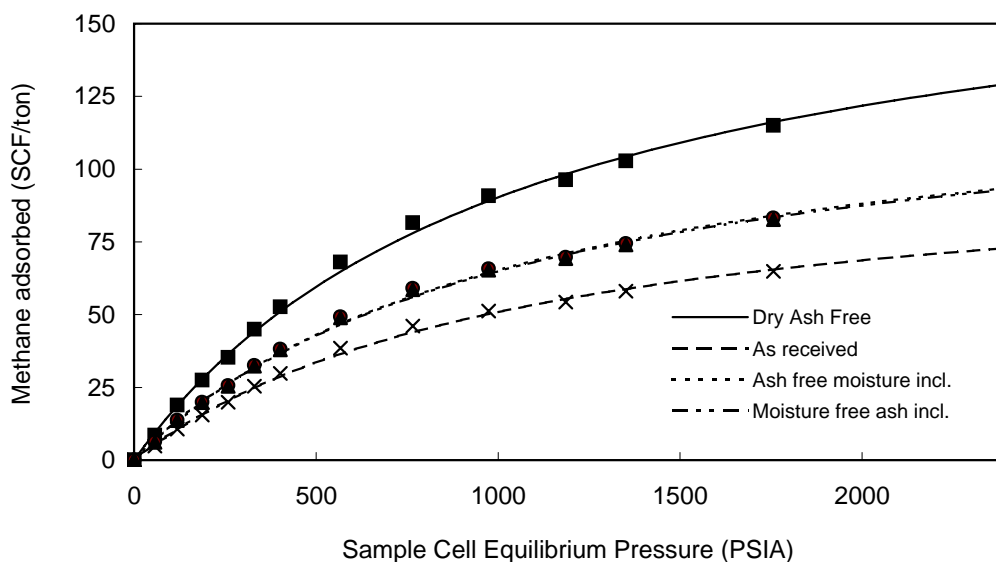


5-1A Methane



| Pressure (PSIA) | Adsorbed gas (ft ³ /ton) | | | |
|--------------------|-------------------------------------|-------------------------------|-------------------------------|--------------|
| | As Received | moisture free ash incl. | ash free moisture incl. | Dry Ash Free |
| 57 | 4.8 | 6.2 | 6.2 | 8.6 |
| 119 | 10.7 | 13.6 | 13.7 | 18.9 |
| 188 | 15.5 | 19.8 | 19.9 | 27.5 |
| 259 | 19.9 | 25.4 | 25.6 | 35.3 |
| 330 | 25.4 | 32.3 | 32.6 | 45.0 |
| 401 | 29.7 | 37.9 | 38.2 | 52.7 |
| 567 | 38.4 | 49.0 | 49.3 | 68.1 |
| 766 | 46.0 | 58.7 | 59.1 | 81.6 |
| 974 | 51.2 | 65.3 | 65.7 | 90.8 |
| 1186 | 54.3 | 69.2 | 69.7 | 96.3 |
| 1352 | 58.0 | 74.0 | 74.5 | 102.9 |
| 1756 | 64.9 | 82.7 | 83.2 | 115.0 |

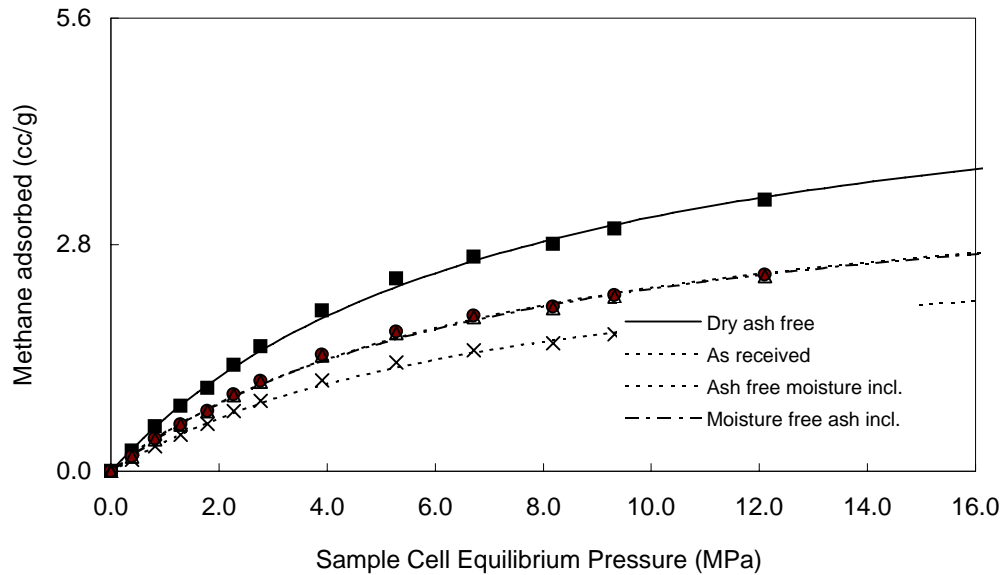
Langmuir Parameters

| | As Received | Moisture free ash incl | Ash free moisture incl | Dry Ash Free |
|-----------------------------|----------------|------------------------------|------------------------------|--------------|
| Vol. (ft ³ /ton) | 105.4 | 134.4 | 135.3 | 186.9 |
| Pressure (PSIA) | 1068.8 | 1068.8 | 1068.8 | 1068.8 |

SUMMARY OF ADSORPTION ANALYSES IMP. UNITS

Isotherm Temperature: 97.0 °F
 Goodness of fit of Langmuir regression: 0.99
 % Ash= 22.05 % Moisture= 21.52 Density g/cc 1.545

5-1A Methane



| Pressure (MPa) | Adsorbed gas (cc/g) | | | |
|-------------------|---------------------|----------------------------|---------------------------|--------------|
| | As Received | Moisture free ash incl. | ash free moisture incl | Dry Ash Free |
| 0.395 | 0.14 | 0.18 | 0.18 | 0.25 |
| 0.820 | 0.31 | 0.40 | 0.40 | 0.56 |
| 1.293 | 0.46 | 0.58 | 0.59 | 0.81 |
| 1.784 | 0.59 | 0.75 | 0.75 | 1.04 |
| 2.277 | 0.75 | 0.95 | 0.96 | 1.32 |
| 2.768 | 0.87 | 1.11 | 1.12 | 1.55 |
| 3.911 | 1.13 | 1.44 | 1.45 | 2.00 |
| 5.280 | 1.35 | 1.72 | 1.74 | 2.40 |
| 6.717 | 1.51 | 1.92 | 1.93 | 2.67 |
| 8.179 | 1.60 | 2.03 | 2.05 | 2.83 |
| 9.319 | 1.71 | 2.17 | 2.19 | 3.02 |
| 12.109 | 1.91 | 2.43 | 2.45 | 3.38 |

Langmuir Parameters

| | As Received | Moisture free ash incl. | Ash free moisture incl | Dry Ash Free |
|----------------|-------------|----------------------------|---------------------------|--------------|
| Vol. (cc/g) | 3.10 | 3.95 | 3.98 | 5.49 |
| Pressure (MPa) | 7.37 | 7.37 | 7.37 | 7.37 |

SUMMARY OF ADSORPTION ANALYSES SI UNITS

Isotherm Temperature:

36.1 °C

Goodness of fit of Langmuir regression:

0.99

% Ash= 22.05

% Moisture =

21.52

Density (g/cc)

1.545

5-1A Methane

Methane Adsorption (Imperial Units)

Summary of Analyses

| | As Received | DAF basis |
|---------------------------|-------------|-----------|
| Langmuir Volume (SCF) | 105 | 187 |
| Langmuir Pressure (PSIA) | 1069 | 1069 |
| Goodness of fit Langmuir | | |
| Equation R-squared | 0.99 | 0.99 |
| Ash Content Wt.% | 22.05 | 22.05 |
| Equilibrium Moisture Wt.% | 21.52 | 21.52 |

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Dry Ash Included
Moist Ash Free

Charts

As Received
Dry Ash Free
Dry Ash Included
Moist Ash Free

5-1A Methane
GAS ADSORPTION ISOTHERM IMPERIAL UNITS

AS RECEIVED BASIS

| | | | |
|---------------------------|---------|----------------------|-------|
| Isotherm Temperature ° F: | 97.0 | Moisture Content % : | 21.52 |
| Gas used: | Methane | Ash Content, % : | 22.05 |
| | | Helium Density g/cc | 1.545 |

| PRESSURE (PSI) | ADSORBED GAS (SCF/ton) | P / V |
|----------------|---------------------------|-------|
| 57 | 4.85 | 11.81 |
| 119 | 10.68 | 11.13 |
| 188 | 15.53 | 12.08 |
| 259 | 19.95 | 12.97 |
| 330 | 25.38 | 13.01 |
| 401 | 29.75 | 13.50 |
| 567 | 38.44 | 14.76 |
| 766 | 46.03 | 16.64 |
| 974 | 51.25 | 19.01 |
| 1186 | 54.33 | 21.83 |
| 1352 | 58.04 | 23.29 |
| 1756 | 64.89 | 27.07 |

| | |
|---------------------------------------|--------|
| Saturated Monolayer Volume (SCF/ton): | 105.4 |
| Langmuir Pressure (PSIA): | 1068.8 |
| Correlation Coefficient: | 0.9886 |

DRY ASH FREE BASIS

| | | |
|------|--------|-------|
| 57 | 8.59 | 6.67 |
| 119 | 18.93 | 6.28 |
| 188 | 27.52 | 6.82 |
| 259 | 35.35 | 7.32 |
| 330 | 44.98 | 7.34 |
| 401 | 52.72 | 7.62 |
| 567 | 68.11 | 8.33 |
| 766 | 81.57 | 9.39 |
| 974 | 90.82 | 10.73 |
| 1186 | 96.28 | 12.32 |
| 1352 | 102.85 | 13.14 |
| 1756 | 114.99 | 15.27 |

| | |
|--|--------|
| Saturated Monolayer Volume (SCF/ton, daf): | 187 |
| Langmuir Pressure (PSIA): | 1069 |
| Correlation Coefficient: | 0.9886 |

5-1A Methane

GAS ADSORPTION ISOTHERM IMPERIAL UNITS

MOISTURE FREE ASH INCLUDED

| | | | |
|--------------------------|---------|----------------------|-------|
| Isotherm Temperature° F: | 97.0 | Moisture Content % : | 21.52 |
| Gas used: | Methane | Ash Content, % : | 22.05 |
| | | Helium Density g/cc | 1.545 |

| PRESSURE (PSI) | ADSORBED GAS (SCF/ton) | P / V |
|----------------|---------------------------|-------|
| 57 | 6 | 9.27 |
| 119 | 14 | 8.73 |
| 188 | 20 | 9.48 |
| 259 | 25 | 10.18 |
| 330 | 32 | 10.21 |
| 401 | 38 | 10.59 |
| 567 | 49 | 11.58 |
| 766 | 59 | 13.06 |
| 974 | 65 | 14.92 |
| 1186 | 69 | 17.13 |
| 1352 | 74 | 18.28 |
| 1756 | 83 | 21.24 |

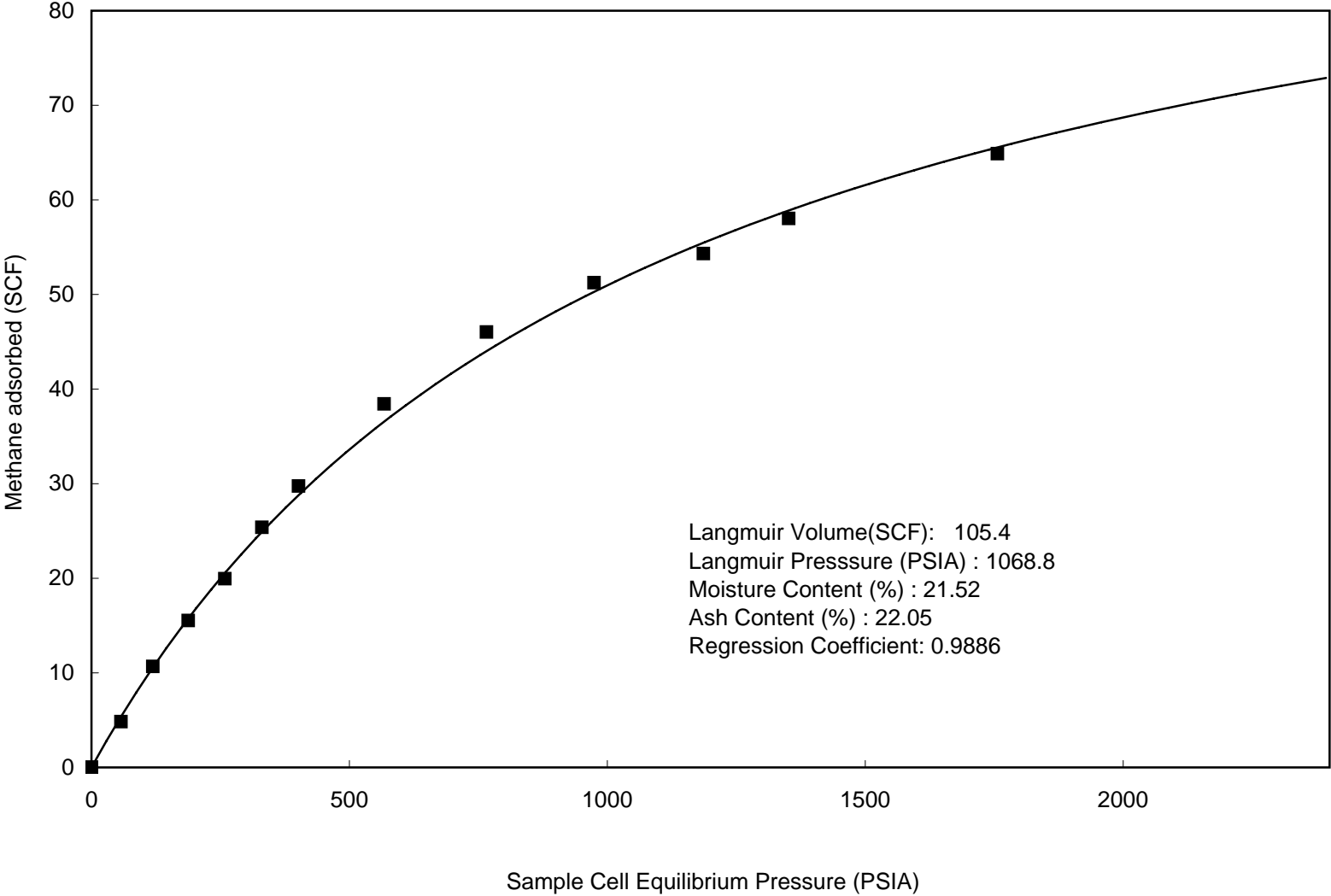
| | |
|---------------------------------------|--------|
| Saturated Monolayer Volume (SCF/ton): | 134 |
| Langmuir Pressure (PSIA): | 1069 |
| Correlation Coefficient: | 0.9886 |

ASH FREE MOISTURE INCLUDED

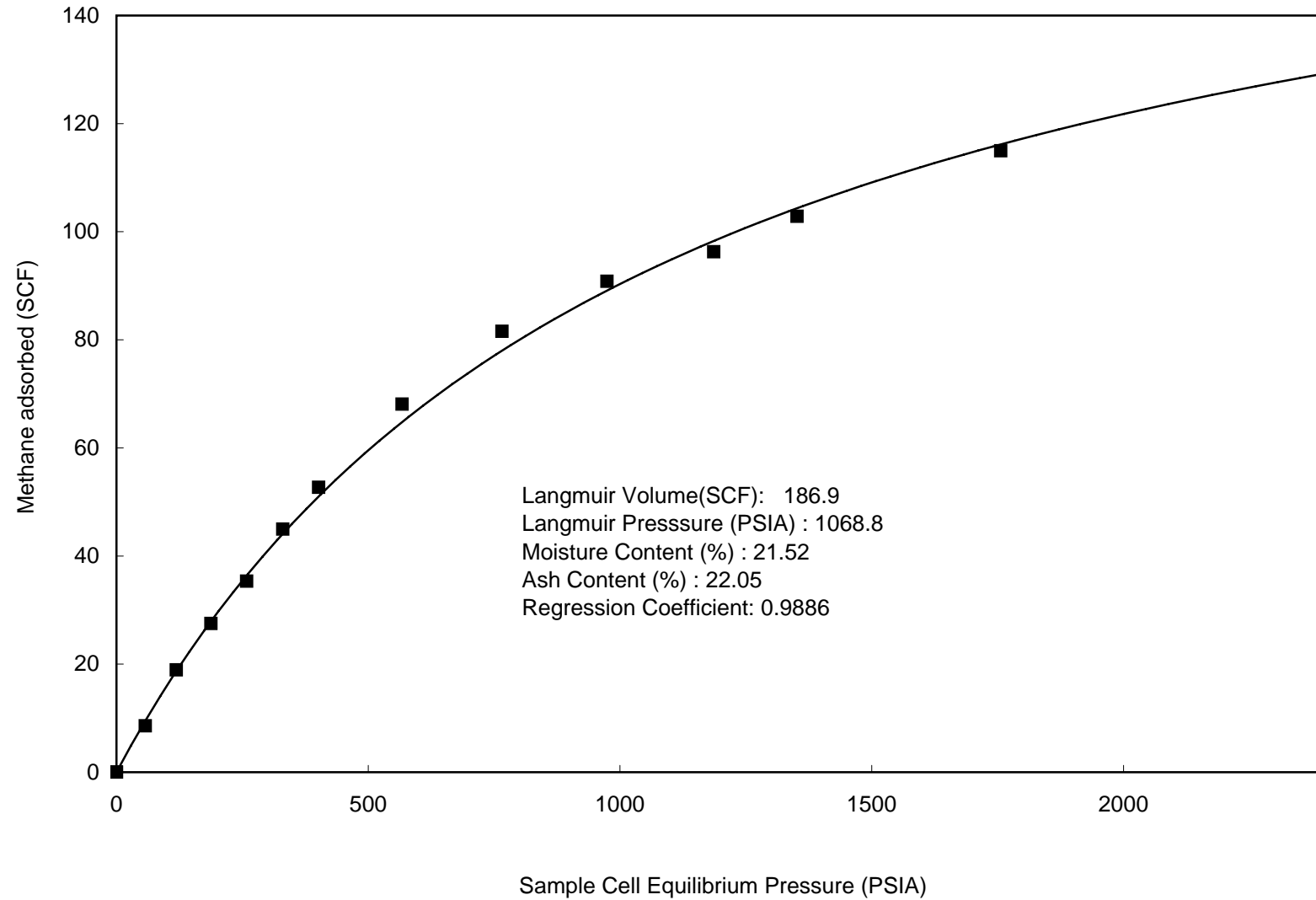
| | | |
|------|----|-------|
| 57 | 6 | 9.21 |
| 119 | 14 | 8.67 |
| 188 | 20 | 9.42 |
| 259 | 26 | 10.11 |
| 330 | 33 | 10.14 |
| 401 | 38 | 10.52 |
| 567 | 49 | 11.50 |
| 766 | 59 | 12.97 |
| 974 | 66 | 14.82 |
| 1186 | 70 | 17.02 |
| 1352 | 74 | 18.15 |
| 1756 | 83 | 21.10 |

| | |
|---------------------------------------|--------|
| Saturated Monolayer Volume (SCF/ton): | 135 |
| Langmuir Pressure (PSIA): | 1069 |
| Correlation Coefficient: | 0.9886 |

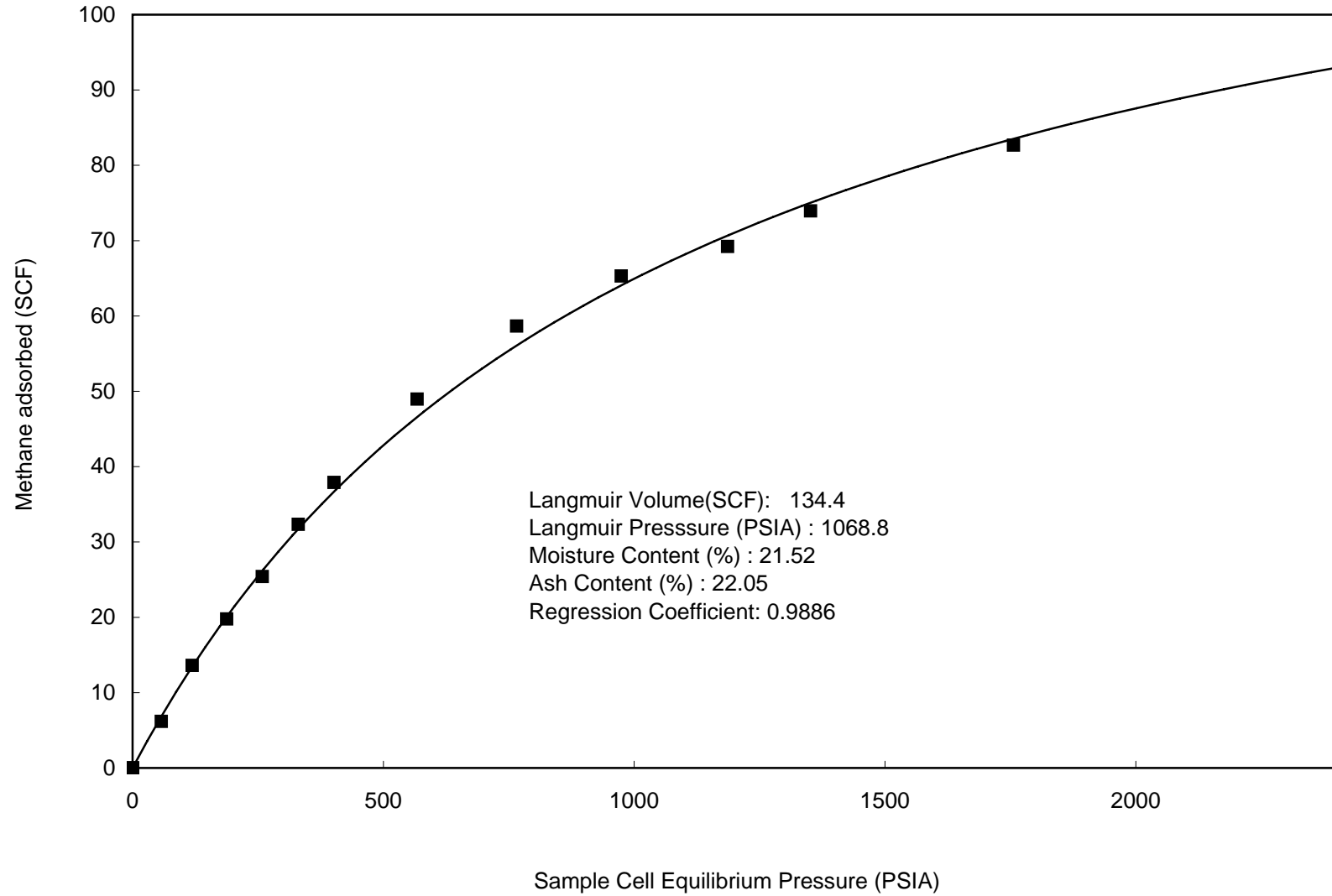
5-1A Methane (as received basis)



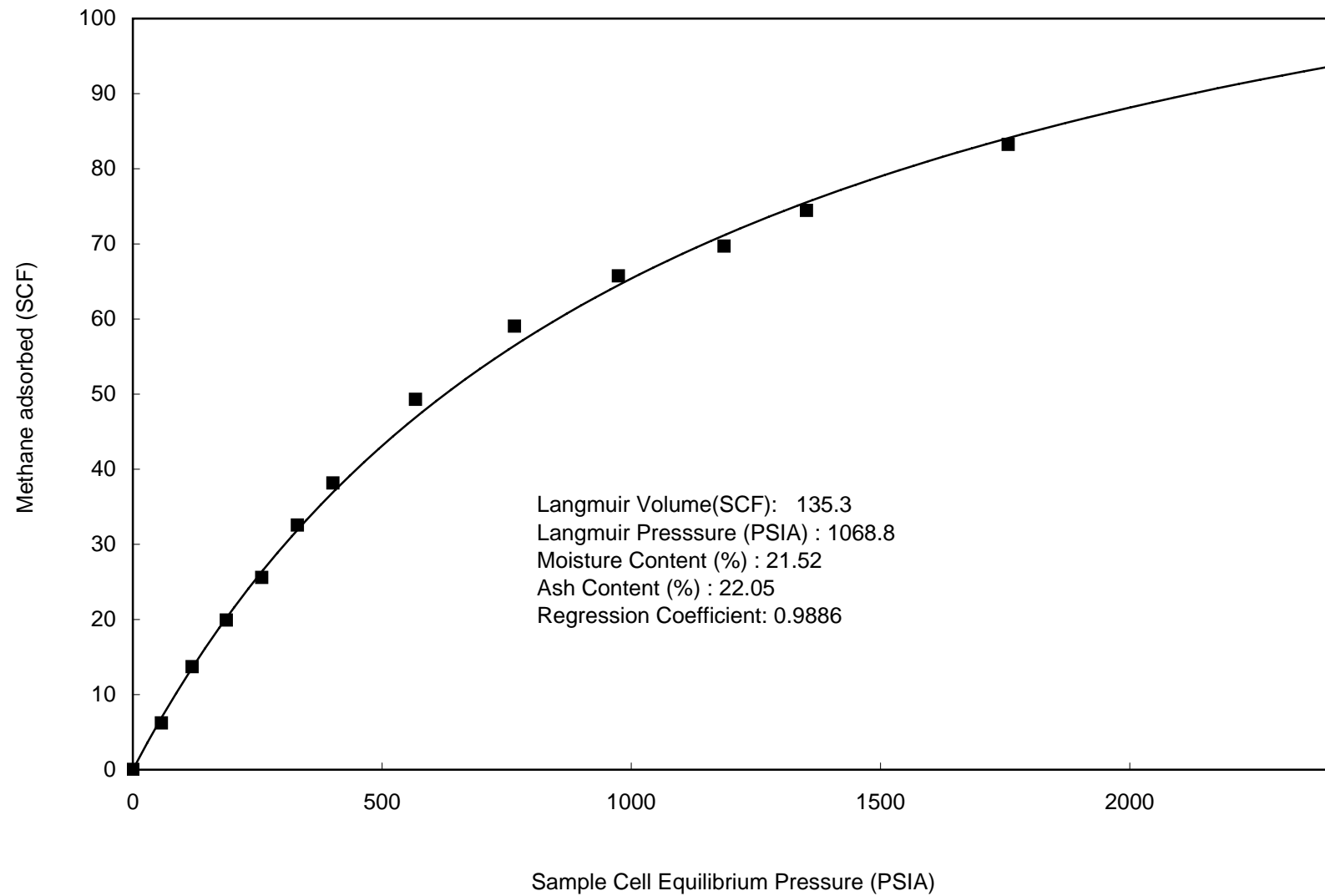
5-1A Methane (dry & ash free basis)



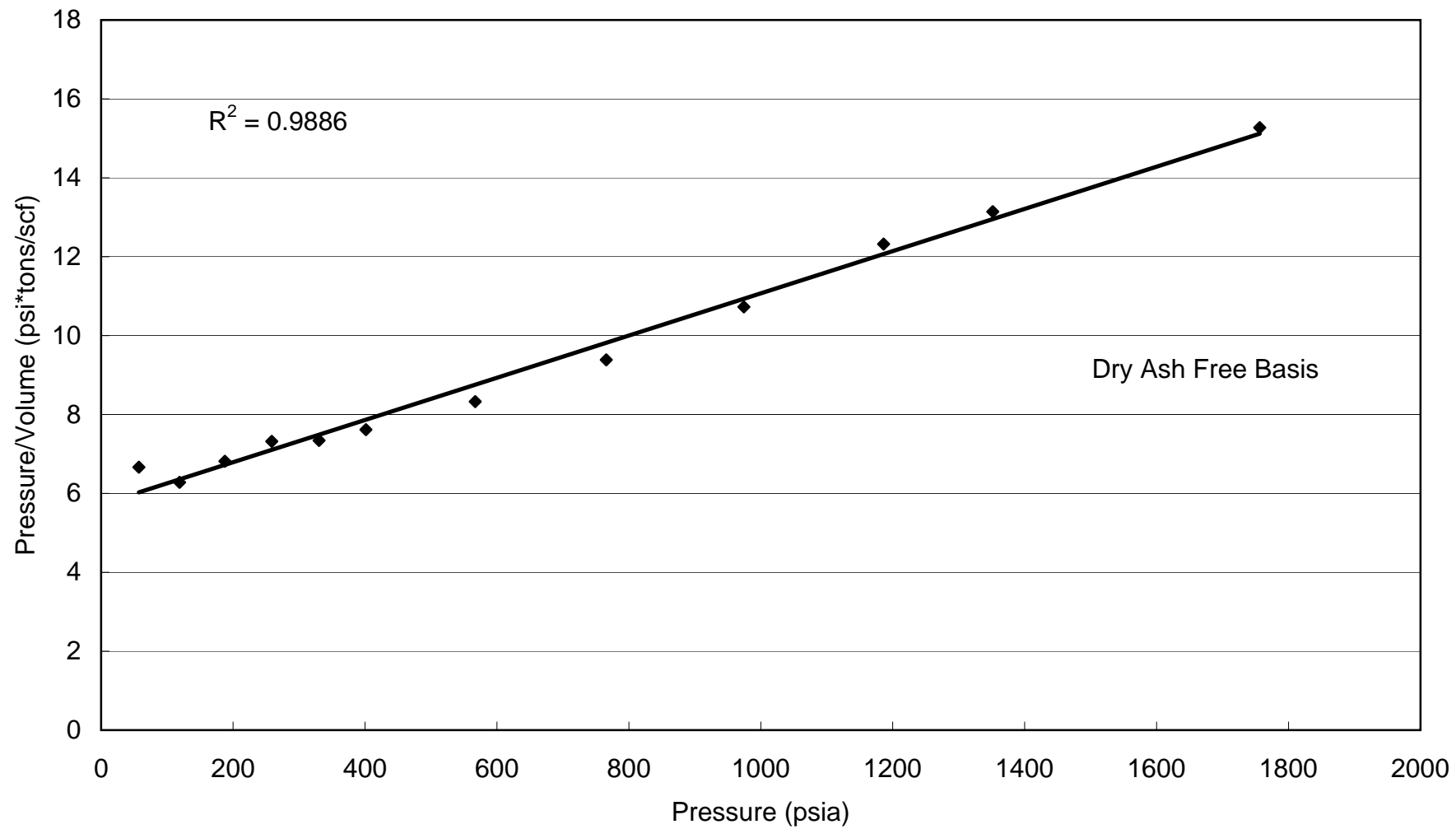
5-1A Methane (moisture free, ash included basis)



5-1A Methane (ash free, moisture included basis)



Adsorption Langmuir Plot



5-1A Methane

Methane Adsorption (SI Units)

Summary of Analyses

| | As Received | DAF basis |
|---|-------------|-----------|
| Langmuir Volume cc/g | 3.10 | 5.49 |
| Langmuir Pressure MPa | 7.37 | 7.37 |
| Goodness of fit Langmuir Equation R-squared | 0.99 | 0.99 |
| Ash Content Wt.% | 22.05 | 22.05 |
| Equilibrium Moisture Wt.% | 21.52 | 21.52 |

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Dry Ash Included
Moist Ash Free

Charts

As Received
Dry Ash Free
Dry Ash Included
Moist Ash Free

5-1A Methane

GAS ADSORPTION ISOTHERM SI UNITS

AS RECEIVED BASIS

| | | | |
|---------------------------|--------------|---------------------------|-------|
| Sample I.D. : | 5-1A Methane | Moisture Content (EQ) % : | 21.52 |
| Isotherm Temperature ° C: | 36.1 | Ash Content % : | 22.05 |
| Gas used: | Methane | Helium Density g/cc | 1.545 |

| PRESSURE (MPa) | ADSORBED GAS (cc/g @STP) | P / V |
|----------------|-----------------------------|-------|
| 0.395 | 0.14 | 2.771 |
| 0.820 | 0.31 | 2.611 |
| 1.293 | 0.46 | 2.834 |
| 1.784 | 0.59 | 3.043 |
| 2.277 | 0.75 | 3.053 |
| 2.768 | 0.87 | 3.166 |
| 3.911 | 1.13 | 3.462 |
| 5.280 | 1.35 | 3.903 |
| 6.717 | 1.51 | 4.460 |
| 8.179 | 1.60 | 5.122 |
| 9.319 | 1.71 | 5.463 |
| 12.109 | 1.91 | 6.350 |

| | |
|--|------|
| Saturated Monolayer Volume (cc/g @ STP): | 3.10 |
| Langmuir Pressure (MPa): | 7.37 |

DRY ASH FREE BASIS

| | | |
|--------|------|-------|
| 0.395 | 0.25 | 1.564 |
| 0.820 | 0.56 | 1.473 |
| 1.293 | 0.81 | 1.599 |
| 1.784 | 1.04 | 1.717 |
| 2.277 | 1.32 | 1.723 |
| 2.768 | 1.55 | 1.787 |
| 3.911 | 2.00 | 1.954 |
| 5.280 | 2.40 | 2.202 |
| 6.717 | 2.67 | 2.517 |
| 8.179 | 2.83 | 2.890 |
| 9.319 | 3.02 | 3.083 |
| 12.109 | 3.38 | 3.583 |

| | |
|---|--------|
| Saturated Monolayer Volume (cc/g @ STP, daf): | 5.49 |
| Langmuir Pressure (MPa): | 7.37 |
| Correlation Coefficient: | 0.9886 |

5-1A Methane

GAS ADSORPTION ISOTHERM SI UNITS

MOISTURE FREE ASH INCLUDED

| | | | |
|---------------------------|---------|---------------------------|-------|
| Isotherm Temperature ° C: | 36.1 | Moisture Content (EQ) % : | 21.52 |
| Gas used: | Methane | Ash Content % : | 22.05 |
| | | Helium Density g/cc | 1.545 |

| PRESSURE (MPa) | ADSORBED GAS (cc/g@STP) | P / V |
|----------------|----------------------------|-------|
| 0.395 | 0.18 | 2.17 |
| 0.820 | 0.40 | 2.05 |
| 1.293 | 0.58 | 2.22 |
| 1.784 | 0.75 | 2.39 |
| 2.277 | 0.95 | 2.40 |
| 2.768 | 1.11 | 2.48 |
| 3.911 | 1.44 | 2.72 |
| 5.280 | 1.72 | 3.06 |
| 6.717 | 1.92 | 3.50 |
| 8.179 | 2.03 | 4.02 |
| 9.319 | 2.17 | 4.29 |
| 12.109 | 2.43 | 4.98 |

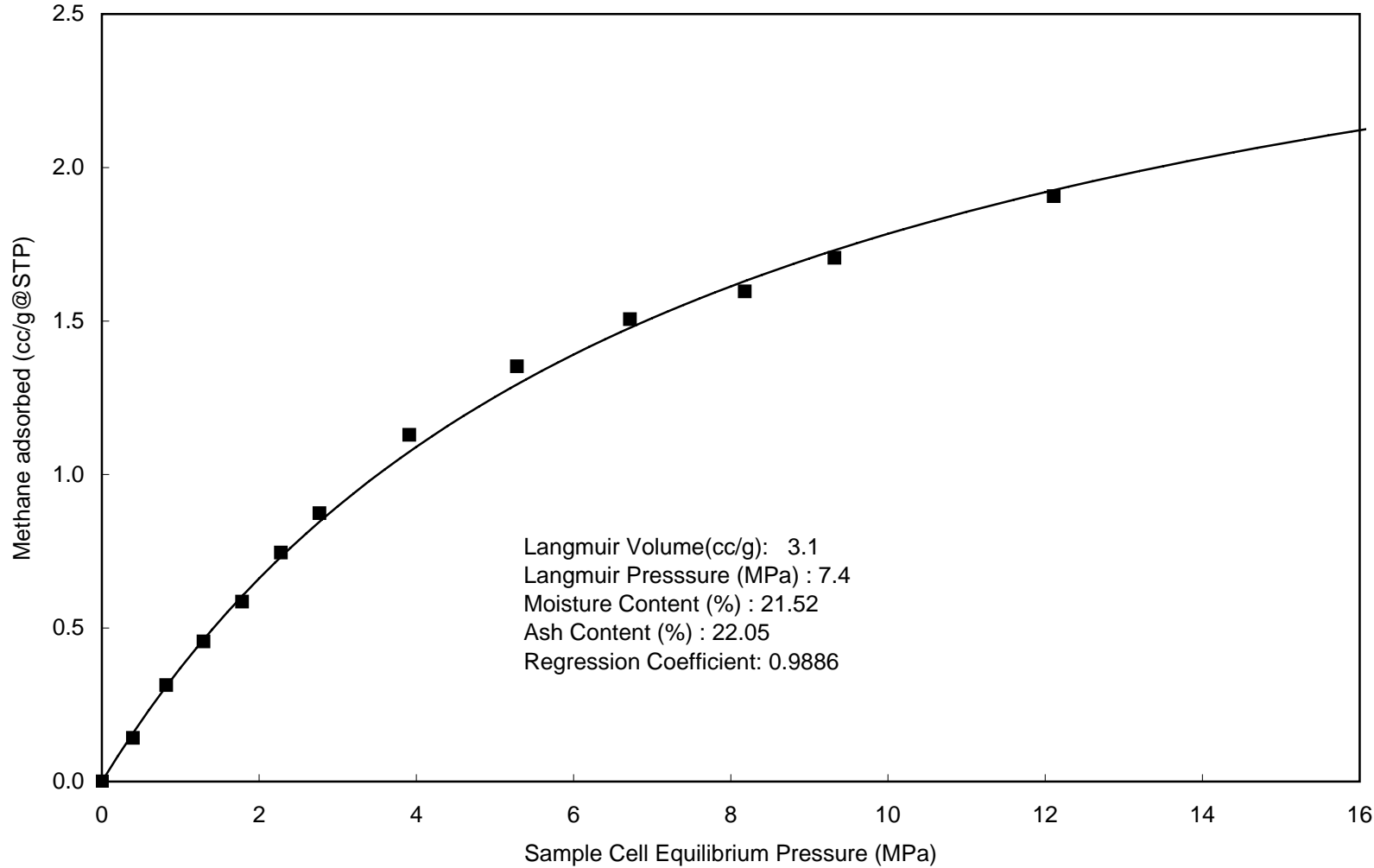
| | |
|------------------------------------|------|
| Saturated Monolayer Volume (cc/g): | 3.95 |
| Langmuir Pressure (MPa): | 7.37 |

ASH FREE MOISTURE INCLUDED

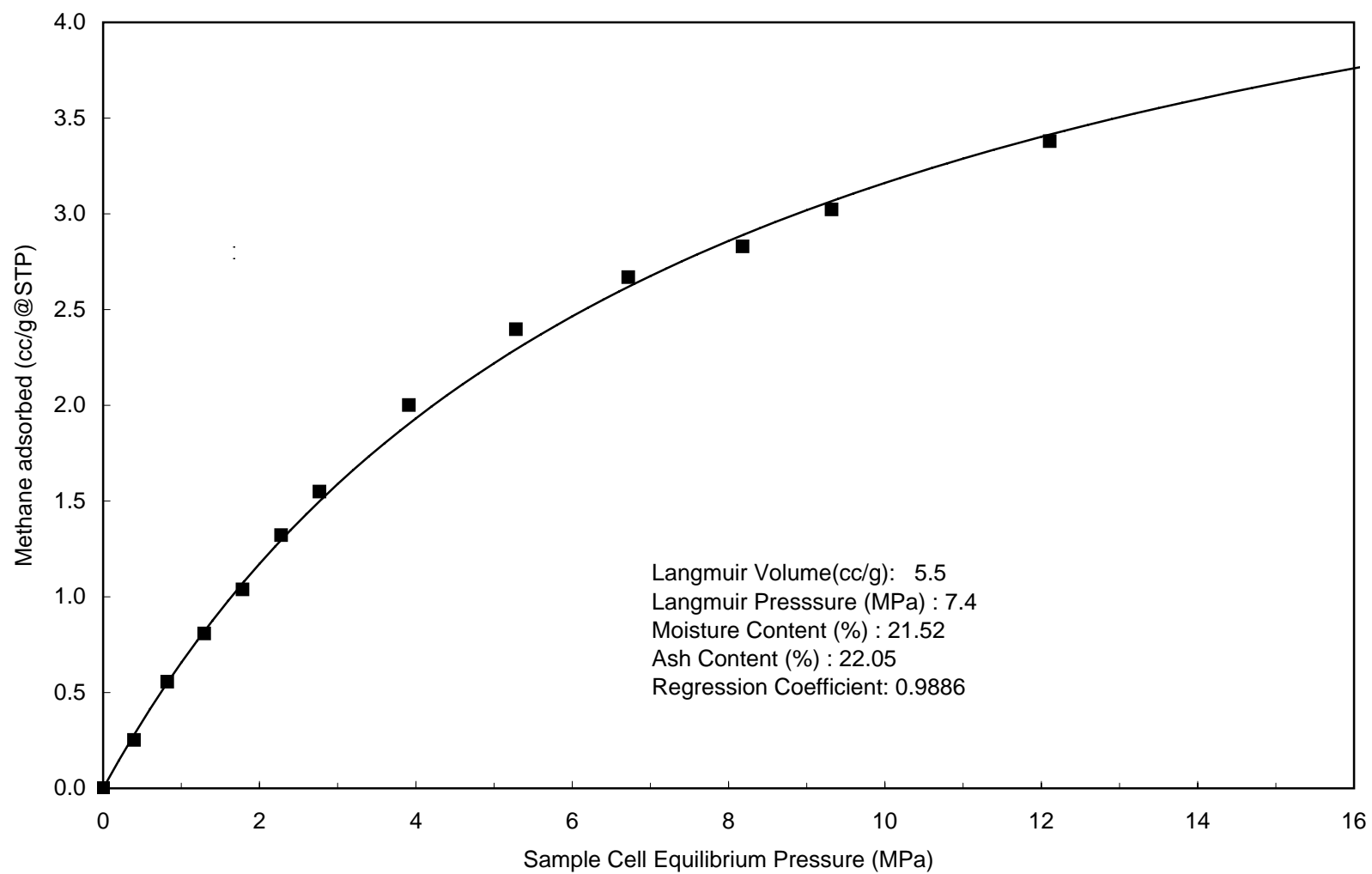
| | | |
|--------|------|------|
| 0.395 | 0.18 | 0.00 |
| 0.820 | 0.40 | 2.04 |
| 1.293 | 0.59 | 2.21 |
| 1.784 | 0.75 | 2.37 |
| 2.277 | 0.96 | 2.38 |
| 2.768 | 1.12 | 2.47 |
| 3.911 | 1.45 | 2.70 |
| 5.280 | 1.74 | 3.04 |
| 6.717 | 1.93 | 3.48 |
| 8.179 | 2.05 | 3.99 |
| 9.319 | 2.19 | 4.26 |
| 12.109 | 2.45 | 4.95 |

| | |
|--|--------|
| Saturated Monolayer Volume (cc/g, ash free): | 3.98 |
| Langmuir Pressure (MPa): | 7.37 |
| Correlation Coefficient: | 0.9886 |

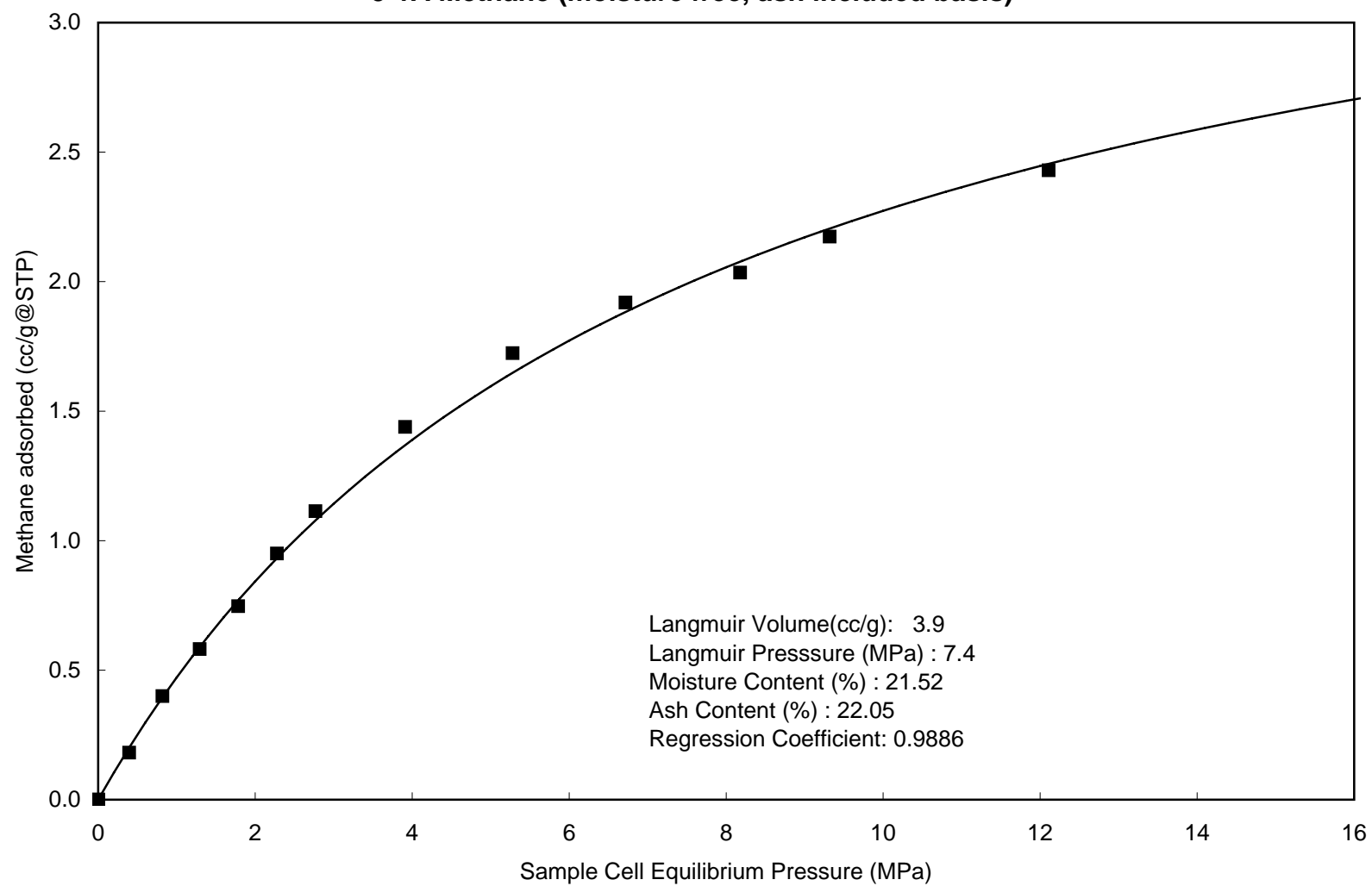
5-1A Methane (as received basis)



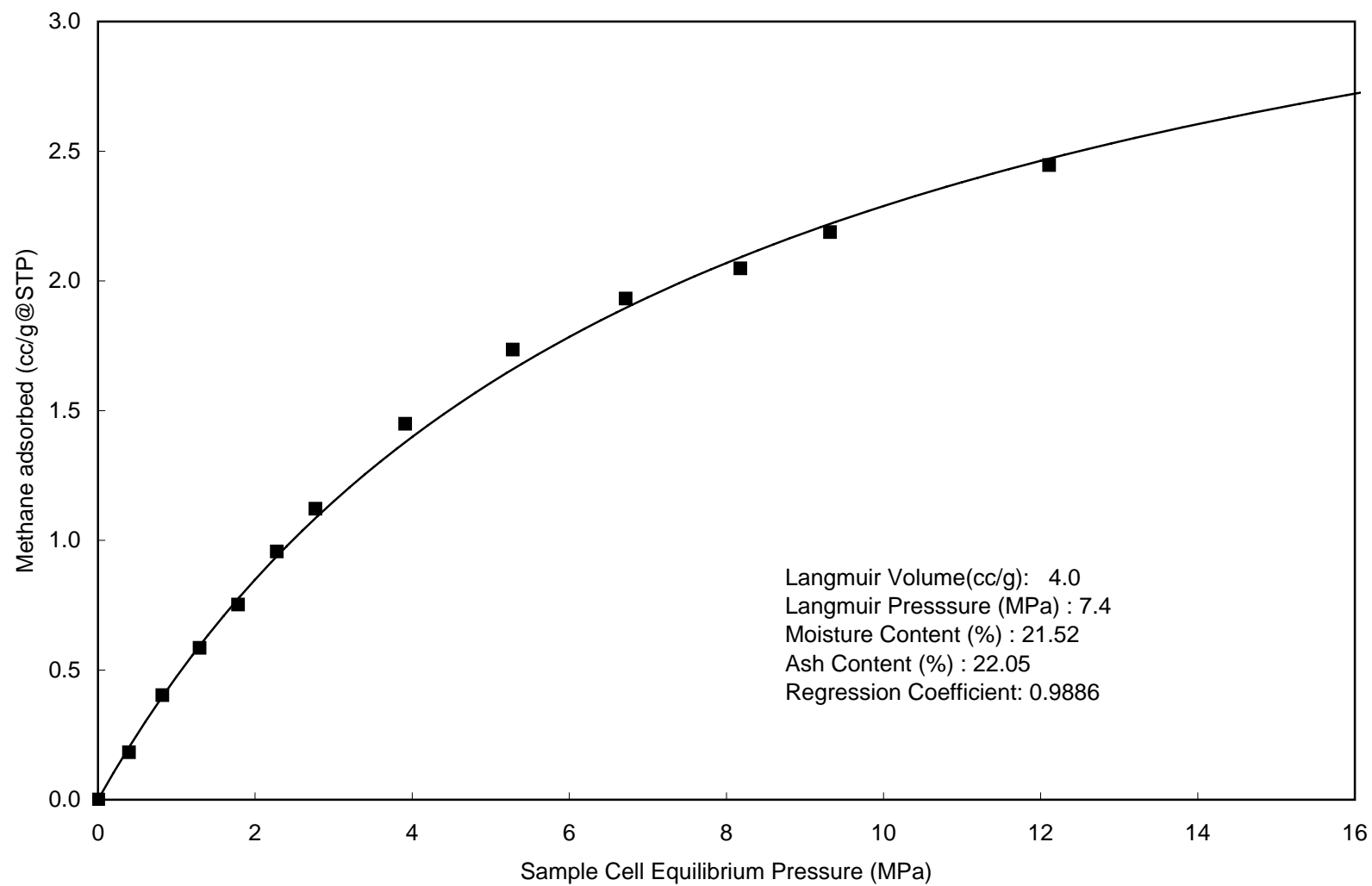
5-1A Methane (dry & ash free basis)



5-1A Methane (moisture free, ash included basis)



5-1A Methane (ash free, moisture included basis)



Adsorption Langmuir Plot

