
C7+ 1N GAS	16.34	11.43	12.15	10.88	11.22
L1Q HC'S	20.47	19.68	19.80	20.01	17.83

TOTAL	100.00	100.00	100.00	100.00	100.00
SUB-GROUPING					
C1 - C4	48.92	57.50	56.71	57.61	60.00
C5 -420 F	41.46	33.64	33.65	32.61	31.98
420-700 F	7.78	6.89	7.53	7.04	6.24
700-END PT	1.84	1.97	2.12	2.74	1.78
C5+-END PT	51.08	42.50	43.29	42.39	40.00
ISO/NORMAL MOLE RATIO					
C4	0.0737	0.0763	0.0717	0.1162	0.1023
C5	0.1772	0.1640	0.1472	0.3145	0.3219
C6	0.7309	0.7379	0.6495	1.6193	1.5523
C4=	0.0816	0.0804	0.0800	0.1063	0.1144
PARAFFIN/OLEFIN RATIO					
C3	1.2796	1.4597	1.6305	1.7159	2.5637
C4	0.5348	0.5739	0.6219	0.6231	0.8692
C5	5.3485	5.1986	5.4869	6.7652	10.1714
LIQ HC COLLECTION					
PHYS. APPEARANCE					
DENSITY	0.760	---	0.757	0.765	---
N, REFRACTIVE INDEX	1.4284	---	1.4286	1.4336	---
SIMULT'D DISTILATN					
10 WT % @ DEG F	256	---	257	254	---
16	287	---	293	288	---
50	410	---	416	415	---
84	622	---	638	676	---
90	688	---	708	738	---
RANGE(16-84 %)	335	---	345	388	---
WT % @ 420 F	53.00	---	51.30	51.10	---
WT % @ 700 F	91.00	---	89.30	86.30	---

TABLE 10C RESULT OF SYNGAS OPERATION

RUN NO. 10011-10
 CATALYST PPT(Fe,K)+UCC-104 #9674-69 80CC 58.5G (58.0G AFTER RUN,-0.6G)
 FEED H₂:CO:ARGON OF 50:50: 0 @ 400 CC/MN OR 300 GHSV

RUN & SAMPLE NO.	10011-10-11	011-10-12	011-10-13	011-10-14	011-10-15
FEED H ₂ :CO:AR	50:50: 0	50:50: 0	50:50: 0	50:50: 0	50:50: 0
HRS ON STREAM	123.41	140.74	146.49	163.49	170.57
PRESSURE,PSIG	300	298	300	296	301
TEMP. C	280	280	280	280	280
FEED CC/MIN	400	400	400	400	400
HOURS FEEDING	24.00	17.33	23.08	17.00	24.08
EFFLNT GAS LITER	305.06	219.49	292.45	214.83	305.20
GM AQUEOUS LAYER	13.71	8.86	11.80	8.48	12.01
GM OIL	14.38	11.33	15.09	7.00	9.91
MATERIAL BALANCE					
GM ATOM CARBON %	105.01	104.65	106.26	101.96	104.19
GM ATOM HYDROGEN %	107.43	107.96	108.36	104.47	106.45
GM ATOM OXYGEN %	107.64	105.42	106.60	105.92	106.26
RATIO CHX/(H ₂ O+CO ₂)	0.9517	0.9855	0.9936	0.9254	0.9612
RATIO X IN CHX	2.5525	2.5725	2.5753	2.6372	2.6273
USAGE H ₂ /CO PRODT	0.7521	0.7657	0.7690	0.7493	0.7648
RATIO CO ₂ /(H ₂ O+CO ₂)	0.8451	0.8538	0.8552	0.8569	0.8572
K SHIFT IN EFFLNT	24.97	26.94	26.20	26.60	26.11
CONVERSION					
ON CO %	93.16	93.16	93.19	92.94	93.04
ON H ₂ %	69.41	69.42	70.40	69.39	70.39
ON CO+H ₂ %	81.15	81.11	81.69	81.02	81.60
PRDT SELECTIVITY,WT %					
CH ₄	15.80	16.34	16.35	18.19	17.72
C ₂ HC'S	11.00	11.15	11.24	12.31	11.98
C ₃ H ₈	14.65	15.60	15.49	16.98	16.91
C ₃ H ₆ =	5.00	4.12	3.93	3.63	3.70
C ₄ H ₁₀	6.13	6.63	6.60	7.23	7.46
C ₄ H ₈ =	6.48	5.67	5.46	5.10	5.31
C ₅ H ₁₂	4.56	4.59	4.61	4.89	5.00
C ₅ H ₁₀ =	0.40	0.33	0.27	0.23	0.23
C ₆ H ₁₄	5.22	4.66	5.41	5.75	5.94
C ₆ H ₁₂ = & CYCLO'S	2.12	2.18	2.24	2.20	2.24
C ₇ + IN GAS	12.59	11.36	11.36	11.93	12.41
LIQ HC'S	16.06	17.35	17.03	11.55	11.09

TOTAL	100.00	100.00	100.00	100.00	100.00
SUB-GROUPING					
C1 -C4	59.05	59.52	59.08	63.45	63.09
C5 -420 F	33.75	32.67	33.65	31.35	32.12
420-700 F	5.48	6.07	6.00	4.04	3.81
700-END PT	1.72	1.74	1.28	1.16	0.99
C5+--END PT	40.95	40.48	40.92	36.55	36.91
ISO/NORMAL MOLE RATIO					
C4	0.1027	0.1056	0.1076	0.1066	0.1133
C5	0.3387	0.4240	0.4765	0.5358	0.5581
C6	1.6440	1.8979	2.1272	2.3076	2.3719
C4=	0.1181	0.1317	0.1374	0.1503	0.1571
PARAFFIN/OLEFIN RATIO					
C3	2.7982	3.6114	3.7623	4.4631	4.3596
C4	0.9131	1.1282	1.1658	1.3689	1.3558
C5	11.1092	13.5201	16.9120	20.4353	21.5342
LIQ HC COLLECTION					
PHYS. APPEARANCE	GREEN OIL	--	GREEN OIL	---	GREEN OIL
DENSITY	0.765	---	0.762	---	0.765
N, REFRACTIVE INDEX	1.4329	---	1.4323	---	1.4316
SIMULT'D DISTILLTN					
10 WT % @ DEG F	253	--	253	---	252
16	286	---	286	---	287
50	403	---	397	---	398
84	622	--	577	---	591
90	711	---	657	---	681
RANGE(16-84 %)	336	---	291	---	304
WT % @ 420 F	55.20	---	57.30	---	56.80
WT % @ 700 F	89.30	---	92.50	---	91.10

TABLE 10D RESULT OF SYNGAS OPERATION

RUN NO. 10011-10
 CATALYST PPT(Fe,K)+UCC-104 #9674-69 80CC 58.5G (58.0G AFTER RUN,-0.6G)
 FEED H₂:CO:ARGON OF 50:50: 0 @ 400 CC/MN OR 300 GHSV

RUN & SAMPLE NO. 10011-10-16 011-10-17 011-10-18 011-10-19 011-10-20
 THE ABOVE RESULTS WERE OBTAINED AT 400 CC/MN OR 300 GHSV

	50:50: 0	50:50: 0	50:50: 0	50:50: 0	50:50: 0
FEED H ₂ :CO:AR	50:50: 0	50:50: 0	50:50: 0	50:50: 0	50:50: 0
HRS ON STREAM	187.49	195.86	212.91	215.99	235.32
PRESSURE, PSIG	301	299	294	297	295
TEMP. C	281	281	281	281	281

FEED CC/MIN	400	400	400	400	400
HOURS FEEDING	16.92	25.29	17.05	20.13	19.33
EFFLNT GAS LITER	215.26	324.18	221.56	261.44	244.35
GM AQUEOUS LAYER	8.06	12.04	7.63	9.01	8.70
GM OIL	6.88	10.28	7.19	8.49	7.84

MATERIAL BALANCE

GM ATOM CARBON %	104.36	106.60	107.65	107.61	102.95
GM ATOM HYDROGEN %	106.20	109.26	110.05	109.73	105.21
GM ATOM OXYGEN %	106.68	106.42	107.53	107.76	105.25
RATIO CHX/(H ₂ O+CO ₂)	0.9565	1.0034	1.0024	0.9973	0.9561
RATIO X IN CHX	2.6428	2.6389	2.6507	2.6532	2.6751
USAGE H ₂ /CO PRODT	0.7619	0.7851	0.7817	0.7796	0.7667
RATIO CO ₂ /(H ₂ O+CO ₂)	0.8620	0.8612	0.8676	0.8679	0.8655
K SHIFT IN EFFLNT	26.87	26.36	27.63	27.55	27.22

CONVERSION

ON CO %	93.02	93.05	92.98	92.98	92.88
ON H ₂ %	70.47	71.22	71.06	71.14	70.52
ON CO+H ₂ %	81.65	82.00	81.90	81.95	81.58

PRDT SELECTIVITY, WT %

CH ₄	18.36	17.98	18.40	18.55	19.57
C ₂ HC'S	12.26	11.85	11.95	12.02	12.62
C ₃ H ₈	17.11	17.52	17.81	17.72	17.65
C ₃ H ₆ =	3.30	3.42	3.20	3.15	2.91
C ₄ H ₁₀	7.44	7.77	7.91	7.89	7.67
C ₄ H ₈ =	4.74	5.03	4.84	4.79	4.32
C ₅ H ₁₂	4.88	5.24	5.20	5.28	5.00
C ₅ H ₁₀ =	0.20	0.21	0.20	0.19	0.18
C ₆ H ₁₄	5.82	6.10	6.11	6.01	5.67
C ₆ H ₁₂ = & CYCLO'S	2.12	2.15	2.08	2.08	1.93
C ₇ + IN GAS	12.77	12.21	11.46	11.45	11.33
LIQ HC'S	10.99	10.51	10.84	10.87	11.13

TOTAL	100.00	100.00	100.00	100.00	100.00
SUB-GROUPING					
C1 -C4	63.21	63.58	64.11	64.11	64.76
C5 -420 F	31.85	31.83	31.02	31.18	30.24
420-700 F	3.85	3.83	3.79	3.95	3.89
700-END PT	1.10	0.77	1.08	0.76	1.11
C5+ -END PT	36.79	36.42	35.89	35.89	35.24
ISO/NORMAL MOLE RATIO					
C4	0.1090	0.1113	0.1108	0.1106	0.1069
C5	0.5868	0.5890	0.5922	0.5866	0.5892
C6	2.3806	2.4723	2.4307	2.4298	2.3412
C4=	0.1645	0.1669	0.1703	0.1715	0.1721
PARAFFIN/OLEFIN RATIO					
C3	4.9428	4.8838	5.3151	5.3645	5.7831
C4	1.5159	1.4916	1.5787	1.5905	1.7111
C5	23.6780	24.4908	24.6761	26.5396	26.8696
LIQ HC COLLECTION					
PHYS. APPEARANCE	---	GREEN OIL	---	GREEN OIL	---
DENSITY	---	0.766	---	0.764	---
N, REFRACTIVE INDEX	---	1.4315	---	1.4314	---
SIMULT'D DISTILATN					
10 WT % @ DEG F	---	255	---	255	---
16	---	290	---	289	---
50	---	400	---	400	---
84	---	569	---	567	---
90	---	653	---	649	---
RANGE(16-84 %)	---	279	---	278	---
WT % @ 420 F	---	56.30	---	56.70	---
WT % @ 700 F	---	92.70	---	93.00	---

TABLE 10E RESULT OF SYNGAS OPERATION

RUN NO. 10011-10
 CATALYST PPT(Fe,K)+UCC-104 #9674-69 80CC 58.5G (58.0G AFTER RUN,-0.6G)
 FEED H₂:CO:ARGON OF 50:50: 0 @ 400 CC/MN OR 300 GHSV

RUN & SAMPLE NO. 10011-10-21 011-10-22 011-10-23 011-10-24

	50:50: 0	50:50: 0	50:50: 0	50:50: 0
FEED H ₂ :CO:AR	50:50: 0	50:50: 0	50:50: 0	50:50: 0
HRS ON STREAM	242.9	260.07	267.57	283.99
PRESSURE, PSIG	301	302	293	300
TEMP. C	281	281	281	281

FEED CC/MIN	400	400	400	400
HOURS FEEDING	26.91	17.17	24.67	16.42
EFFLNT GAS LITER	341.32	217.31	313.46	206.52
GM AQUEOUS LAYER	12.11	7.37	10.59	7.68
GM OIL	10.91	6.73	9.67	5.60

MATERIAL BALANCE				
GM ATOM CARBON %	103.74	104.02	104.97	102.39
GM ATOM HYDROGEN %	106.13	104.77	106.58	104.41
GM ATOM OXYGEN %	105.44	106.21	105.41	105.11
RATIO CH ₄ /(H ₂ O+CO ₂)	0.9676	0.9584	0.9916	0.9482
RATIO X IN CH ₄	2.6716	2.6811	2.6746	2.6935
USAGE H ₂ /CO PRODT	0.7716	0.7646	0.7813	0.7710
RATIO CO ₂ /(H ₂ O+CO ₂)	0.8656	0.8706	0.8691	0.8616
K SHIFT IN EFFLNT	27.32	26.93	25.97	24.89

CONVERSION				
ON CO %	92.93	92.76	92.58	92.61
ON H ₂ %	70.70	71.22	71.39	71.02
ON CO+H ₂ %	81.69	81.95	81.90	81.71

PRDT SELECTIVITY, WT %				
CH ₄	19.40	19.76	19.55	20.25
C ₂ HC'S	12.39	12.65	12.31	12.72
C ₃ H ₈	17.70	17.79	17.79	17.96
C ₃ H ₆ =	2.93	2.94	2.87	3.05
C ₄ H ₁₀	7.74	7.77	7.85	7.93
C ₄ H ₈ =	4.39	4.42	4.41	4.38
C ₅ H ₁₂	5.09	5.06	5.15	5.11
C ₅ H ₁₀ =	0.19	0.19	0.18	0.18
C ₆ H ₁₄	5.84	5.69	5.78	5.72
C ₆ H ₁₂ = & CYCLO'S	2.01	1.90	1.95	1.92
C ₇ + IN GAS	11.35	11.16	11.75	11.34
LIQ HC'S	10.97	10.67	10.42	9.44