# APPENDIX B

## FFixed Bed Reaction Data

# FISCHHER-TROPSCH SYNTHESIS

# (Co.014 - Run #2

| Co wt% | NM wt %% | Promotor wt% | | Support |
|---|---|---|---|---|
| 12 | Ru 0.500 | | | TiO2 |

## SUMMARY REACTION DATA

Reaction Conditions:

P = 1.0 atm
T = 220 °C
H2/CO = 2
weight of catatalyst = 0.437 g
WHSV = 2.994 1/hr
time on streamm = 20.0 hrs

CO2 (g/g cat/hr) = 0.011
CO2 (% of CO) = 0.3
O/P = 10.87

Ea = 26.0 kcal/mol

| | |
|---|---|
| CO conveersion (%) | 2.6 |
| rate (g CHH2/g cat/hr) | 0.03 |
| alpha | 0.69 |
| C1 (wt%)) | 27.7 |
| C2 - C4 ((wt%) | 24.9 |
| C5 - C12 (wt%) | 42.4 |
| C13 + (wwt%) | 5.0 |

# PPerformance of Co.014

Dates: : 04/21/94 - 04/22/94 Run #2

flow rate = 45.0 cc/min, loading= 0.0.4 g, WHSV = 2.9 1/hr, H2/CO ratio in feed = 2

| | | | | | | |
|---|---|---|---|---|---|---|
| time on stream, hr | 0.5 | 2.5 | 5.0 | 8.0 | 18.0 | 20.0 |
| reaction temperature, °C | 220 | 220 | 220 | 220 | 220 | 220 |
| pressure, atm | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| flow, cc/min | 45.0 | 45.0 | 45.0 | 45.0 | 45.0 | 45.0 |
| C1 - C15 product distribution, weightht % | | | | | | |
| C1 | 21.34 | 23.62 | 23.97 | 25.35 | 27.18 | 28.15 |
| C2 | 4.00 | 4.89 | 5.06 | 5.32 | 5.08 | 5.25 |
| C3 | 10.12 | 9.57 | 9.57 | 9.91 | 10.12 | 10.25 |
| C4 | 11.31 | 9.95 | 9.75 | 9.88 | 9.89 | 9.83 |
| C5 | 11.70 | 10.24 | 10.14 | 9.96 | 9.92 | 9.78 |
| C6 | 9.69 | 8.89 | 9.49 | 8.60 | 8.30 | 7.94 |
| C7 | 8.52 | 8.27 | 8.12 | 7.82 | 7.59 | 7.48 |
| C8 | 6.50 | 6.53 | 6.36 | 6.13 | 5.92 | 5.72 |
| C9 | 4.78 | 5.05 | 4.92 | 4.80 | 4.54 | 4.45 |
| C10 | 3.82 | 3.97 | 3.87 | 3.86 | 3.61 | 3.49 |
| C11 | 2.57 | 2.87 | 2.85 | 2.77 | 2.49 | 2.48 |
| C12 | 2.18 | 2.16 | 2.01 | 2.03 | 2.07 | 1.91 |
| C13 | 1.45 | 1.68 | 1.69 | 1.50 | 1.34 | 1.45 |
| C14 | 1.13 | 1.39 | 1.29 | 1.19 | 1.13 | 1.07 |
| C15 | 0.89 | 0.93 | 0.91 | 0.86 | 0.81 | 0.74 |
| alpha chain growth probability | 0.69 | 0.70 | 0.70 | 0.70 | 0.69 | 0.69 |
| C1 - C50 estimated total product distrtribution, weight % | | | | | | |
| C1 | 20.7 | 23.1 | 23.4 | 24.8 | 26.6 | 27.7 |
| C2 - C4 | 24.7 | 23.8 | 23.8 | 24.6 | 24.5 | 24.9 |
| C5 - C12 | 48.6 | 46.7 | 46.6 | 44.8 | 43.4 | 42.4 |
| C13 - C50 | 6.0 | 6.4 | 6.2 | 5.9 | 5.5 | 5.0 |
| CO conversion, % | 4.7 | 3.6 | 3.5 | 3.3 | 2.6 | 2.6 |
| rate, g CH2/g cat/hr | 0.06 | 0.05 | 0.05 | 0.04 | 0.03 | 0.03 |
| CO2 formation, % | 0.5 | 0.3 | 0.4 | 0.4 | 0.3 | 0.3 |

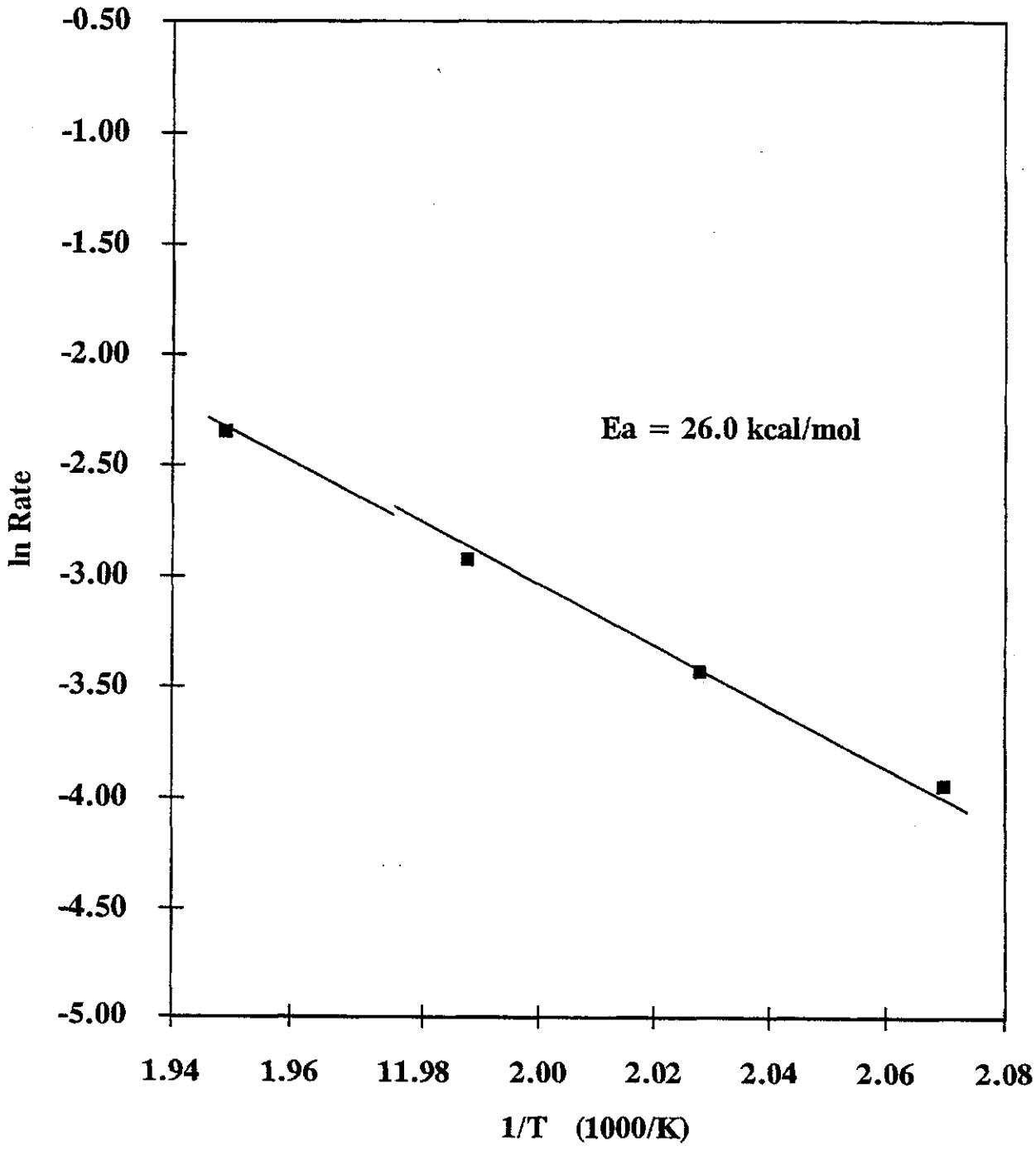
# PPerformance of Co.014

Dates: : 04/21/94 - 04/22/94 Run #2

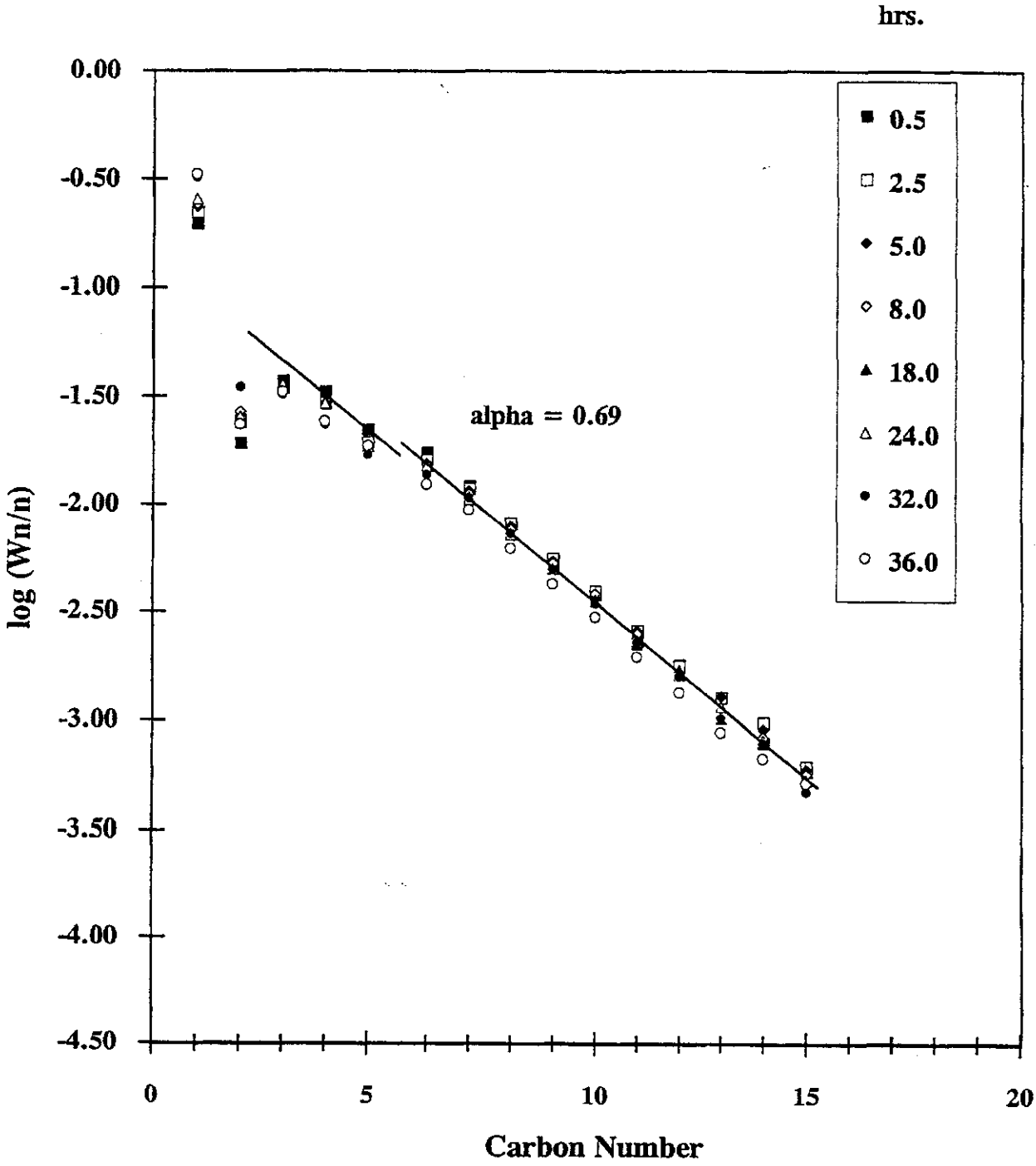
flow rate = 45.0 cc/min, loading= ( 0.4 g, WHSV = 2.9 1/hr, H2/CO ratio in feed = 2

| | | | | | | |
|---|---|---|---|---|---|---|
| time on stream, hr | 24.0 | 26.0 | 28.0 | 30.0 | 32.0 | 36.0 |
| reaction temperature, °C | 220 | 210 | 240 | 230 | 220 | 220 |
| pressure, atm | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| flow, cc/min | 45.0 | 45.0 | 45.0 | 45.0 | 45.0 | 6.0 |
| C1 - C15 product distribution, weiglght % | | | | | | |
| C1 | 28.05 | 23.10 | 46.23 | 35.52 | 26.85 | 33.59 |
| C2 | 5.34 | 4.69 | 6.64 | 5.98 | 5.57 | 4.70 |
| C3 | 10.32 | 8.47 | 13.56 | 12.24 | 10.16 | 10.04 |
| C4 | 9.79 | 8.86 | 9.29 | 10.58 | 9.91 | 9.76 |
| C5 | 9.62 | 9.25 | 7.71 | 9.39 | 9.96 | 9.36 |
| C6 | 7.59 | 8.21 | 5.03 | 6.98 | 8.54 | 7.43 |
| C7 | 7.40 | 7.83 | 4.25 | 6.23 | 7.53 | 6.59 |
| C8 | 5.81 | 6.64 | 2.69 | 4.26 | 5.88 | 5.00 |
| C9 | 4.50 | 5.60 | 1.72 | 2.93 | 4.48 | 3.84 |
| C10 | 3.55 | 4.51 | 1.20 | 2.14 | 3.47 | 3.01 |
| C11 | 2.58 | 3.54 | 0.66 | 1.36 | 2.53 | 2.17 |
| C12 | 1.96 | 3.27 | 0.42 | 0.90 | 1.93 | 1.62 |
| C13 | 1.52 | 2.36 | 0.29 | 0.73 | 1.34 | 1.15 |
| C14 | 1.16 | 2.07 | 0.22 | 0.46 | 1.12 | 0.95 |
| C15 | 0.81 | 1.60 | 0.11 | 0.31 | 0.72 | 0.78 |
| alpha chain growth probability | 0.70 | 0.75 | 0.58 | 0.65 | 0.70 | 0.71 |
| C1 - C50 estimated total product disistribution, weight % | | | | | | |
| C1 | 27.5 | 21.8 | 46.1 | 35.3 | 26.5 | 32.6 |
| C2 - C4 | 24.9 | 20.8 | 29.4 | 28.6 | 25.3 | 23.8 |
| C5 - C12 | 42.1 | 46.1 | 23.7 | 34.0 | 43.2 | 38.2 |
| C13 - C50 | 5.5 | 11.4 | 0.8 | 2.1 | 4.9 | 5.3 |
| CO conversion, % | 2.6 | 1.6 | 7.5 | 4.2 | 2.6 | 21.5 |
| rate, g CH2/g cat/hr | 0.03 | 0.02 | 0.10 | 0.05 | 0.03 | 0.04 |
| CO2 formation, % | 0.2 | 0.2 | 0.5 | 0.3 | 0.3 | 2.7 |

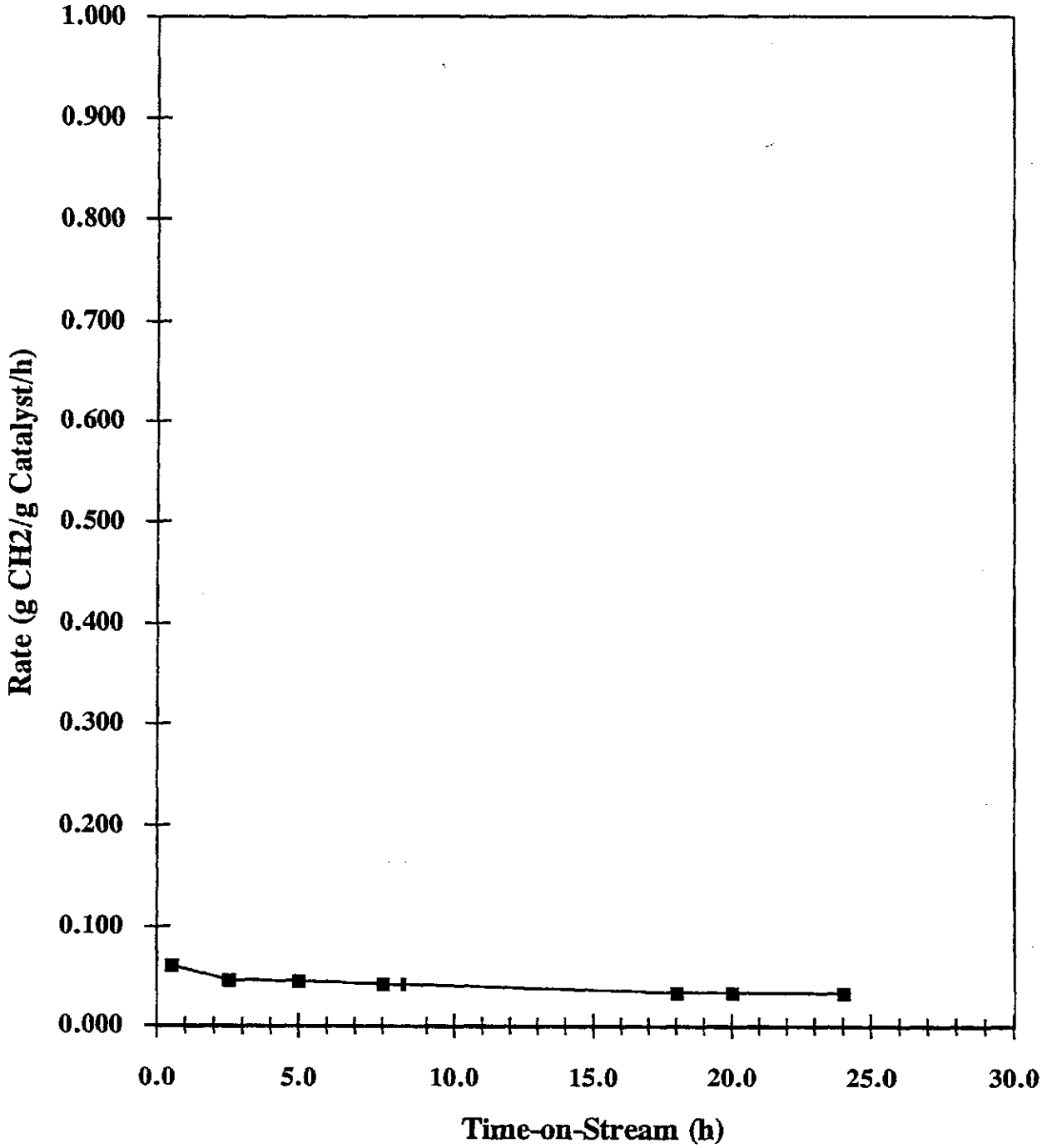
## Coo.014 Arrhenius Plot - Run #2



## Schulzlz-Flory Plot for Co.014 - Run #2
## Time on Stream (hrs)



## Time-onn-Stream Plot for Co.014 - Run #2



# CCo.018 - Run #5

| Co wt% | NM wt %% | Promotor wt% | | Support |
|---|---|---|---|---|
| 20 | Ru 0.50 ) | | | Al2O3 |

## SUMMARY REACTION DATA

Reaction Conditions:

P = 1.0 atm
T = 220 °C
H2/CO = 2
weight of catalalyst = 0.179 g
WHSV = 14.:.36 1/hr
time on streamm = 24.5 hrs

CO2 (g/g cat/hr) = 0.055
CO2 (% of CO) = 0.3
O/P = 1.93

| | |
|---|---|
| CO conver:rsion (%) | 7.5 |
| rate (g CH:H2/g cat/hr) | 0.47 |
| alpha | 0.60 |
| C1 (wt%) ) | 29.0 |
| C2 - C4 (\(wt%) | 31.8 |
| C5 - C12 ( (wt%) | 37.8 |
| C13 + (wwt%) | 1.4 |

# FPerformance of Co.018

Dates:s: 04/11/94 - 04/12/94 Run #5

flow rate = 90.0 cc/min, loading= 0 0.2 g, WHSV = 14.4 1/hr, H2/CO ratio in feed = 2

| | | | | | | |
|---|---|---|---|---|---|---|
| time on stream, hr | 0.5 | 2.5 | 5.5 | 8.0 | 23.0 | 24.5 |
| reaction temperature, °C | 220 | 220 | 220 | 220 | 220 | 220 |
| pressure, atm | 1.0 | 1.0 | 1.0 | 1.0 | 1 | 1 |
| flow, cc/min | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 |
| C1 - C15 product distribution, weighght % | | | | | | |
| C1 | 28.61 | 28.09 | 28.51 | 29.01 | 28.47 | 29.09 |
| C2 | 5.47 | 5.33 | 5.35 | 4.80 | 6.43 | 5.34 |
| C3 | 13.51 | 13.44 | 13.50 | 13.52 | 13.68 | 13.42 |
| C4 | 13.50 | 13.45 | 13.43 | 13.40 | 13.36 | 13.15 |
| C5 | 11.62 | 11.78 | 11.65 | 11.57 | 11.39 | 11.48 |
| C6 | 8.25 | 8.58 | 8.27 | 8.03 | 7.85 | 8.44 |
| C7 | 6.62 | 6.79 | 6.76 | 6.78 | 6.66 | 6.74 |
| C8 | 4.40 | 4.56 | 4.54 | 4.61 | 4.43 | 4.55 |
| C9 | 2.86 | 2.93 | 2.98 | 3.01 | 2.93 | 2.90 |
| C10 | 2.06 | 1.91 | 1.88 | 1.92 | 1.82 | 1.91 |
| C11 | 1.26 | 1.23 | 1.28 | 1.23 | 1.24 | 1.28 |
| C12 | 0.82 | 0.85 | 0.87 | 0.99 | 0.87 | 0.79 |
| C13 | 0.44 | 0.48 | 0.43 | 0.57 | 0.39 | 0.42 |
| C14 | 0.33 | 0.33 | 0.32 | 0.33 | 0.27 | 0.29 |
| C15 | 0.25 | 0.25 | 0.24 | 0.24 | 0.21 | 0.21 |
| alpha chain growth probability | 0.61 | 0.61 | 0.60 | 0.60 | 0.60 | 0.60 |
| C1 - C50 estimated total product diststribution, weight % | | | | | | |
| C1 | 28.4 | 27.9 | 28.3 | 28.9 | 28.3 | 29.0 |
| C2 - C4 | 32.2 | 32.0 | 32.1 | 31.6 | 33.3 | 31.8 |
| C5 - C12 | 37.8 | 38.5 | 38.0 | 37.9 | 36.9 | 37.8 |
| C13 - C50 | 1.7 | 1.7 | 1.6 | 1.6 | 1.4 | 1.4 |
| CO conversion, % | 8.4 | 8.0 | 7.8 | 7.3 | 7.7 | 7.5 |
| rate, g CH2/g cat/hr | 0.53 | 0.50 | 0.49 | 0.46 | 0.48 | 0.47 |
| CO2 formation, % | 0.4 | 0.4 | 0.3 | 0.4 | 0.3 | 0.3 |

# PPerformance of Co.018

Dates: : 04/11/94 - 04/12/94 Run #5

flow rate = 90.0 cc/min, loading= 0 0.2 g, WHSV = 14.4 1/hr, H2/CO ratio in feed = 2

| | |
|---|---|
| time on stream, hr | 29.0 |
| reaction temperature, °C | 220 |
| pressure, atm | 1 |
| flow, cc/min | 90.0 |

C1 - C15 product distribution, weiglght %

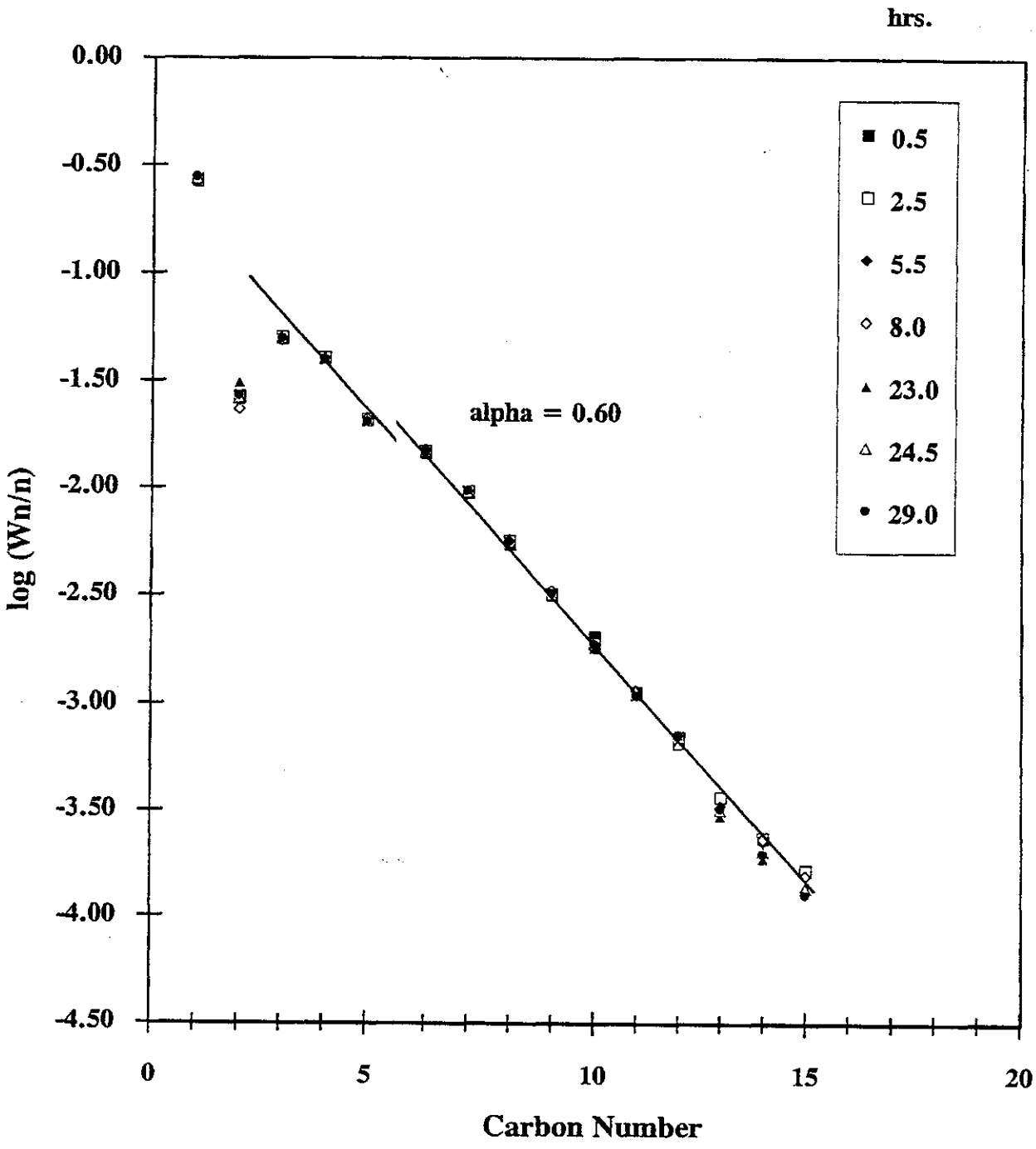
| | |
|---|---|
| C1 | 29.26 |
| C2 | 5.43 |
| C3 | 13.49 |
| C4 | 13.11 |
| C5 | 11.58 |
| C6 | 7.97 |
| C7 | 6.82 |
| C8 | 4.55 |
| C9 | 2.93 |
| C10 | 1.90 |
| C11 | 1.21 |
| C12 | 0.87 |
| C13 | 0.42 |
| C14 | 0.28 |
| C15 | 0.19 |
| alpha chain growth probability | 0.59 |

C1 - C50 estimated total product dististribution, weight %

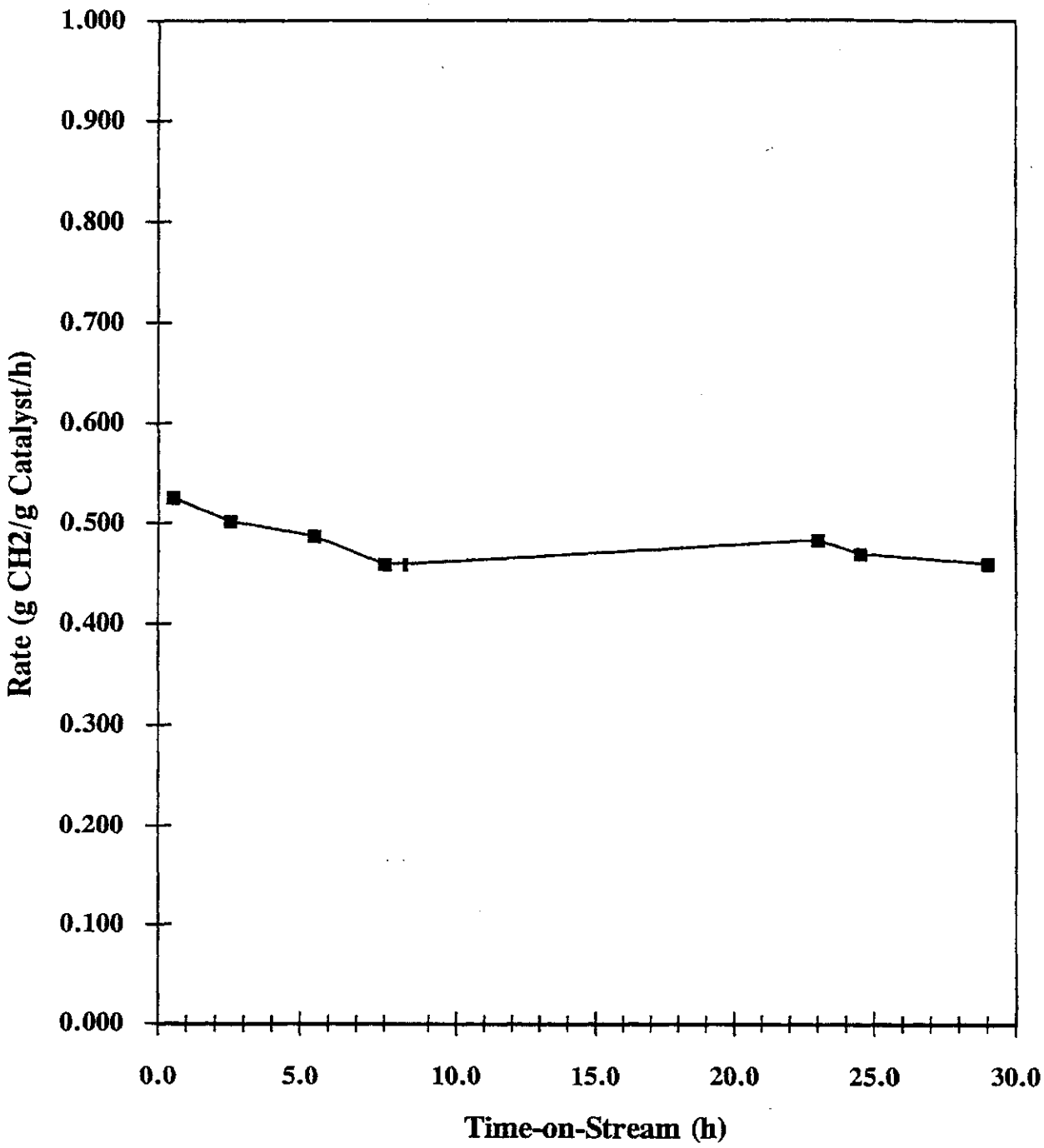
| | |
|---|---|
| C1 | 29.2 |
| C2 - C4 | 32.0 |
| C5 - C12 | 37.5 |
| C13 - C50 | 1.3 |

| | |
|---|---|
| CO conversion, % | 7.3 |
| rate, g CH2/g cat/hr | 0.46 |
| CO2 formation, % | 0.3 |

## Schulzlz-Flory Plot for Co.018 - Run #5
## Time on Stream (hrs)



## Time-on-Stream Plot for Co.018 - Run #5



# CCo.026 - Run #1

| Co wt% | NM wt %% | Promotor wt% | | Support |
|---|---|---|---|---|
| 20 | | | | SiO2 |

## SUMMIARY REACTION DATA*

Reaction Conditions:

P = 1.0 atm
T = 220 °C
H2/CO = 2
weight of catalalyst = 0.381 g
WHSV = 1.6559 1/hr
time on streamm = 24.0 hrs

CO2 (g/g cat/hr) = 0.037
CO2 (% of CO) = 1.5
O/P = 0.64

| | |
|---|---|
| CO conver:rsion (%) | 22.9 |
| rate (g CH:I2/g cat/hr) | 0.17 |
| alpha | 0.67 |
| C1 (wt%) ) | 22.6 |
| C2 - C4 (v(wt%) | 24.1 |
| C5 - C12 ( (wt%) | 49.1 |
| C13 + (wwt%) | 4.1 |

* high conversion stuudy

# CCo.026 - Run #1

| Co wt% | NM wt %% | Promotor wt% | | Support |
|---|---|---|---|---|
| 20 | | | | SiO2 |

## SUMMARY REACTION DATA

Reaction Conditions:

P = 1.0 atm
T = 220 °C
H2/CO = 2
weight of catalalyst = 0.381 g
WHSV = 6.7076 1/hr
time on streamm = 21.0 hrs

CO2 (g/g cat/hr) = 0.022
CO2 (% of CO) = 0.2
O/P = 2.65

| | |
|---|---|
| CO conversrsion (%) | 4.4 |
| rate (g CHH2/g cat/hr) | 0.13 |
| alpha | 0.62 |
| C1 (wt%)) | 26.9 |
| C2 - C4 (wt%) | 29.0 |
| C5 - C12 (wt%) | 42.3 |
| C13 + (wwt%) | 1.8 |

# PPerformance of Co.026

Dates:s: 05/30/94 - 05/31/94 Run #1

flow rate = 90.0 cc/min, loading= 0.0.4 g, WHSV = 6.8 1/hr, H2/CO ratio in feed = 2

| | | | | | | |
|---|---|---|---|---|---|---|
| time on stream, hr | 0.5 | 6.0 | 9.0 | 12.0 | 15.0 | 18.0 |
| reaction temperature, °C | 220 | 220 | 220 | 220 | 220 | 220 |
| pressure, atm | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| flow, cc/min | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 |
| C1 - C15 product distribution, weighht % | | | | | | |
| C1 | 24.87 | 27.05 | 27.38 | 27.52 | 27.55 | 27.27 |
| C2 | 4.89 | 5.00 | 5.01 | 5.01 | 5.01 | 4.94 |
| C3 | 12.06 | 12.11 | 12.14 | 12.15 | 12.14 | 12.15 |
| C4 | 12.48 | 12.32 | 12.37 | 12.35 | 12.32 | 12.26 |
| C5 | 12.23 | 11.96 | 11.97 | 11.96 | 11.96 | 11.96 |
| C6 | 10.19 | 9.29 | 9.27 | 9.25 | 9.21 | 9.34 |
| C7 | 7.18 | 7.27 | 7.26 | 7.21 | 7.26 | 7.28 |
| C8 | 5.07 | 5.06 | 4.99 | 5.00 | 4.98 | 5.06 |
| C9 | 3.60 | 3.51 | 3.49 | 3.40 | 3.42 | 3.50 |
| C10 | 2.63 | 2.56 | 2.43 | 2.40 | 2.43 | 2.48 |
| C11 | 1.84 | 1.58 | 1.45 | 1.50 | 1.53 | 1.49 |
| C12 | 1.23 | 1.00 | 0.92 | 0.92 | 0.87 | 0.99 |
| C13 | 0.80 | 0.62 | 0.60 | 0.61 | 0.66 | 0.61 |
| C14 | 0.55 | 0.42 | 0.42 | 0.43 | 0.40 | 0.40 |
| C15 | 0.39 | 0.27 | 0.27 | 0.28 | 0.25 | 0.28 |
| alpha chain growth probability | 0.64 | 0.61 | 0.61 | 0.62 | 0.61 | 0.62 |
| C1 - C50 estimated total product diststribution, weight % | | | | | | |
| C1 | 24.7 | 27.0 | 27.3 | 27.4 | 27.5 | 27.1 |
| C2 - C4 | 29.2 | 29.4 | 29.4 | 29.4 | 29.4 | 29.2 |
| C5 - C12 | 43.5 | 41.9 | 41.6 | 41.4 | 41.4 | 41.8 |
| C13 - C50 | 2.6 | 1.8 | 1.8 | 1.9 | 1.7 | 1.9 |
| CO conversion, % | 5.5 | 4.6 | 4.4 | 4.4 | 4.4 | 4.4 |
| rate, g CH2/g cat/hr | 0.16 | 0.14 | 0.13 | 0.13 | 0.13 | 0.13 |
| CO2 formation, % | 0.3 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 |

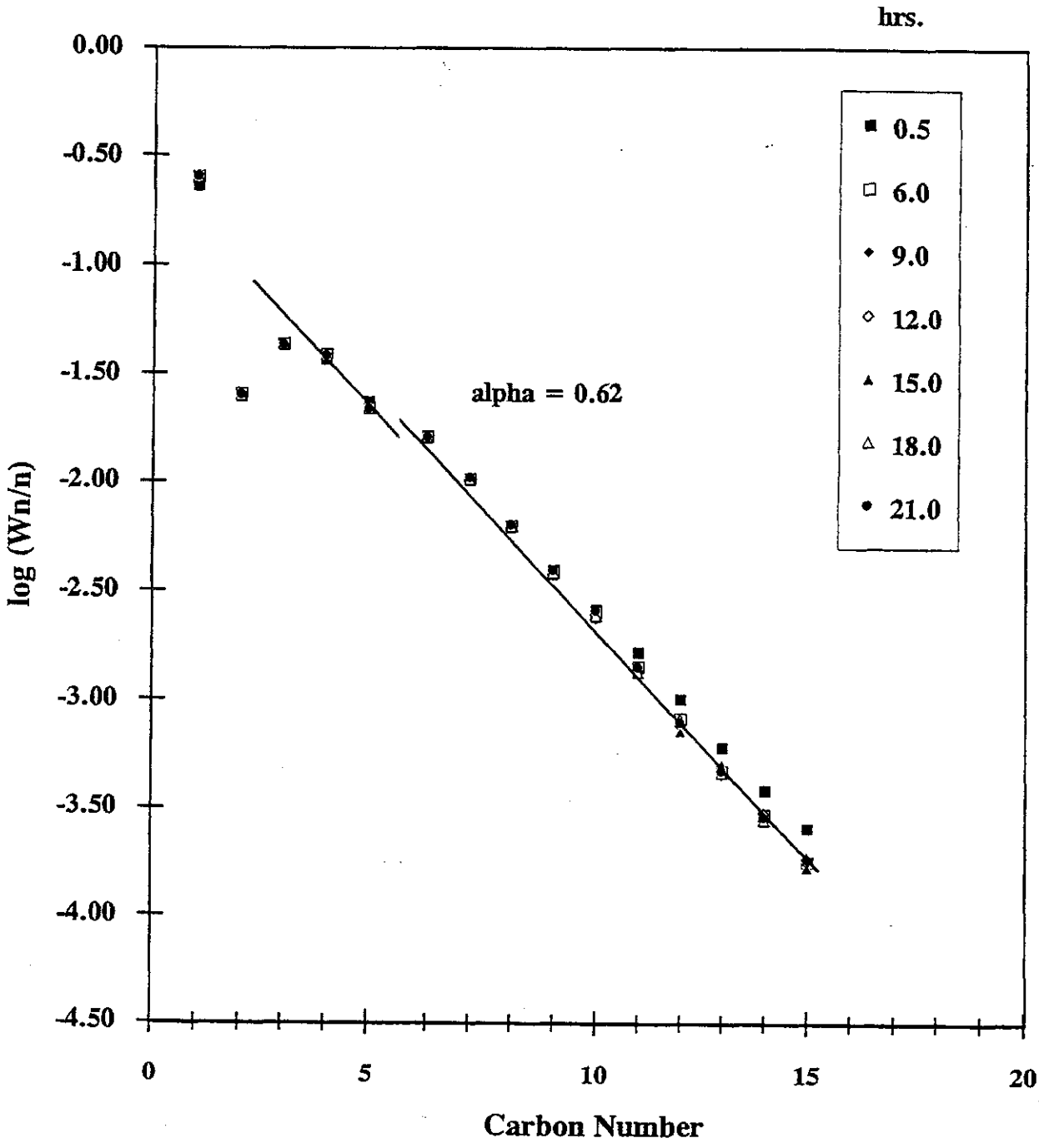
# PPerformance of Co.026

Dates: : 05/30/94 - 05/31/94 Run #1

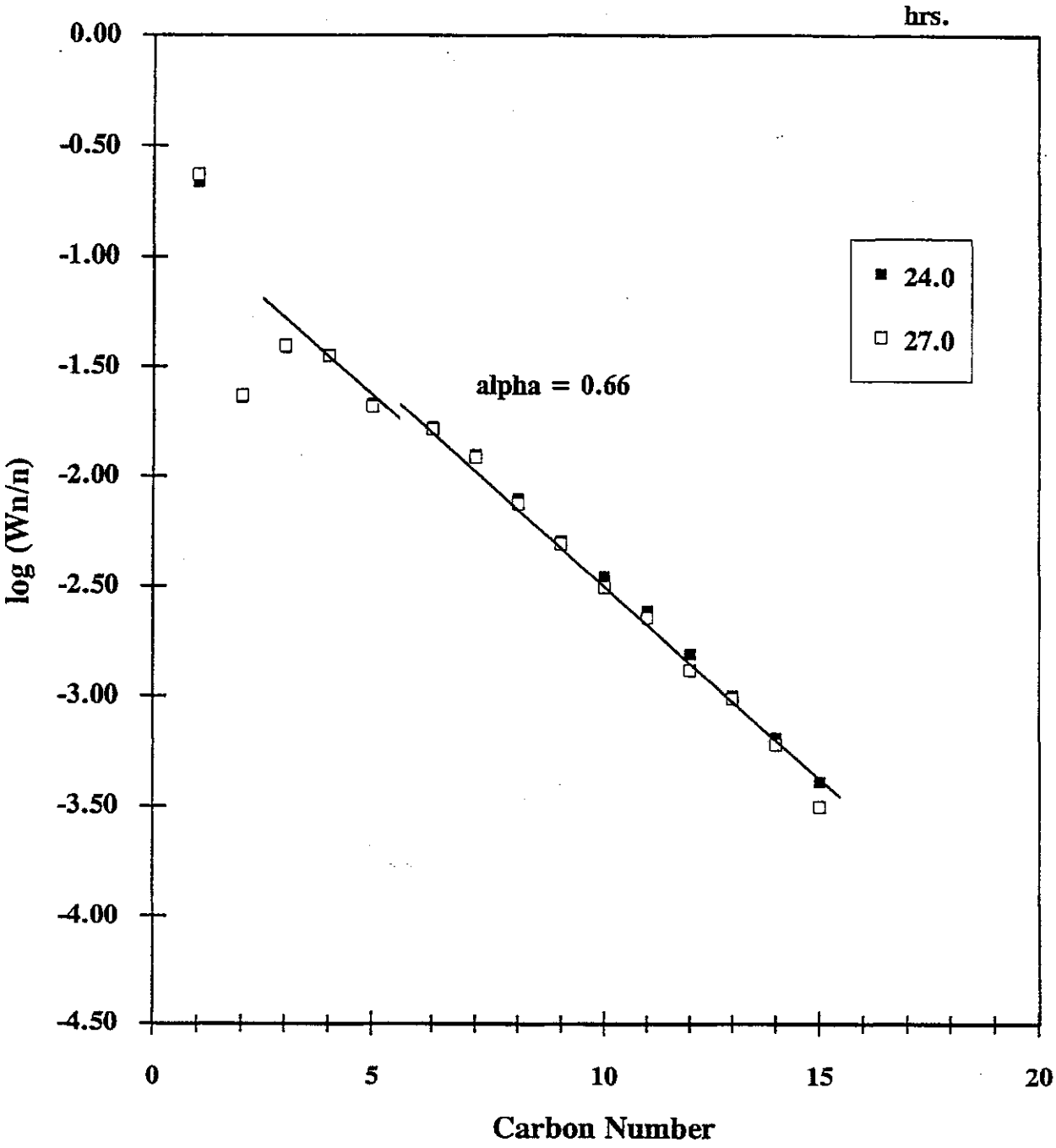
flow rate = 90.0 cc/min, loading= ( 0.4 g, WHSV = 6.8 1/hr, H2/CO ratio in feed = 2

| | | | |
|---|---|---|---|
| time on stream, hr | 21.0 | 24.0 | 27.0 |
| reaction temperature, °C | 220 | 220 | 220 |
| pressure, atm | 1.0 | 1.0 | 1.0 |
| flow, cc/min | 90.0 | 22.5 | 22.5 |
| C1 - C15 product distribution, weigight % | | | |
| C1 | 26.96 | 22.80 | 24.70 |
| C2 | 4.91 | 4.39 | 4.45 |
| C3 | 11.93 | 7.81 | 8.48 |
| C4 | 12.25 | 12.07 | 11.85 |
| C5 | 12.06 | 12.18 | 11.87 |
| C6 | 9.40 | 10.08 | 9.78 |
| C7 | 7.39 | 8.79 | 8.55 |
| C8 | 5.12 | 6.37 | 6.06 |
| C9 | 3.57 | 4.56 | 4.45 |
| C10 | 2.59 | 3.53 | 3.14 |
| C11 | 1.57 | 2.72 | 2.51 |
| C12 | 0.95 | 1.87 | 1.58 |
| C13 | 0.62 | 1.31 | 1.27 |
| C14 | 0.41 | 0.91 | 0.85 |
| C15 | 0.28 | 0.61 | 0.47 |
| alpha chain growth probability | 0.62 | 0.67 | 0.65 |
| C1 - C50 estimated total product disistribution, weight % | | | |
| C1 | 26.9 | 22.6 | 24.7 |
| C2 - C4 | 29.0 | 24.1 | 24.8 |
| C5 - C12 | 42.3 | 49.1 | 47.2 |
| C13 - C50 | 1.8 | 4.1 | 3.2 |
| CO conversion, % | 4.4 | 22.9 | 19.1 |
| rate, g CH2/g cat/hr | 0.13 | 0.17 | 0.14 |
| CO2 formation, % | 0.2 | 1.5 | 1.2 |

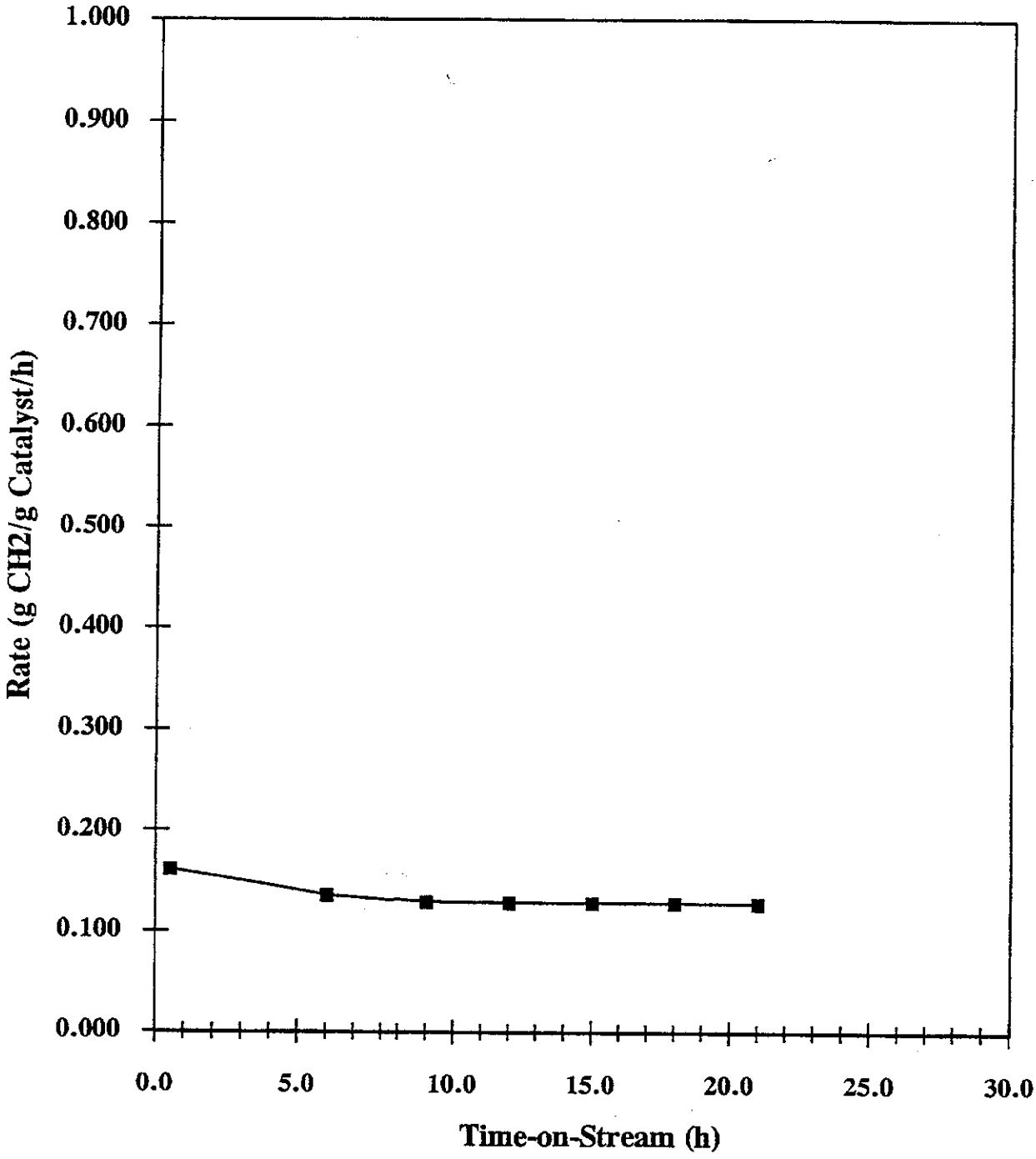
## Schulzlz-Flory Plot for Co.026 - Run #1
## Time on Stream (hrs)



## Schulilz-Flory Plot for Co.026 - Run #1
## High Conversion Study



## Time-oon-Stream Plot for Co.026 - Run #1



# (Co.027 - Run #1

| Co wt% | NM wt %% | Promotor wt% | | Support |
|---|---|---|---|---|
| 20 | Ru 0.500 | | | SiO2 |

## SUMMARY REACTION DATA

Reaction Conditions:

P = 1.0 atm
T = 220 °C
H2/CO = 2
weight of catatalyst = 0.279 g
WHSV = 9.221 1/hr
time on streanm = 24.5 hrs

CO2 (g/g cat/hr) = 0.026
CO2 (% of CO) = 0.2
O/P = 3.44

| | |
|---|---|
| CO converersion (%) | 4.2 |
| rate (g CHH2/g cat/hr) | 0.17 |
| alpha | 0.65 |
| C1 (wt%)) | 23.0 |
| C2 - C4 ((wt%) | 26.3 |
| C5 - C12 (wt%) | 47.6 |
| C13 + (wwt%) | 3.1 |

# (Co.027 - Run #1

| Co wt% | NM wt %% | Promotor wt% | | Support |
|---|---|---|---|---|
| 20 | Ru 0.500 | | | SiO2 |

## SUMMARY REACTION DATA*

Reaction Conditions:

P = 1.0 atm
T = 220 °C
H2/CO = 2
weight of catatalyst = 0.279 g
WHSV = 0.597 1/hr
time on streaam = 33.5 hrs

CO2 (g/g cat/hr) = 0.011
CO2 (% of CO) = 1.2
O/P = 0.96

| | |
|---|---|
| CO conveersion (%) | 17.8 |
| rate (g CHH2/g cat/hr) | 0.18 |
| alpha | 0.71 |
| C1 (wt%) | 19.4 |
| C2 - C4 ((wt%) | 23.5 |
| C5 - C12 (wt%) | 50.2 |
| C13 + (wt%) | 6.9 |

* high conversion stuudy

# PPerformance of Co.027

Dates:s: 05/27/94 - 05/28/94 Run #1

flow rate = 90.0 cc/min, loading= 0.0.3 g, WHSV = 9.2 1/hr, H2/CO ratio in feed = 2

| | | | | | | |
|---|---|---|---|---|---|---|
| time on stream, hr | 0.5 | 3.5 | 6.5 | 9.5 | 12.5 | 15.5 |
| reaction temperature, °C | 220 | 220 | 220 | 220 | 220 | 220 |
| pressure, atm | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| flow, cc/min | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 |
| C1 - C15 product distribution, weighght % | | | | | | |
| C1 | 22.66 | 23.02 | 23.75 | 23.72 | 23.72 | 23.77 |
| C2 | 4.57 | 4.53 | 4.67 | 4.68 | 4.67 | 4.69 |
| C3 | 11.24 | 10.90 | 10.89 | 10.81 | 10.74 | 10.74 |
| C4 | 12.07 | 11.77 | 11.71 | 11.63 | 11.54 | 11.61 |
| C5 | 12.23 | 12.13 | 12.03 | 12.06 | 12.06 | 12.07 |
| C6 | 9.78 | 9.94 | 9.92 | 9.95 | 9.93 | 9.79 |
| C7 | 8.03 | 8.15 | 8.08 | 8.12 | 8.17 | 8.14 |
| C8 | 5.85 | 5.95 | 5.88 | 5.90 | 5.90 | 5.92 |
| C9 | 4.23 | 4.26 | 4.19 | 4.27 | 4.28 | 4.28 |
| C10 | 3.18 | 3.26 | 3.14 | 3.19 | 3.18 | 3.15 |
| C11 | 2.30 | 2.30 | 2.07 | 2.05 | 2.02 | 2.13 |
| C12 | 1.53 | 1.57 | 1.56 | 1.57 | 1.61 | 1.60 |
| C13 | 1.06 | 1.01 | 1.01 | 0.94 | 1.03 | 0.98 |
| C14 | 0.75 | 0.73 | 0.64 | 0.70 | 0.71 | 0.70 |
| C15 | 0.54 | 0.47 | 0.43 | 0.42 | 0.45 | 0.43 |
| alpha chain growth probability | 0.66 | 0.65 | 0.64 | 0.64 | 0.65 | 0.64 |
| C1 - C50 estimated total product diststribution, weight % | | | | | | |
| C1 | 22.4 | 22.9 | 23.7 | 23.7 | 23.6 | 23.7 |
| C2 - C4 | 27.6 | 27.1 | 27.2 | 27.1 | 26.8 | 27.0 |
| C5 - C12 | 46.5 | 46.8 | 46.2 | 46.5 | 46.5 | 46.4 |
| C13 - C50 | 3.6 | 3.1 | 2.9 | 2.8 | 3.0 | 2.9 |
| CO conversion, % | 5.7 | 4.8 | 4.7 | 4.4 | 4.3 | 4.2 |
| rate, g CH2/g cat/hr | 0.23 | 0.20 | 0.19 | 0.18 | 0.17 | 0.17 |
| CO2 formation, % | 0.4 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |

# PPerformance of Co.027

Dates:: 05/27/94 - 05/28/94 Run #1

flow rate = 90.0 cc/min, loading= 0.3 g, WHSV = 9.2 1/hr, H2/CO ratio in feed = 2

| | | | | | | |
|---|---|---|---|---|---|---|
| time on stream, hr | 18.5 | 21.5 | 24.5 | 27.5 | 30.5 | 33.5 |
| reaction temperature, °C | 220 | 220 | 220 | 220 | 220 | 220 |
| pressure, atm | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| flow, cc/min | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 | 22.5 |
| C1 - C15 product distribution, weigight % | | | | | | |
| C1 | 23.69 | 23.28 | 23.04 | 23.16 | 22.95 | 19.87 |
| C2 | 4.67 | 4.62 | 4.59 | 4.63 | 4.60 | 3.85 |
| C3 | 10.68 | 10.52 | 10.41 | 10.46 | 10.37 | 9.45 |
| C4 | 11.53 | 11.40 | 11.29 | 11.34 | 11.25 | 10.74 |
| C5 | 11.95 | 11.91 | 11.88 | 11.93 | 11.87 | 11.46 |
| C6 | 9.99 | 10.00 | 10.09 | 10.06 | 10.02 | 10.04 |
| C7 | 8.19 | 8.33 | 8.31 | 8.31 | 8.47 | 8.80 |
| C8 | 5.96 | 6.13 | 6.18 | 6.14 | 6.23 | 6.85 |
| C9 | 4.34 | 4.48 | 4.57 | 4.47 | 4.58 | 5.23 |
| C10 | 3.17 | 3.34 | 3.28 | 3.37 | 3.40 | 4.02 |
| C11 | 2.06 | 2.16 | 2.26 | 2.27 | 2.28 | 3.30 |
| C12 | 1.61 | 1.51 | 1.75 | 1.55 | 1.62 | 2.35 |
| C13 | 1.01 | 1.10 | 1.03 | 1.07 | 1.02 | 1.70 |
| C14 | 0.72 | 0.74 | 0.84 | 0.71 | 0.87 | 1.34 |
| C15 | 0.45 | 0.49 | 0.47 | 0.53 | 0.47 | 1.00 |
| alpha chain growth probability | 0.65 | 0.65 | 0.65 | 0.66 | 0.65 | 0.71 |
| C1 - C50 estimated total product disistribution, weight % | | | | | | |
| C1 | 23.6 | 23.1 | 23.0 | 22.9 | 22.9 | 19.4 |
| C2 - C4 | 26.8 | 26.4 | 26.3 | 26.2 | 26.2 | 23.5 |
| C5 - C12 | 46.6 | 47.3 | 47.6 | 47.4 | 47.8 | 50.2 |
| C13 - C50 | 3.0 | 3.3 | 3.1 | 3.6 | 3.2 | 6.9 |
| CO conversion, % | 4.2 | 4.3 | 4.2 | 4.2 | 4.2 | 17.8 |
| rate, g CH2/g cat/hr | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.18 |
| CO2 formation, % | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 1.2 |