

THE TEXAS COMPANY - MONTEBELLO LABORATORY
YIELD CALCULATIONS

RUN NO. 61-D
HOURS 85-89
CATALYST Fresh CMAS

Table with columns: FRESH FEED, WET GAS, RECYCLE, COMBINED FEED, EFFLUENT, NET CHANGE, YIELD BASIS H2 + CO FED. Includes sub-tables for CONDENSATE, YIELDS BASIS BROWNSVILLE DESIGN FEED RATE, and FRESH FEED CONVERSION.

Table with columns: GAS ANALYSES, GENERATOR BALANCE, WEIGHT BALANCE, WET GAS, GAS FLOW RATES, LIQUID PRODUCT RATES. Includes detailed flow and balance data for various components.

Table with columns: OPERATING CONDITIONS, PRODUCT TESTS, CATALYST DATA. Includes data for pressures, temperatures, catalyst height, and chemical analysis.

THE TEXAS COMPANY - MONTEBELLO LABORATORY
YIELD CALCULATIONS

RUN NO. 61-E
HOURS 89-113
CATALYST Fresh CMAS

Table with columns: FRESH FEED, WET GAS, RECYCLE, COMBINED FEED, EFFLUENT, NET CHANGE, YIELD BASIS H2 + CO FED. Includes sub-tables for CONDENSATE and YIELDS BASIS BROWNSVILLE DESIGN FEED RATE.

Table with columns: GAS ANALYSES, GENERATOR BALANCE, WEIGHT BALANCE, LIQUID PRODUCT RATES. Includes sub-tables for FRESH FEED, WET GAS, and RECYCLE.

Table with columns: OPERATING CONDITIONS, PRODUCT TESTS, CATALYST DATA. Includes sub-tables for PRESSURES PSIG, TEMPERATURES - F, and CATALYST DATA.

THE TEXAS COMPANY - MONTEBELLO LABORATORY
YIELD CALCULATIONS

61-P
RUN NO. 1137135
HOUSE
CATALYST Fresh CM63

Table with columns: FRESH FEED, WET GAS, RECYCLE, COMBINED FEED, EFFLUENT, NET CHANGE, YIELD BASIS H2 + CO FED. Includes sub-tables for CONDENSATE, YIELDS BASIS BROWNSVILLE DESIGN FEED RATE, and various process parameters like pressure, temperature, and recycle ratio.

Table with columns: GAS ANALYSES, GENERATOR BALANCE, WEIGHT BALANCE. Includes sub-tables for FRESH FEED, CO, H2, N2, CH4, and H2O analyses, and weight balance for wet gas, oil, water, and fresh feed.

Table with columns: WET GAS, GAS FLOW RATES, LIQUID PRODUCT RATES. Includes sub-tables for CO, H2, N2, CH4, C2H6, C3H8, C4H10, and steam flow rates, and liquid product rates for oil, water, and gas.

Table with columns: OPERATING CONDITIONS, PRODUCT TESTS, CATALYST DATA. Includes sub-tables for pressures, temperatures, catalyst data, and product tests.

THE TEXAS COMPANY — MONTEBELLO LABORATORY
YIELD CALCULATIONS

RUN NO. 61-J
HOURS 207-231
CATALYST Fresh CMA6

Main process flow table with columns for FRESH FEED, WET GAS, RECYCLE, EFFLUENT, NET CHANGE, CONDENSATE, and YIELD BASIS. Includes sub-tables for Weight Recovery, Pressure, Temperature, and Recycle Ratio.

Table with three main sections: GAS ANALYSES, GENERATOR BALANCE, and WEIGHT BALANCE. Includes detailed flow data for various components like CO, H2, CH4, and C2H6.

Table with three main sections: OPERATING CONDITIONS, PRODUCT TESTS, and CATALYST DATA. Provides detailed operational parameters and catalyst characteristics.

THE TEXAS COMPANY - MONTEBELLO LABORATORY
YIELD CALCULATIONS

Run No. 61-K
Weight 271-239
Catalyst Fresh CM2

Main process flow table with columns: FRESH FEED, WET GAS, RECYCLE, COMBINED FEED, EFFLUENT, NKT CHANGE, CONDENSATE, YIELD BASIS. Includes sub-tables for FRESH FEED CONVERSION, TOTAL FEED CONVERSION, and FRESH FEED ANALYSES.

Table with columns: GAS ANALYSES, GENERATOR BALANCE, WEIGHT BALANCE. Includes sub-tables for FRESH FEED CONVERSION and TOTAL FEED CONVERSION.

Table with columns: WET GAS, GAS FLOW RATINGS, LIQUID PRODUCT RATES. Includes sub-tables for FRESH FEED, WET GAS, RECYCLE, BLEED, NATURAL GAS, and STEAM.

Table with columns: OPERATING CONDITIONS, PRODUCT TESTS, CATALYST DATA. Includes sub-tables for PRESSURES, TEMPERATURES, and CATALYST DATA.

THE TEXAS COMPANY — MONTEBELLO LABORATORY
YIELD CALCULATIONS

RUN NO. 62-0 (A-D)
HOURS 0-94
CATALYST Fresh CM&S

| FRESH FEED | | | | WET GAS | | RECYCLE | COMBINED FEED | EFFLUENT | NET CHANGE | | YIELD BASIS H ₂ + CO FED | | | | | | | | | |
|--------------------------------|-------|----------------|--------------------|---------------------------|-------------------------|-------------------|---|-------------|--|-----------|-------------------------------------|--------|--------|-------------|--------------------------------|--------------------------|-------------|---------|------------|--|
| | % | m/hr | #/hr | % | At Wt. Balance | m/hr | m/hr | m/hr | m/hr | #/hr | CONDENSATE | | | | | | | | | |
| | | | | | m/hr #/hr | | | | | | #/MCF | #/gal | gal/hr | gal/MCF | YIELDS | BASIS | BROWNSVILLE | DESIGN | FEED RATE* | |
| CO | | 16.342 | | | | | 22.319 | | -14.026 | -328.87 | | | | | | | | | | |
| H ₂ | | 26.222 | | | | | 45.324 | | -18.887 | -38.07 | | | | | 400 EP | 72.6 | 8.263 | 98.0 | 8.098 | |
| CO ₂ | | | | | | | | | 3.191 | 140.44 | 8.694 | | | | 400-550 | 19.5 | 2.220 | 91.4 | 2.029 | |
| N ₂ | | | | | | | | | | | | | | | 550 + | 7.9 | 0.899 | 114.6 | 1.030 | |
| CH ₄ | | | | | | | | | 0.968 | 15.53 | 0.961 | | | | | | | | | |
| C ₂ H ₆ | | | | | | | | | 0.275 | 7.71 | 0.477 | | | | | | | | | |
| C ₃ H ₈ | | | | | | | | | 0.161 | 4.84 | 0.300 | | | | PROPYLENE | 37.75 | 4.685 | | | |
| C ₁ +C ₂ | | | | | | | | | 28.08 | 1.738 | | | | | C ₃ POLY GASO. | 87.5 | 4.099 | 0.685 | | |
| C ₂ H ₄ | | | | | | | | | 0.295 | 12.41 | 0.768 | 4.32 | 2.873 | 0.178 | C ₃ POLY TAR | 12.5 | 0.586 | 0.078 | | |
| C ₂ H ₂ | | | | | | | | | 0.043 | 1.90 | 0.118 | 4.24 | 0.448 | 0.028 | | | | | | |
| C ₂ H ₂ | | | | | | | | | 0.254 | 14.25 | 0.882 | 5.00 | 2.850 | 0.176 | | | | | RVP | |
| C ₂ H ₂ | | | | | | | | | 0.094 | 5.46 | 0.338 | 4.86 | 1.123 | 0.070 | C ₄ H ₆ | 5.00 | - | - | 68.0 | |
| C ₂ H ₂ | | | | | | | | | 0.113 | 7.92 | 0.490 | 5.45 | 1.453 | 0.090 | C ₄ POLY GASO. | 5.98 | 12.47 | 2.085 | 1.5 | |
| C ₂ H ₂ | | | | | | | | | 0.028 | 2.02 | 0.125 | 5.25 | 0.385 | 0.024 | C ₄ H ₁₀ | 4.86 | 5.46 | 1.123 | 68.0 | |
| C ₂ H ₂ | | | | | | | | | 0.042 | 3.53 | 0.219 | 5.54 | 0.637 | 0.039 | C ₄ -FREE GASO. | | | 11.258 | 5.8 | |
| C ₃ -C ₄ | | | | | | | | | 47.49 | 2.940 | | 9.769 | 0.605 | | C ₄ POLY TAR | 7.58 | 1.78 | 0.236 | | |
| TOTAL | | | | | | | | | | | | | | | | | | | | |
| H ₂ +CO | | 42.564 | 16153.2 | SCFH | | | 67.643 | | -32.912 | | | | | | | gal/hr | gal/MCF | Bbl/Day | | |
| H ₂ /CO | | | | | Factor | 619072 | | | | | | | | | | 10 # RVP 400 EP GASOLINE | 14.466 | 0.8955 | 4855 | |
| Weight Recovery, % | 93.62 | | | | Catalyst Age, hrs. Ave. | 44 | Space Velocity, vhr | 1385 | RECOVERED OIL | 74.33 | 4.602 | 11.382 | 0.705 | | GAS OIL | 2.029 | 0.1256 | 681 | | |
| Pressure, psig | 375 | | | | Inlet Velocity, Ft/sec | 1.02 | Catalyst Vol., CF | 11.74 | TOTAL OIL | 121.82 | 7.542 | 21.151 | 1.309 | | FUEL OIL | 1.030 | 0.0638 | 346 | | |
| Temperature, °F | 658 | | | | Bed Depth, Ft | 17.8 | Weight, # | 1733 | WATER SOLUBLE CHEMICALS | 6.03 | 0.373 | 0.749 | 0.046 | | POLY TAR | 0.314 | 0.0194 | 105 | | |
| Recycle Ratio | 1.00 | | | | Bed Density, #/CF | 148 | Effluent (H ₂)(CO ₂) Shift Ratio (H ₂ O)(CO) | 7.22 | TOTAL LIQUID PRODUCTS C ₁ + | 139.81 | 8.655 | 23.386 | 1.448 | | TOTAL | 17.839 | 1.1044 | 5988 | | |
| FRESH FEED CONVERSION - % | | | | TOTAL FEED CONVERSION - % | | | | SELECTIVITY | | NET WATER | | | | W. S. CHEM. | | | | | | |
| Contraction | CO | H ₂ | H ₂ +CO | CO | H ₂ | CO+H ₂ | C ₃ +C ₄ | GROSS WATER | | | | | TOTAL | | | | | | | |
| 62.11 | 85.83 | 72.02 | 77.32 | 62.84 | 41.67 | 48.66 | 83.27 | 137.35 | 8.503 | 16.539 | 1.024 | 20.074 | 1.2427 | 6739 | | | | | | |

Form ML-11 AI=(37.22)(0.6443)=23.98 Acids=(0.117)(37.5)=4.39 R/NCM=16.91X#/MCF 99488 MCFH H₂+CO, Bbl/Day=5421.6X gal/MCF

THE TEXAS COMPANY — MONTEBELLO LABORATORY
YIELD CALCULATIONS

RUN NO. 62-1 (E-I)
HOURS 94-206
CATALYST

| FRESH FEED | | | | WET GAS | | RECYCLE | COMBINED FEED | EFFLUENT | NET CHANGE | | YIELD BASIS H ₂ + CO FED | | | | | | | | |
|--------------------------------|-------|----------------|--------------------|---------------------------|-------------------------|-------------------|---|-------------|--|-----------|-------------------------------------|--------|--------|-------------|--------------------------------|--------------------------|-------------|---------|------------|
| | % | m/hr | #/hr | % | At Wt. Balance | m/hr | m/hr | m/hr | m/hr | #/hr | CONDENSATE | | | | | | | | |
| | | | | | m/hr #/hr | | | | | | #/MCF | #/gal | gal/hr | gal/MCF | YIELDS | BASIS | BROWNSVILLE | DESIGN | FEED RATE* |
| CO | | 15.331 | | | | | 21.865 | | -12.909 | -361.58 | | | | | | | | | |
| H ₂ | | 24.584 | | | | | 44.459 | | -17.217 | -34.71 | | | | | 400 EP | 71.94 | 7.172 | 98.0 | 7.029 |
| CO ₂ | | | | | | | | | 3.041 | 133.83 | 8.835 | | | | 400-550 | 18.56 | 1.851 | 91.4 | 1.692 |
| N ₂ | | | | | | | | | | | | | | | 550 + | 9.50 | 0.947 | 114.6 | 1.085 |
| CH ₄ | | | | | | | | | 0.243 | 13.52 | 0.893 | | | | | | | | |
| C ₂ H ₆ | | | | | | | | | 0.282 | 7.91 | 0.522 | | | | | | | | |
| C ₃ H ₈ | | | | | | | | | 0.163 | 4.90 | 0.323 | | | | PROPYLENE | 35.64 | 4.558 | | |
| C ₁ +C ₂ | | | | | | | | | 26.33 | 1.738 | | | | | C ₃ POLY GASO. | 87.5 | 3.988 | 0.667 | |
| C ₂ H ₄ | | | | | | | | | 0.304 | 12.79 | 0.844 | 4.32 | 2.961 | 0.195 | C ₃ POLY TAR | 12.5 | 0.570 | 0.076 | |
| C ₂ H ₂ | | | | | | | | | 0.047 | 2.07 | 0.137 | 4.24 | 0.488 | 0.032 | | | | | |
| C ₂ H ₂ | | | | | | | | | 0.255 | 14.31 | 0.945 | 5.00 | 2.862 | 0.189 | | | | | RVP |
| C ₂ H ₂ | | | | | | | | | 0.076 | 4.42 | 0.292 | 4.86 | 0.909 | 0.060 | C ₄ H ₆ | 5.00 | 0.62 | 0.124 | 68.0 |
| C ₂ H ₂ | | | | | | | | | 0.115 | 8.06 | 0.532 | 5.45 | 1.479 | 0.098 | C ₄ POLY GASO. | 5.98 | 11.98 | 2.003 | 1.5 |
| C ₂ H ₂ | | | | | | | | | 0.024 | 1.73 | 0.114 | 5.25 | 0.330 | 0.022 | C ₄ H ₁₀ | 4.86 | 4.42 | 0.909 | 68.0 |
| C ₂ H ₂ | | | | | | | | | 0.046 | 3.87 | 0.255 | 5.54 | 0.699 | 0.046 | C ₄ -FREE GASO. | | | 10.204 | 5.8 |
| C ₃ -C ₄ | | | | | | | | | 47.25 | 3.119 | | 9.728 | 0.642 | | C ₄ POLY TAR | 7.58 | 1.71 | 0.227 | |
| TOTAL | | | | | | | | | | | | | | | | | | | |
| H ₂ +CO | | 39.915 | 15147.653 | SCFH | | | 66.324 | | -30.126 | | | | | | | gal/hr | gal/MCF | Bbl/Day | |
| H ₂ /CO | | | | | Factor | 660168 | | | | | | | | | | 10 # RVP 400 EP GASOLINE | 13.240 | 0.8741 | 4739 |
| Weight Recovery, % | 93.66 | | | | Catalyst Age, hrs. Ave. | 138 | Space Velocity, vhr | 1192 | RECOVERED OIL | 64.99 | 4.290 | 9.970 | 0.658 | | GAS OIL | 1.692 | 0.1117 | 606 | |
| Pressure, psig | 373 | | | | Inlet Velocity, Ft/sec | 0.98 | Catalyst Vol., CF | 12.71 | TOTAL OIL | 112.24 | 7.410 | 19.698 | 1.300 | | FUEL OIL | 1.085 | 0.0716 | 388 | |
| Temperature, °F | 658 | | | | Bed Depth, Ft | 19.2 | Weight, # | 1716 | WATER SOLUBLE CHEMICALS | 5.53 | 0.365 | 0.689 | 0.045 | | POLY TAR | 0.303 | 0.0200 | 108 | |
| Recycle Ratio | | | | | Bed Density, #/CF | 135 | Effluent (H ₂)(CO ₂) Shift Ratio (H ₂ O)(CO) | 6.98 | TOTAL LIQUID PRODUCTS C ₁ + | 129.95 | 8.579 | 21.905 | 1.446 | | TOTAL | 16.320 | 1.0774 | 5842 | |
| FRESH FEED CONVERSION - % | | | | TOTAL FEED CONVERSION - % | | | | SELECTIVITY | | NET WATER | | | | W. S. CHEM. | | | | | |
| Contraction | CO | H ₂ | H ₂ +CO | CO | H ₂ | CO+H ₂ | C ₃ +C ₄ | GROSS WATER | | | | | TOTAL | | | | | | |
| 60.59 | 84.20 | 70.03 | 75.48 | 59.04 | 38.73 | 45.42 | 83.15 | 126.21 | 8.332 | 15.209 | 1.004 | 18.527 | 1.2231 | 6632 | | | | | |

Form ML-11 AI=(34.53)(0.6105)=21.08 Acids=(0.117)(37.4)=4.38 R/NCM=16.91X#/MCF 99488 MCFH H₂+CO, Bbl/Day=5421.6X gal/MCF