FIGURE 34

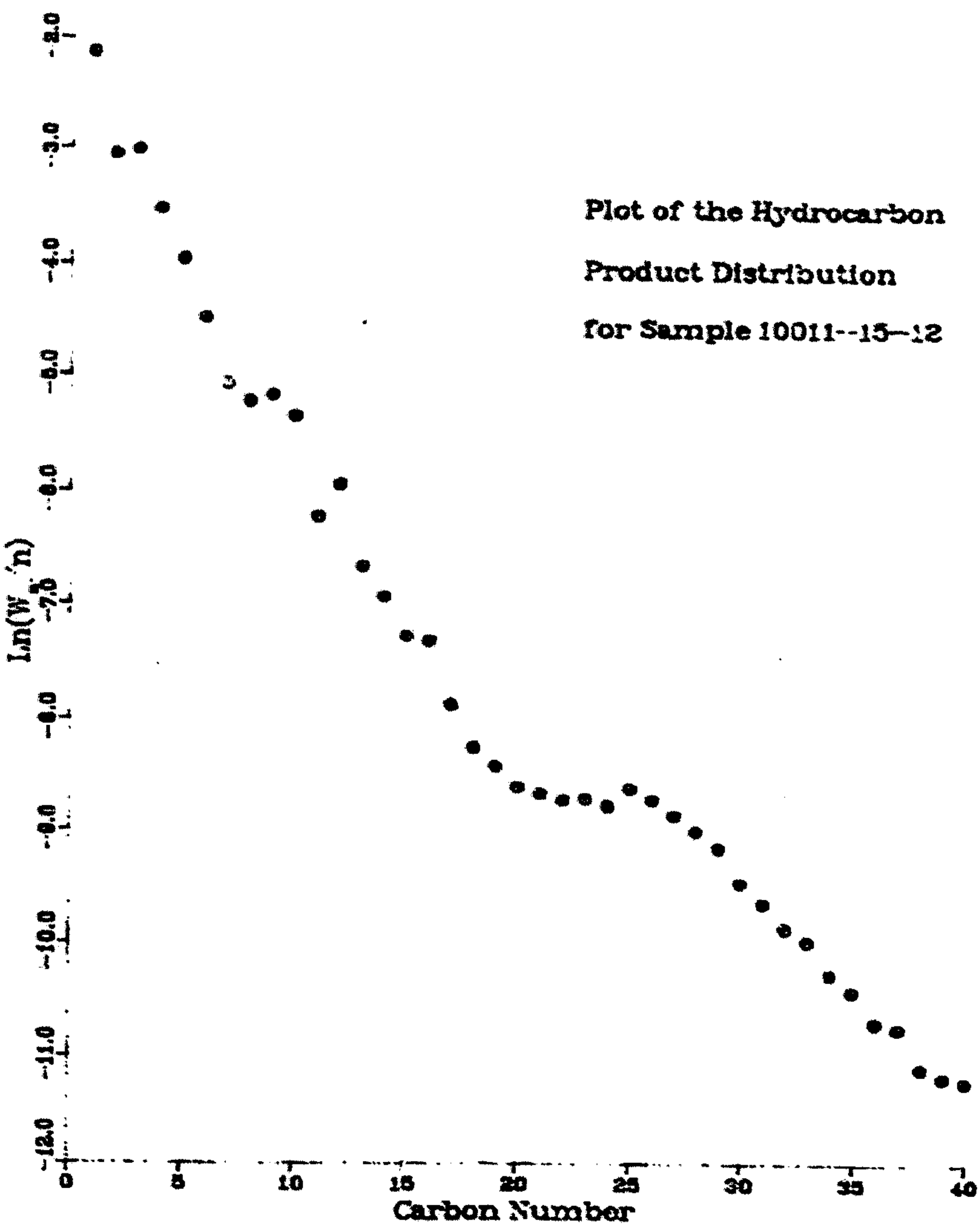
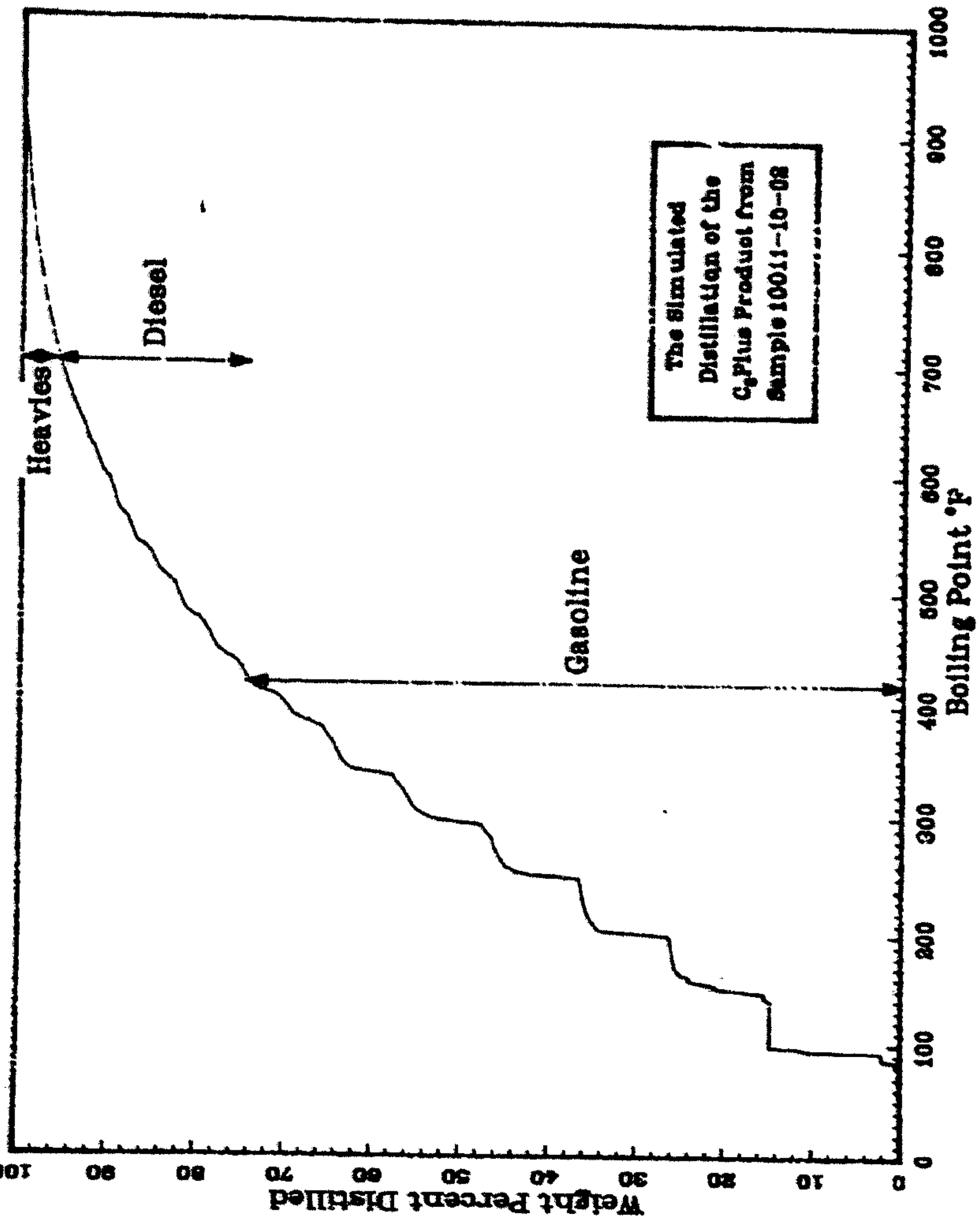
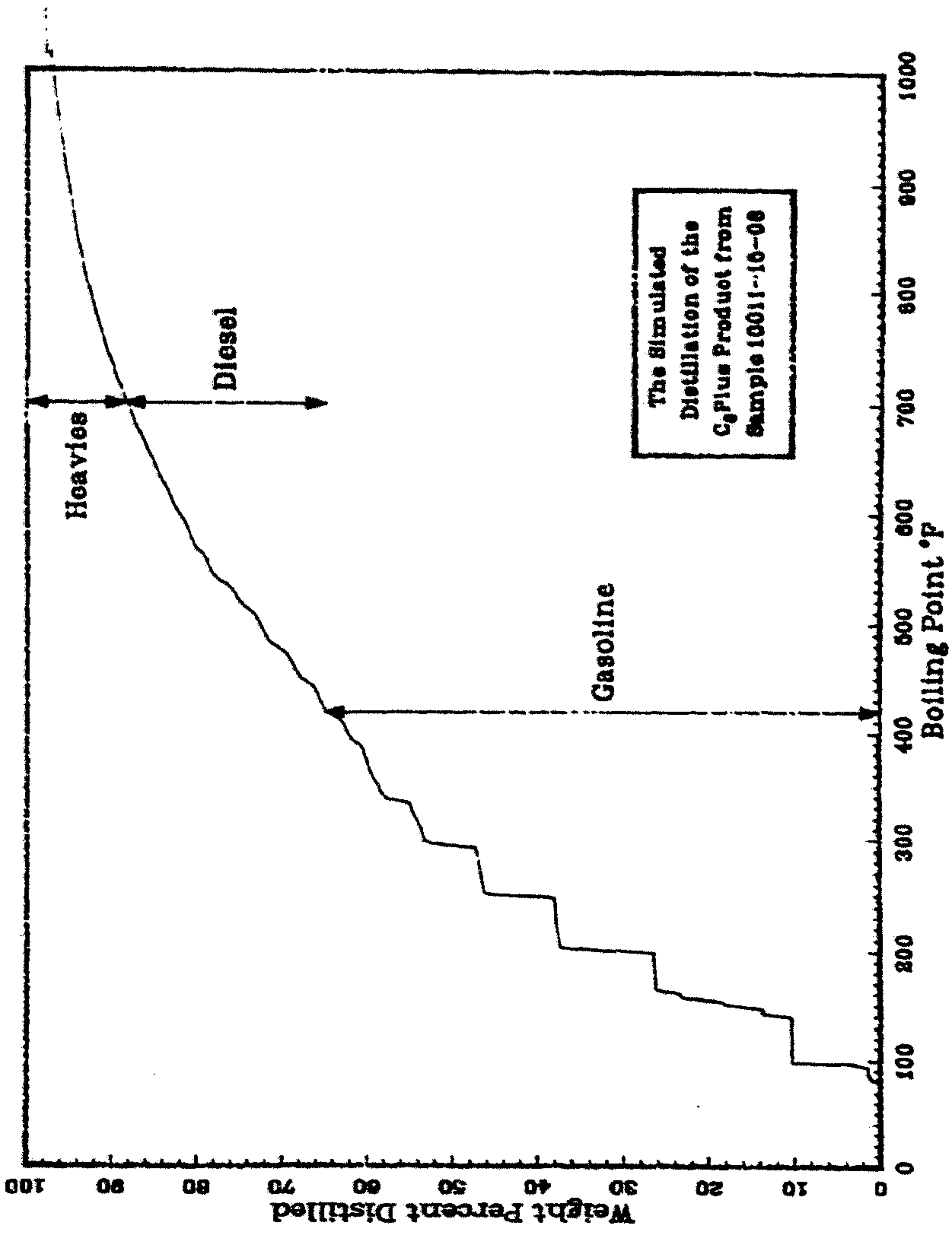

Plot of the Hydrocarbon
Product Distribution
for Sample 10011--15--12
Ln(W_n/n)
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0
-10.0
-11.0
-12.0
0
5
10
15
20
25
30
35
40
Carbon Number

FIGURE 35



The Simulated
Distillation of the
Heavies
Diesel
Gasoline
Boiling Point °F
Weight Percent Distilled

FIGURE 36



Heavies
Diesel
Gasoline
The Simulated Distillation of the $C_6$Plus Product from Sample 10011-16-08
Boiling Point °F
Weight Percent Distilled
0
100
200
300
400
500
600
700
800
900
1000
0
10
20
30
40
50
60
70
80
90
100

FIGURE 37

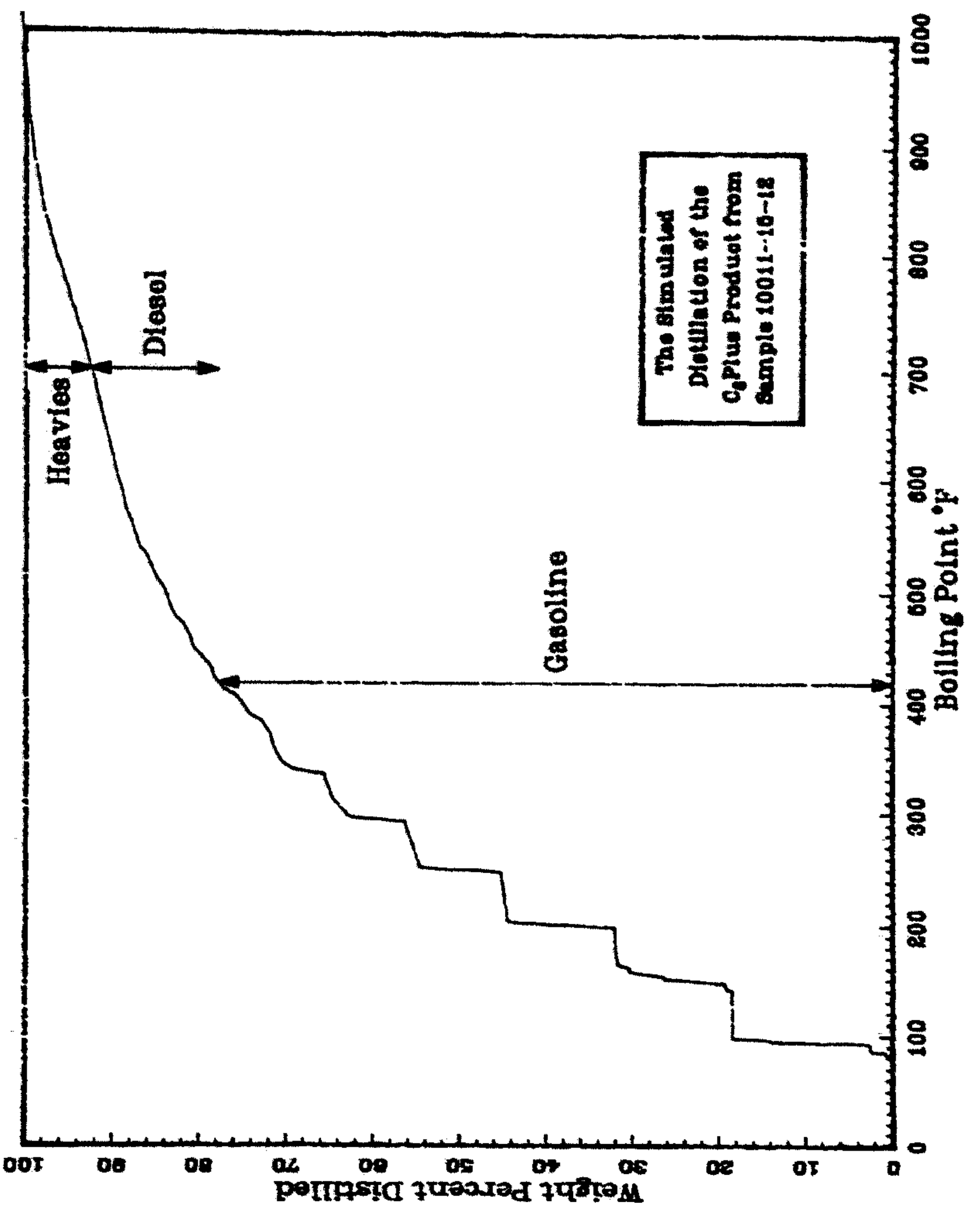
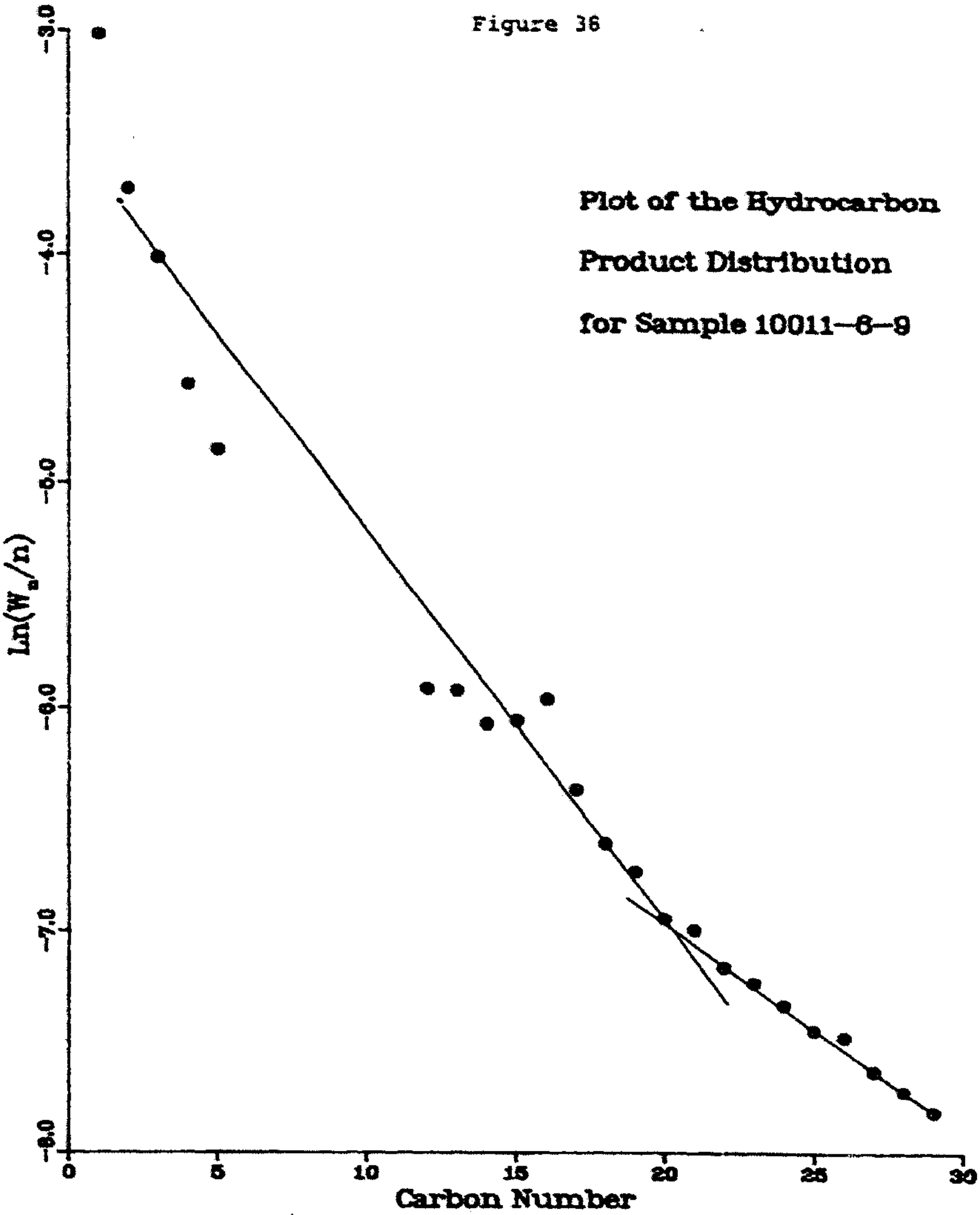
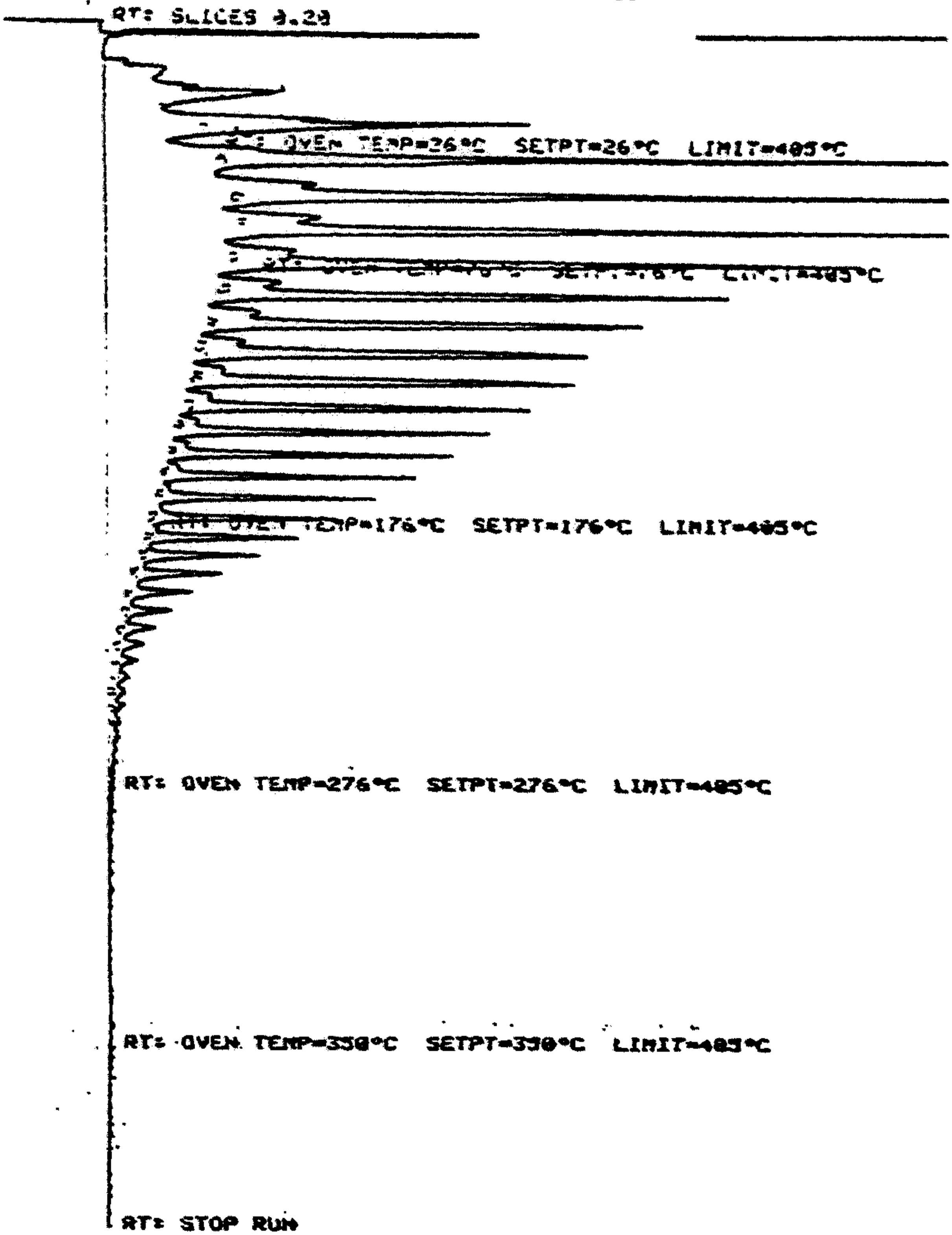

Heavies
Diesel
Gasoline
The Simulated
Distillation of the
$C_6$Plus Product from
Sample 10011-16-12
Weight Percent Distilled
Boiling Point °F
0
10
20
30
40
50
60
70
80
90
100
0
100
200
300
400
500
600
700
800
900
1000

Figure 36




**Plot of the Hydrocarbon Product Distribution for Sample 10011-6-9**

FIGURE 39




SAMPLE:D1011-15-4L

FIGURE 40


D10011-6-5L

REFERENCE
IRON
CATALYST

TABLE 9A RESULT OF SYNGAS OPERATION

RUN NO. 10011-15
CATALYST PPT-FE,K +AL2O3 #10042-77 80CC 84.2G (98.7 AFTER RUN,+14.5G)
FEED H2:CO:ARGON OF 50:50: 0 @ 400 CC/MN OR 300 GHSV

| RUN & SAMPLE NO. | 10011-15-01 | 011-15-02 | 011-15-03 | 011-15-04 | 011-15-05 |
|---|---|---|---|---|---|
| FEED H2:CO:AR | 50:50: 0 | 50:50: 0 | 50:50: 0 | 50:50: 0 | 50:50: 0 |
| HRS ON STREAM | 5.0 | 21.67 | 28.84 | 46.34 | 51.34 |
| PRESSURE,PSIG | 295 | 300 | 301 | 288 | 290 |
| TEMP. C | 250 | 251 | 251 | 251 | 251 |
| FEED CC/MIN | 400 | 400 | 400 | 400 | 400 |
| HOURS FEEDING | 5.00 | 21.67 | 7.17 | 24.67 | 5.00 |
| EFFLNT GAS LITER | 53.97 | 256.20 | 89.67 | 312.25 | 70.95 |
| GM AQUEOUS LAYER | 3.69 | 15.99 | 4.80 | 16.53 | 1.72 |
| GM OIL | 5.29 | 22.94 | 9.16 | 31.54 | 5.72 |
| MATERIAL BALANCE | | | | | |
| GM ATOM CARBON % | 91.14 | 96.55 | 104.03 | 101.92 | 101.78 |
| GM ATOM HYDROGEN % | 91.44 | 96.04 | 103.52 | 100.89 | 99.76 |
| GM ATOM OXYGEN % | 98.08 | 106.77 | 110.12 | 107.33 | 104.71 |
| RATIO CHX/(H2O+CO2) | 0.8669 | 0.8180 | 0.8936 | 0.8982 | 0.9351 |
| RATIO X IN CHX | 2.1789 | 2.2016 | 2.1927 | 2.1870 | 2.1900 |
| USAGE H2/CO PRODT | 0.6525 | 0.6259 | 0.6436 | 0.6565 | 0.6329 |
| RATIO CO2/(H2O+CO2) | 0.8081 | 0.8189 | 0.8338 | 0.8205 | 0.8644 |
| K SHIFT IN EFFLNT | 35.65 | 34.39 | 36.34 | 16.90 | 14.65 |
| CONVERSION | | | | | |
| ON CO % | 95.83 | 95.19 | 94.99 | 89.61 | 79.70 |
| ON H2 % | 64.80 | 63.23 | 63.33 | 61.19 | 52.40 |
| ON CO+H2 % | 80.29 | 79.25 | 79.20 | 75.47 | 66.19 |
| PRDT SELECTIVITY,WT % | | | | | |
| CH4 | 6.70 | 7.52 | 7.15 | 6.94 | 7.01 |
| C2 HC'S | 7.49 | 8.12 | 7.55 | 7.19 | 6.90 |
| C3H8 | 1.76 | 1.93 | 1.89 | 1.82 | 1.86 |
| C3H6= | 11.12 | 11.38 | 10.84 | 9.59 | 8.86 |
| C4H10 | 1.73 | 1.80 | 1.75 | 1.68 | 1.78 |
| C4H8= | 9.17 | 8.93 | 8.64 | 7.66 | 7.36 |
| C5H12 | 2.45 | 2.51 | 2.43 | 2.25 | 2.25 |
| C5H10= | 7.23 | 6.34 | 6.17 | 5.38 | 5.32 |
| C6H14 | 2.22 | 2.21 | 2.18 | 2.06 | 2.20 |
| C6H12= & CYCLO'S | 4.24 | 4.09 | 3.91 | 3.65 | 3.74 |
| C7+ IN GAS | 12.53 | 12.37 | 11.90 | 13.62 | 14.06 |
| LIQ HC'S | 33.36 | 32.80 | 35.60 | 38.16 | 38.65 |

| | | | | | |
|---|---|---|---|---|---|
| TOTAL | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| SUB-GROUPING | | | | | |
| C1 -C4 | 37.96 | 39.67 | 37.82 | 34.87 | 33.77 |
| C5 -420 F | 46.03 | 44.68 | 43.31 | 45.06 | 43.43 |
| 420-700 F | 13.35 | 13.06 | 15.67 | 16.71 | 17.78 |
| 700-END PT | 2.67 | 2.59 | 3.20 | 3.36 | 5.03 |
| C5+-END PT | 62.04 | 60.33 | 62.18 | 65.13 | 66.23 |
| ISO/NORMAL MOLE RATIO | | | | | |
| C4 | 0.1399 | 0.1338 | 0.1330 | 0.1194 | 0.1093 |
| C5 | 0.1575 | 0.1540 | 0.1589 | 0.1733 | 0.1614 |
| C6 | 0.1980 | 0.1989 | 0.2115 | 0.1862 | 0.1646 |
| C4= | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| PARAFFIN/OLEFIN RATIO | | | | | |
| C3 | 0.1509 | 0.1617 | 0.1660 | 0.1807 | 0.2006 |
| C4 | 0.1817 | 0.1942 | 0.1960 | 0.2122 | 0.2331 |
| C5 | 0.3302 | 0.3841 | 0.3820 | 0.4063 | 0.4108 |
| LIQ HC COLLECTION | | | | | |
| PHYS. APPEARANCE | --- | CLDY OIL | --- | CLDY OIL | --- |
| DENSITY | --- | 0.773 | --- | 0.777 | -- |
| N, REFRACTIVE INDEX | --- | 1.4302 | --- | 1.4291 | -- |
| SIMULT'D DISTILATN | | | | | |
| 10 WT % @ DEG F | --- | 258 | --- | 280 | --- |
| 16 | --- | 295 | --- | 303 | --- |
| 50 | --- | 413 | --- | 436 | --- |
| 84 | --- | 610 | --- | 630 | --- |
| 90 | --- | 673 | -- | 690 | --- |
| RANGE(16-84 %) | --- | 315 | --- | 327 | --- |
| WT % @ 420 F | --- | 52.30 | --- | 47.40 | --- |
| WT % @ 700 F | --- | 92.10 | --- | 91.20 | -- |

TABLE 9B RESULT OF SYNGAS OPERATION

RUN NO. 10011-15
CATALYST PPT-FE,K +AL2O3 #10042-77 80CC 84.2G (98.7 AFTER RUN,+14.5G)
FEED H2:CO:ARGON OF 50:50: 0 & 60:30:10 @ 400 CC/MN OR 300 GHSV

| RUN & SAMPLE NO. | 10011-15-06 | 011-15-07 | 011-15-08 | 011-15-09 | 011-15-10 |
|---|---|---|---|---|---|
| FEED H2:CO:AR | 50:50: 0 | 50:50: 0 | 50:50: 0 | 60:30:10 | 60:30:10 |
| HRS ON STREAM | 70.59 | 74.74 | 93.74 | 100.74 | 117.24 |
| PRESSURE,PSIG | 293 | 292 | 295 | 290 | 298 |
| TEMP. C | 251 | 251 | 250 | 281 | 281 |
| FEED CC/MIN | 400 | 400 | 400 | 400 | 400 |
| HOURS FEEDING | 24.25 | 4.25 | 23.25 | 7.00 | 23.50 |
| EFFLNT GAS LITER | 361.89 | 63.43 | 354.14 | 100.20 | 348.52 |
| GM AQUEOUS LAYER | 8.36 | 1.30 | 7.09 | 8.28 | 27.79 |
| GM OIL | 27.74 | 5.30 | 28.99 | 5.93 | 19.90 |
| MATERIAL BALANCE | | | | | |
| GM ATOM CARBON % | 104.61 | 104.83 | 104.42 | 108.82 | 111.52 |
| GM ATOM HYDROGEN % | 101.66 | 102.96 | 102.10 | 102.25 | 105.17 |
| GM ATOM OXYGEN % | 109.05 | 107.49 | 106.13 | 100.39 | 103.04 |
| RATIO CHX/(H2O+CO2) | 0.9032 | 0.9408 | 0.9591 | 1.1446 | 1.1425 |
| RATIO X IN CHX | 2.1938 | 2.1861 | 2.1877 | 2.2663 | 2.2692 |
| USAGE H2/CO PRODT | 0.6208 | 0.6286 | 0.6460 | 1.0702 | 1.0619 |
| RATIO CO2/(H2O+CO2) | 0.8638 | 0.8709 | 0.8605 | 0.5552 | 0.5619 |
| K SHIFT IN EFFLNT | 13.40 | 14.69 | 11.44 | 13.22 | 13.62 |
| CONVERSION | | | | | |
| ON CO % | 77.36 | 77.67 | 72.96 | 91.07 | 90.95 |
| ON H2 % | 50.77 | 50.52 | 48.74 | 49.66 | 49.07 |
| ON CO+H2 % | 64.26 | 64.22 | 60.98 | 64.04 | 63.58 |
| PRDT SELECTIVITY,WT % | | | | | |
| CH4 | 7.25 | 6.92 | 7.03 | 10.54 | 10.55 |
| C2 HC'S | 6.72 | 6.53 | 6.43 | 8.33 | 4.17 |
| C3H8 | 1.91 | 1.80 | 1.75 | 2.26 | 2.35 |
| C3H6= | 8.81 | 8.21 | 7.82 | 10.80 | 10.71 |
| C4H10 | 1.84 | 1.73 | 1.64 | 1.99 | 2.04 |
| C4H8= | 6.79 | 6.65 | 6.19 | 7.97 | 8.46 |
| C5H12 | 2.14 | 2.12 | 2.01 | 2.40 | 2.39 |
| C5H10= | 4.84 | 4.86 | 4.53 | 6.60 | 6.26 |
| C6H14 | 2.04 | 2.00 | 1.90 | 2.25 | 2.27 |
| C6H12= & CYCLO'S | 3.47 | 3.37 | 3.10 | 3.89 | 3.83 |
| C7+ IN GAS | 14.83 | 13.78 | 13.37 | 13.01 | 13.57 |
| LIQ HC'S | 39.37 | 42.02 | 44.23 | 29.97 | 29.40 |

| | | | | | |
|---|---|---|---|---|---|
| TOTAL | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| SUB-GROUPING | | | | | |
| C1 -C4 | 33.31 | 31.84 | 30.85 | 41.89 | 42.28 |
| C5 -420 F | 43.38 | 35.80 | 35.22 | 35.99 | 36.02 |
| 420-700 F | 18.27 | 21.43 | 22.60 | 13.85 | 13.58 |
| 700-END PT | 5.04 | 10.92 | 11.32 | 8.27 | 8.11 |
| C5+-END PT | 66.69 | 68.16 | 69.15 | 58.11 | 57.72 |
| ISO/NORMAL MOLE RATIO | | | | | |
| C4 | 0.0978 | 0.1020 | 0.0969 | 0.1086 | 0.1048 |
| C5 | 0.1530 | 0.1467 | 0.1491 | 0.1607 | 0.1573 |
| C6 | 0.1812 | 0.1540 | 0.1803 | 0.2030 | 0.1939 |
| C4= | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| PARAFFIN/OLEFIN RATIO | | | | | |
| C3 | 0.2064 | 0.2094 | 0.2138 | 0.1994 | 0.2099 |
| C4 | 0.2612 | 0.2515 | 0.2555 | 0.2413 | 0.2325 |
| C5 | 0.4295 | 0.4250 | 0.4303 | 0.3531 | 0.3701 |
| LIQ HC COLLECTION | | | | | |
| PHYS. APPEARANCE | CLDY OIL | --- | CLDY OIL | --- | CLDY OIL |
| DENSITY | | --- | | --- | |
| N, REFRACTIVE INDEX | | --- | | --- | |
| SIMULT'D DISTILATN | | | | | |
| 10 WT % @ DEG F | 302 | --- | 352 | --- | 337 |
| 16 | 334 | --- | 392 | --- | 380 |
| 50 | 460 | --- | 538 | --- | 539 |
| 84 | 672 | --- | 800 | --- | 799 |
| 90 | 730 | --- | 912 | --- | 889 |
| RANGE(16-84 %) | 338 | --- | 408 | --- | 419 |
| WT % @ 420 F | 40.80 | --- | 23.30 | --- | 26.20 |
| WT % @ 700 F | 87.20 | --- | 74.40 | --- | 72.40 |

TABLE 9C RESULT OF SYNGAS OPERATION

RUN NO. 10011-15
CATALYST PPT-FE,K +AL2O3 #10042-77 80CC 84.2G (98.7 AFTER RUN, +14.5G)
FEED H2:CO:ARGON OF 60:30:10 @ 400 CC/MN OR 300 GHSV

| RUN & SAMPLE NO. | 10011-15-11 | 011-15-12 | 011-15-13 |
|---|---|---|---|
| FEED H2:CO:AR | 60:30:10 | 60:30:10 | 60:30:10 |
| HRS ON STREAM | 125.49 | 141.49 | 147.49 |
| PRESSURE,PSIG | 298 | 296 | 298 |
| TEMP. C | 281 | 281 | 281 |
| FEED CC/MIN | 400 | 400 | 400 |
| HOURS FEEDING | 8.25 | 24.25 | 6.00 |
| EFFLNT GAS LITER | 124.29 | 361.10 | 87.95 |
| GM AQUEOUS LAYER | 10.10 | 29.70 | 7.42 |
| GM OIL | 4.15 | 12.21 | 3.17 |
| MATERIAL BALANCE | | | |
| GM ATOM CARBON % | 103.09 | 102.67 | 102.84 |
| GM ATOM HYDROGEN % | 103.74 | 103.40 | 102.61 |
| GM ATOM OXYGEN % | 103.66 | 103.26 | 103.01 |
| RATIO CHX/(H2O+CO2) | 0.9907 | 0.9905 | 0.9972 |
| RATIO X IN CHX | 2.3072 | 2.3031 | 2.2934 |
| USAGE H2/CO PRODT | 1.0158 | 1.0057 | 1.0077 |
| RATIO CO2/(H2O+CO2) | 0.5614 | 0.5683 | 0.5664 |
| K SHIFT IN EFFLNT | 18.03 | 25.46 | 26.16 |
| CONVERSION | | | |
| ON CO % | 92.39 | 94.52 | 94.81 |
| ON H2 % | 46.77 | 47.33 | 47.92 |
| ON CO+H2 % | 61.92 | 62.98 | 63.57 |
| PRDT SELECTIVITY,WT % | | | |
| CH4 | 11.99 | 11.91 | 11.50 |
| C2 HC'S | 9.45 | 9.44 | 9.23 |
| C3H8 | 2.72 | 2.64 | 2.58 |
| C3H6= | 12.16 | 12.13 | 11.98 |
| C4H10 | 2.40 | 2.28 | 2.27 |
| C4H8= | 9.74 | 9.50 | 9.59 |
| C5H12 | 2.78 | 2.65 | 2.67 |
| C5H10= | 7.48 | 6.93 | 6.96 |
| C6H14 | 2.64 | 2.54 | 2.51 |
| C6H12= & CYCLO'S | 4.45 | 4.21 | 4.29 |
| C7+ IN GAS | 14.70 | 16.53 | 16.40 |
| LIQ HC'S | 19.48 | 19.23 | 20.02 |

| | | | |
|---|---|---|---|
| TOTAL | 100.00 | 100.00 | 100.00 |
| SUB-GROUPING | | | |
| C1 - C4 | 48.46 | 47.90 | 47.14 |
| C5 -420 F | 39.66 | 40.37 | 39.98 |
| 420-700 F | 7.73 | 7.63 | 8.77 |
| 700-END PT | 4.15 | 4.10 | 4.10 |
| C5+-END PT | 51.54 | 52.10 | 52.86 |
| ISO/NORMAL MOLE RATIO | | | |
| C4 | 0.1064 | 0.1060 | 0.1049 |
| C5 | 0.1478 | 0.1464 | 0.1570 |
| C6 | 0.2084 | 0.2065 | 0.2032 |
| C4= | 0.0000 | 0.0000 | 0.0000 |
| PARAFFIN/OLEFIN RATIO | | | |
| C3 | 0.2137 | 0.2073 | 0.2052 |
| C4 | 0.2381 | 0.2315 | 0.2281 |
| C5 | 0.3617 | 0.3721 | 0.3732 |
| LIQ HC COLLECTION | | | |
| PHYS. APPEARANCE | --- | CLDY SLD | CLDY SLD |
| DENSITY | --- | | |
| N, REFRACTIVE INDEX | --- | | |
| SIMULT'D DISTILATN | | | |
| 10 WT % @ DEG F | --- | 309 | 319 |
| 16 | --- | 339 | 348 |
| 50 | --- | 474 | 480 |
| 84 | --- | 752 | 755 |
| 90 | --- | 805 | 813 |
| RANGE(16-84 %) | --- | 413 | 407 |
| WT % @ 420 F | --- | 39.00 | 35.75 |
| WT % @ 700 F | --- | 78.70 | 79.50 |

Physical Mixture of Potassium Promoted Iron and UCC-104, Run 10011-10

This physical mixture was synthesized from the same metal component that was used in the previously reported physical mixtures used in Runs 10011-6 and 10011-15. In this catalyst the SSC was UCC-104, one of the best Task 1 catalysts.

The conversion, product selectivity, percent iso- of the pentanes and percent olefins of the $C_4$'s are presented in Figures 41 to 44. The Schultz-Flory product distributions are shown in Figures 45 to 57. The $C_5^+$ product distributions of selected samples are shown in Figures 58 to 61. Tables 10A through 10E contain the detailed material balance and selectivity data.

The metal component again had high initial syngas conversion with characteristics similiar to those seen with the physical mixture with $\alpha Al_2O_3$. This catalyst did not deactivate initially as other catalyst had. The temperature increase from 250°C to 280°C did not significantly alter the conversion or the $H_2/CO$ usage ratio. These are characteristics of the metal component and therefore they should be similar to Run 10011-15. The cause of the differences between these two runs could be due to slight changes in the activation or process parameters or even possibly an effect of the molecular sieve. Further tests will help clarify this.

The product distribution is very different from that produced in Run 10011-6 or 10011-15. This catalyst produces more gaseous hydrocarbons than other catalysts (the reference iron or the physical mixture with $\alpha Al_2O_3$. The methane yield is above 10% and increased steadily over the run. The total $C_5^+$ decreased steadily. The $C_5^+$ product accounted for only 50% of the total hydrocarbons produced. This dropped to 35% by the end of the run at 280°C. The carbon number product distributions, Figures 45 to 57, have some unusual features. There are marked deviations from a linear distribution even in samples not immediately following a process change. The later samples at the initial process conditions seem to have a double $\alpha$ with excess products in the $C_{20}^+$ range. This is very similar to what was seen in Run 10011-6 with the reference iron catalyst. In this case, the effect could be due to the molecular sieve. One effect of the sieve in these catalysts is to intercept intermediates. This affects the probability of chain growth, $\alpha$. If the molecular sieve could not intercept the larger intermediates, possibly for diffusional reasons, the $\alpha$ of the heavier hydrocarbons could be greater than those of the lighter hydrocarbons. At 280°C the S-F distribution shows curvature, again giving less of the intermediate weight hydrocarbons.

Almost all the $C_5^+$ product boils in the gasoline range with some diesel oil but very little heavier. The quality of this gasoline should be significantly better than that of normal F-T catalysts. The $C_4$'s show the product started out olefinic but became more paraffinic as the run continued. The refractive index of the liquid does not follow this trend. The liquid product does become more parraffinic with time at 250°C but at 280°C, the liquid becomes olefinic again and remains that way through the run. The iso-normal ratio of the pentanes shows a sharp drop with time on stream. The chromatograms from the simulated distillations presented in Figures 62 to 65, again show this is not the case for the liquid as a whole. The liquid product is highly isomerized throughout the run. The gasoline produced should have a high octane number because it is so isomerized. There was insufficient volume of liquid to determine the octane number. Preparation of such a large volume of liquid is outside the range of the exploratory portion of this task but such testing of the promising catalysts will commence soon.

The yield of gasoline and diesel oil produced by this catalyst is not extraordinarily high, but it is not unacceptable. It compares well with the other iron based catalysts. The remarkable aspect is the indication of superior quality of the gasoline. This liquid product is more isomerized than that from the physical mixture with UCC-101, run 10011-9. The chromatogram from the simulated distillation of one of the samples from Run 10011-9 is shown in Figure 66. The liquid from the present run is more isomerized and probably much higher octane.

FIGURE 41

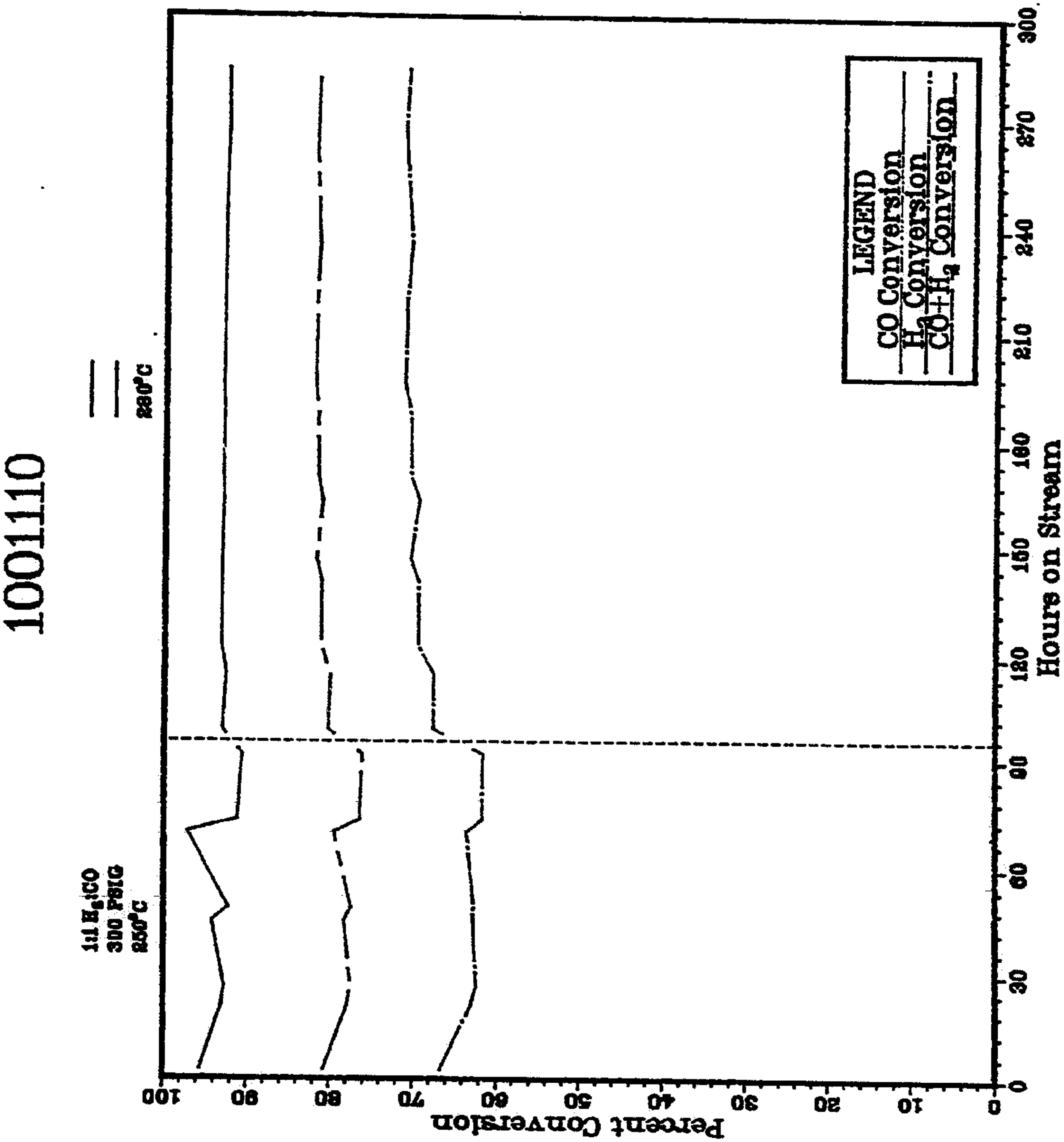

1001110
1:1 H2:CO
300 PSIG
250°C
280°C
LEGEND
CO Conversion
H2 Conversion
CO+H2 Conversion
Hours on Stream
0
30
60
90
120
150
180
210
240
270
300
Percent Conversion
0
10
20
30
40
50
60
70
80
90
100

FIGURE 42

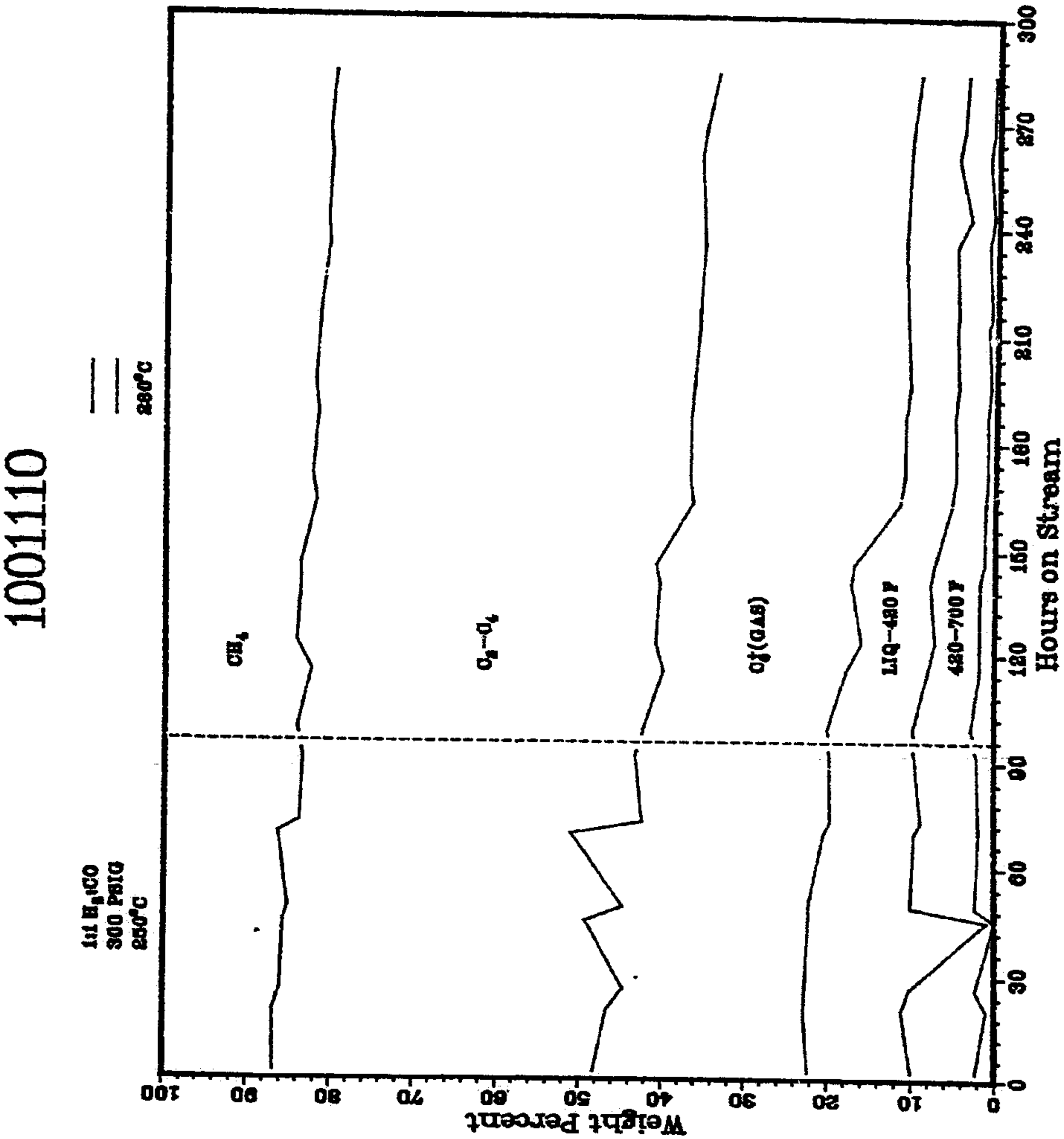
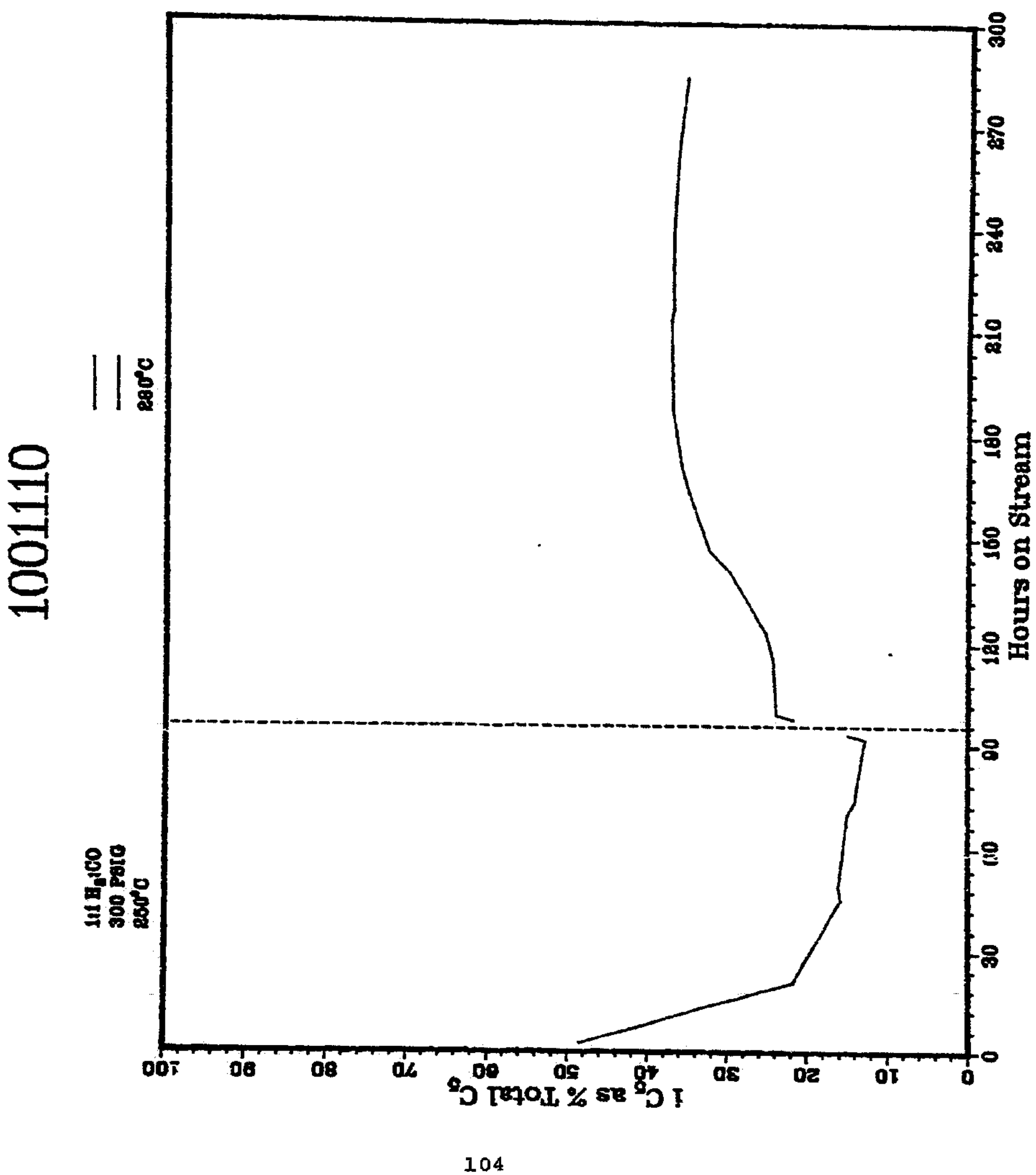

1001110
1:1 H2:CO
300 PSIG
250°C
280°C
CH4
C2–C4
C5+(GAS)
LIQ–420 F
420–700 F
Hours on Stream
Weight Percent

FIGURE 43



1001110
1:1 H2:CO
300 PSIG
250°C
280°C
Hours on Stream
i C5 as % Total C5

FIGURE 44

1001110

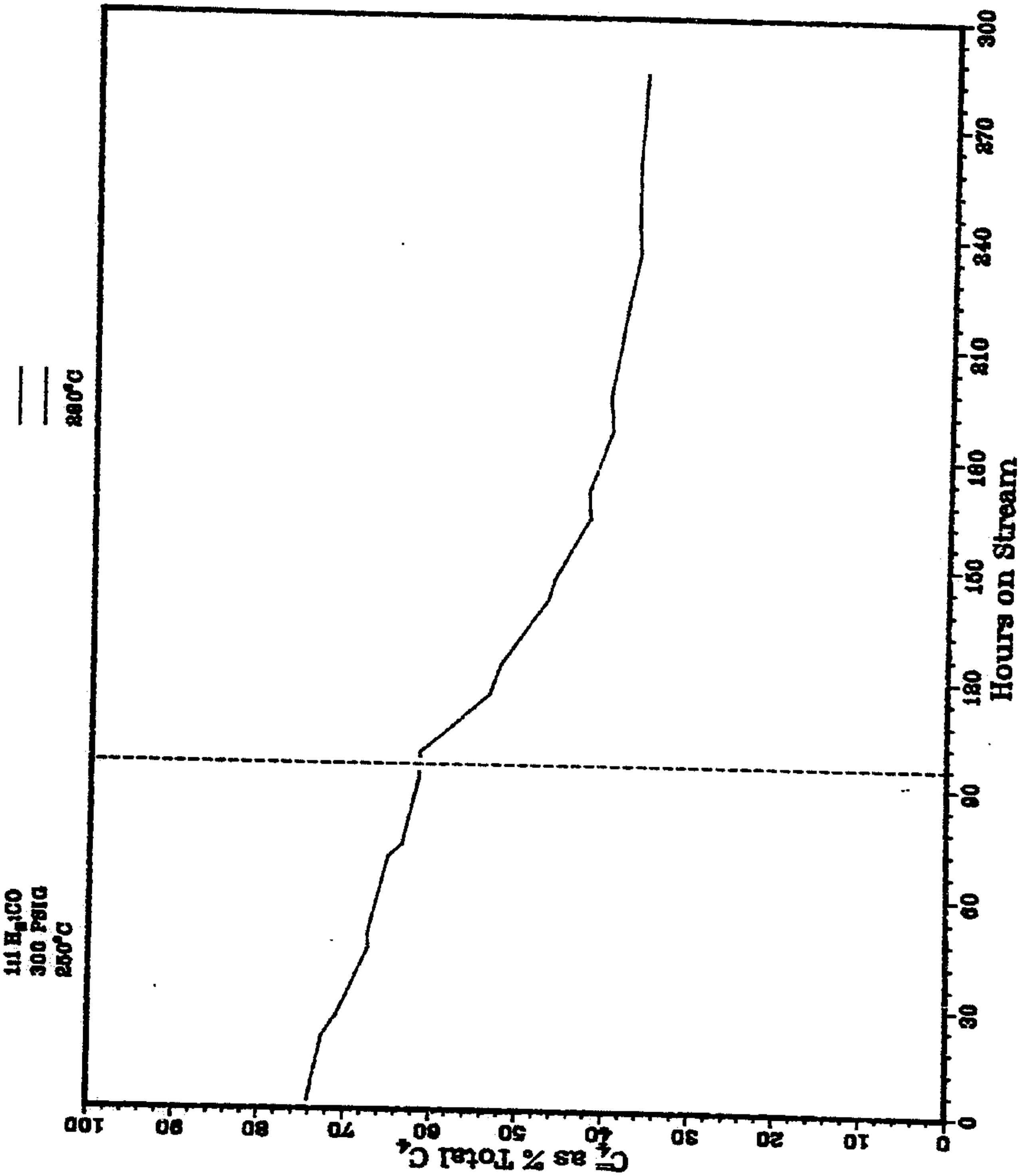


FIGURE 45

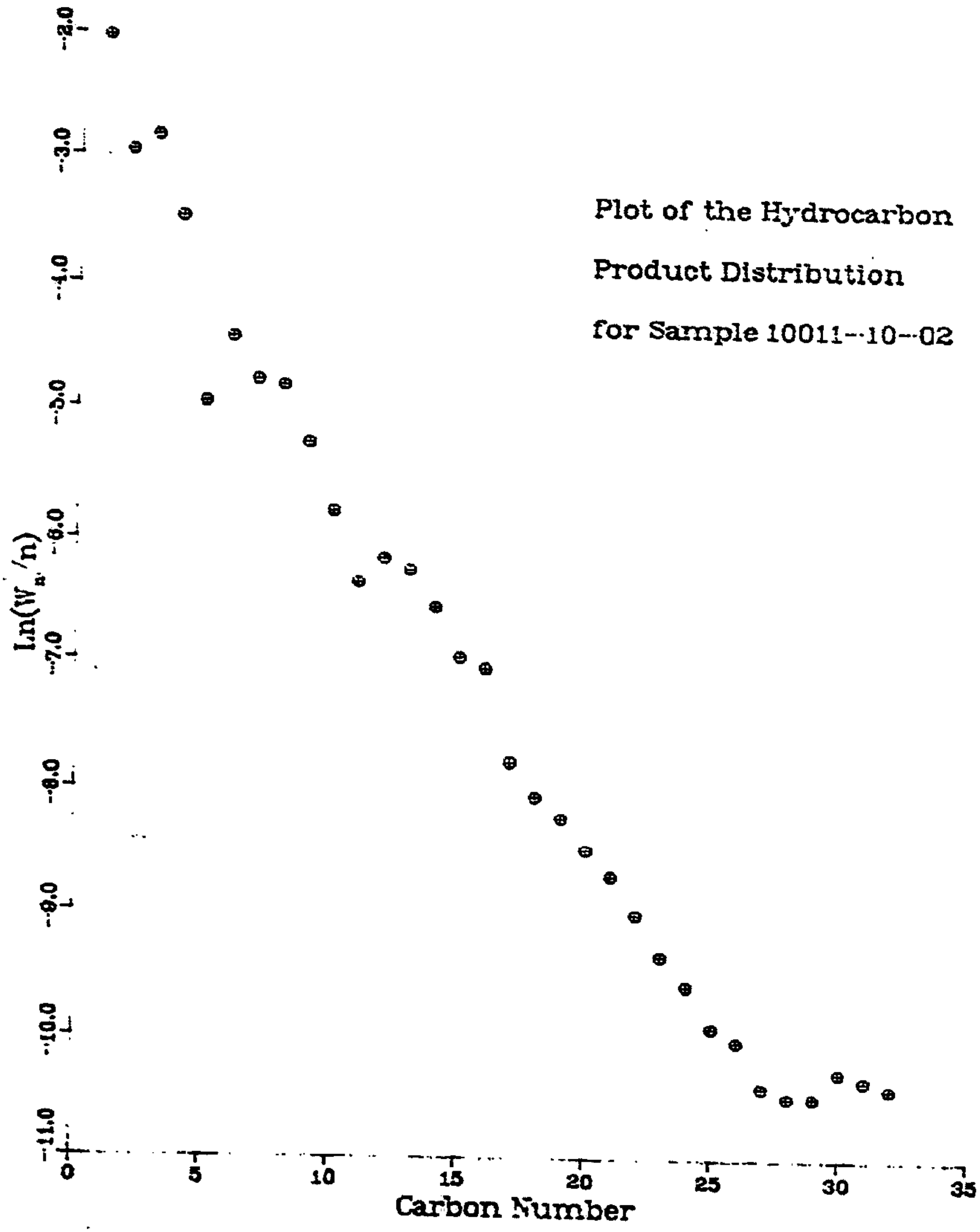

Plot of the Hydrocarbon
Product Distribution
for Sample 10011--10--02
Ln(W_n/n)
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0
-10.0
-11.0
0
5
10
15
20
25
30
35
Carbon Number

FIGURE 46

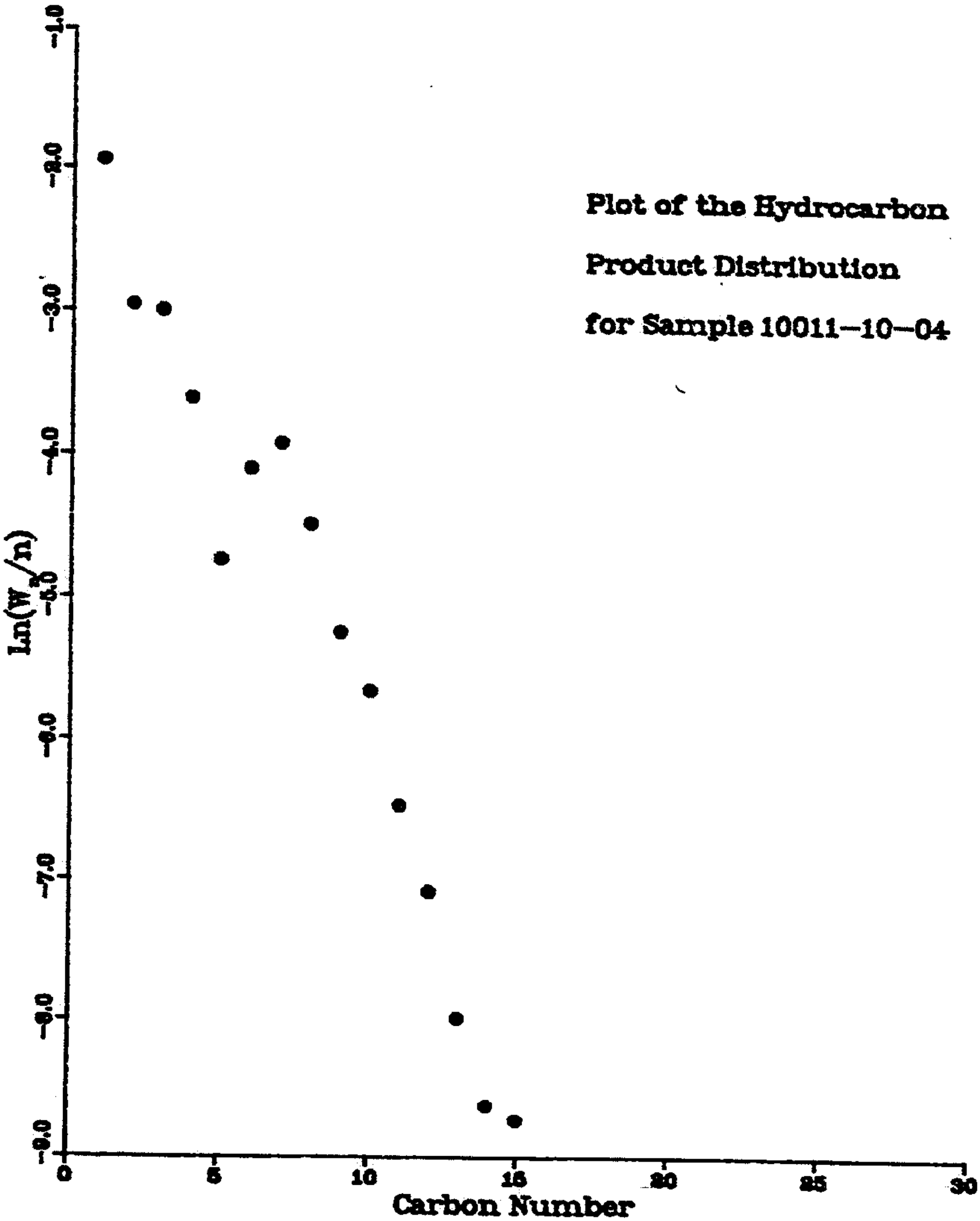

Plot of the Hydrocarbon
Product Distribution
for Sample 10011–10–04
Ln(W_n/n)
Carbon Number
0
5
10
15
20
25
30
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0

FIGURE 47

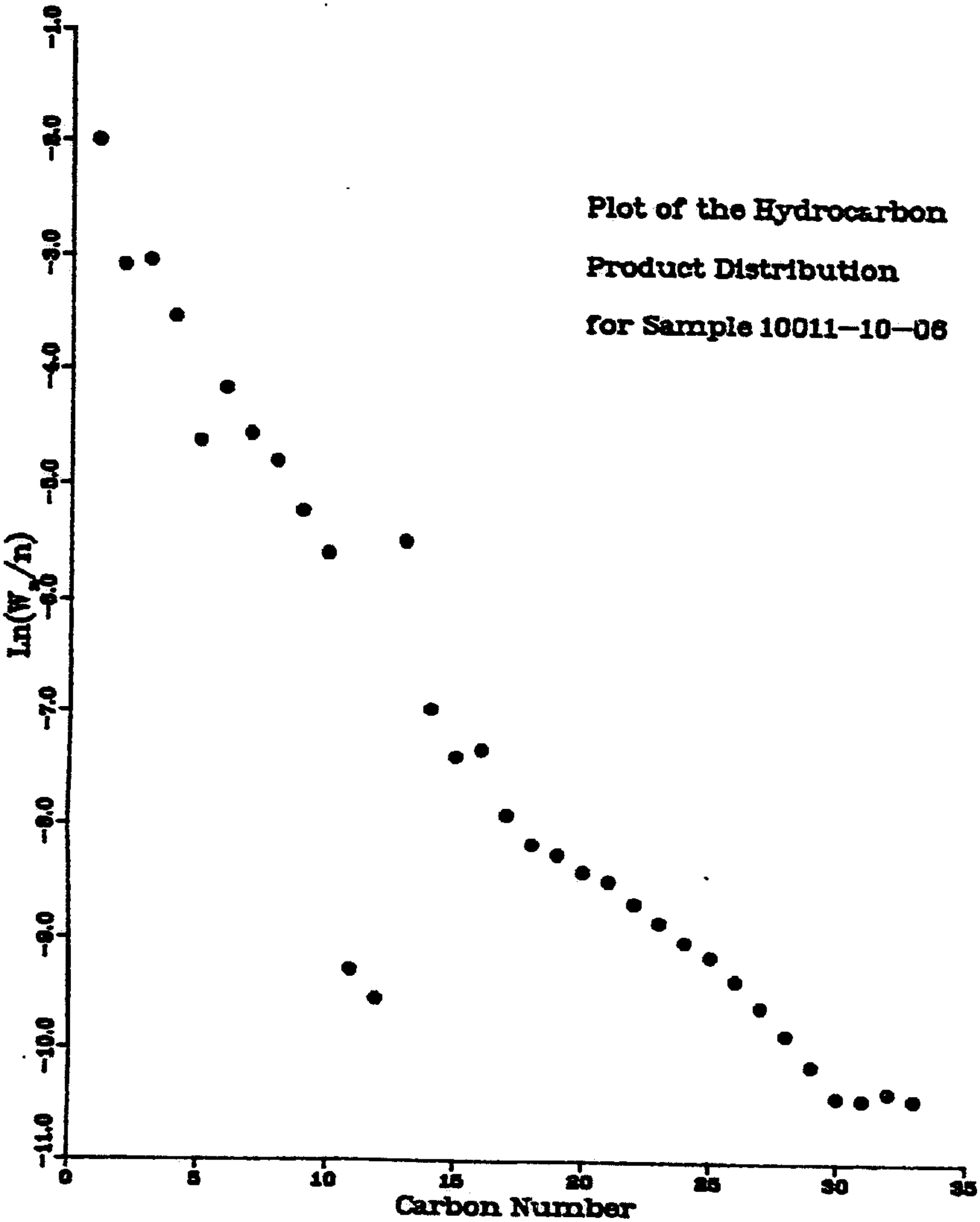

Plot of the Hydrocarbon
Product Distribution
for Sample 10011-10-06
Ln(W/n)
Carbon Number
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0
-10.0
-11.0
0
5
10
15
20
25
30
35

FIGURE 48

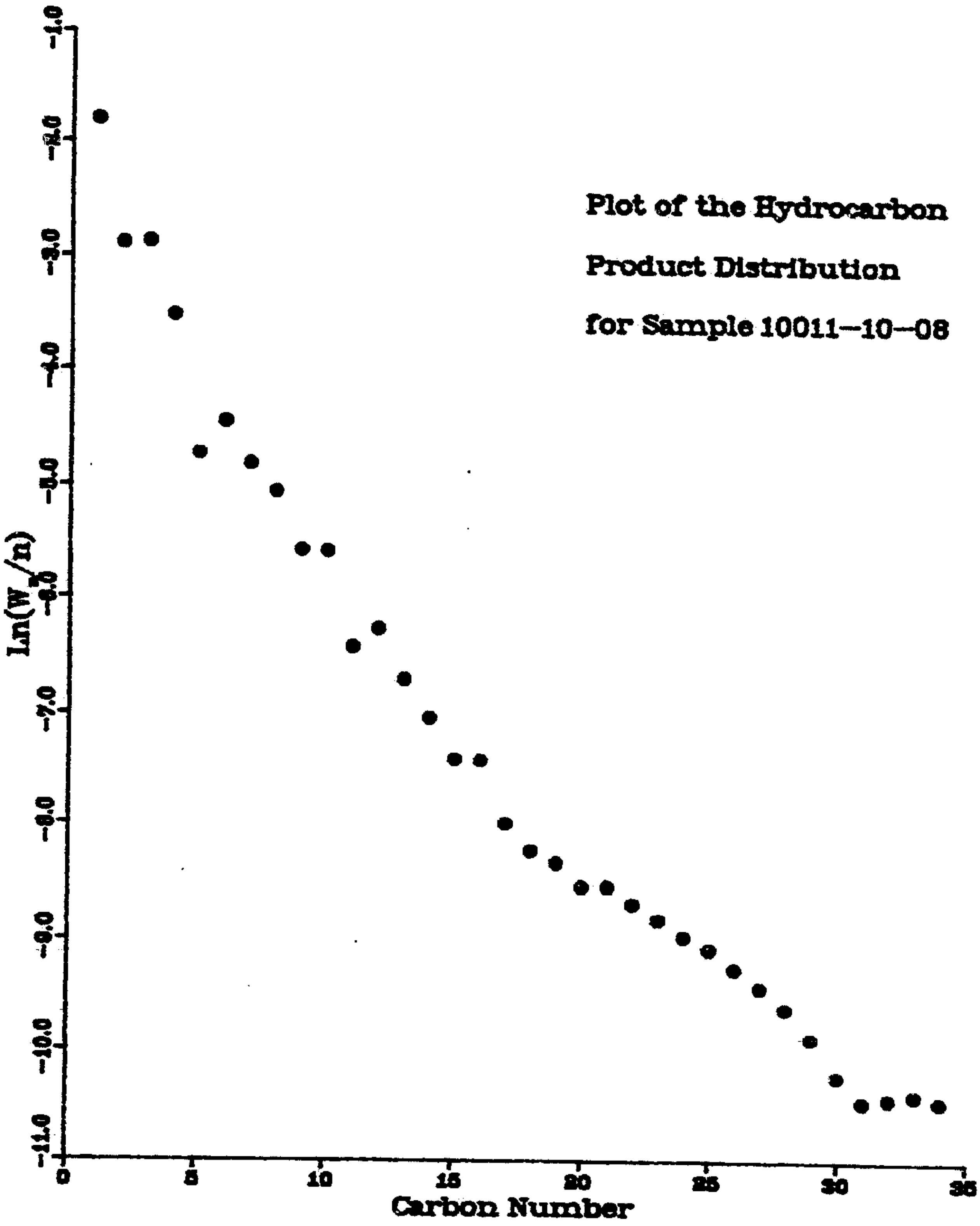

Plot of the Hydrocarbon
Product Distribution
for Sample 10011--10--08
Ln(W_n/n)
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0
-10.0
-11.0
0
5
10
15
20
25
30
35
Carbon Number

FIGURE 49

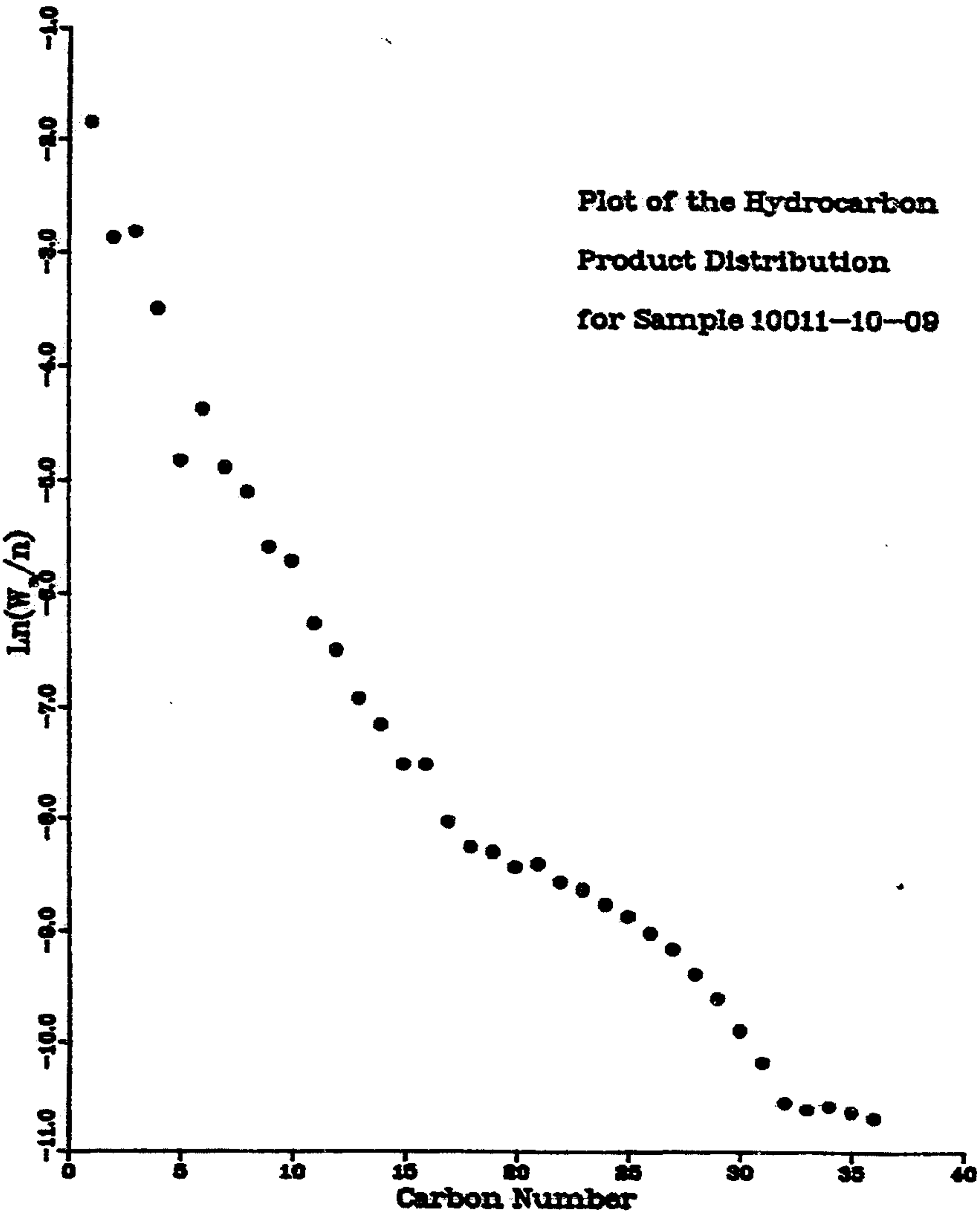
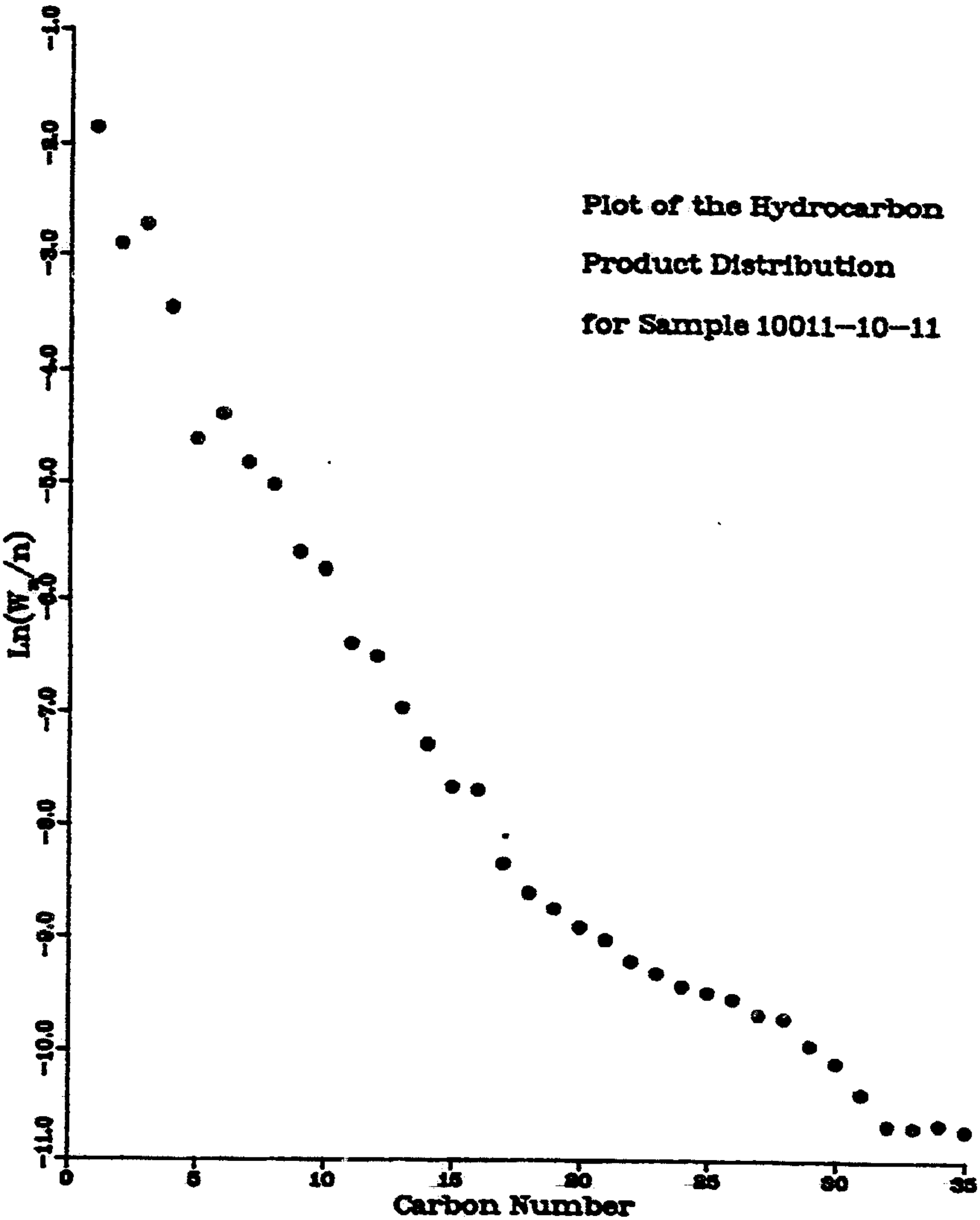

Plot of the Hydrocarbon
Product Distribution
for Sample 10011-10-09
Ln(W_n/n)
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0
-10.0
-11.0
0
5
10
15
20
25
30
35
40
Carbon Number

FIGURE 50



Plot of the Hydrocarbon
Product Distribution
for Sample 10011-10-11
Ln(W/n)
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0
-10.0
-11.0
0
5
10
15
20
25
30
35
Carbon Number