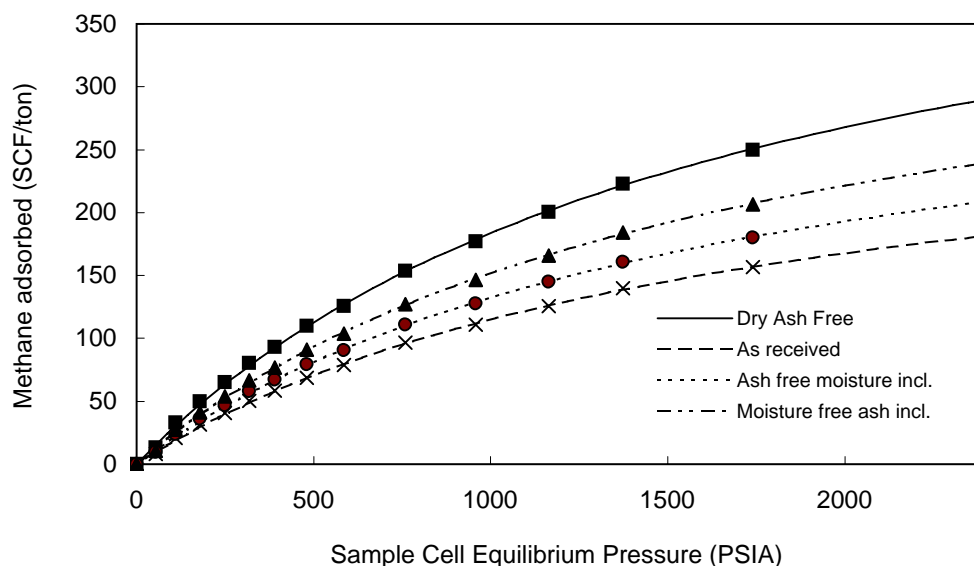


5-1B Methane



Pressure (PSIA)	Adsorbed gas (ft ³ /ton)			
	As Received	moisture free ash incl.	ash free moisture incl.	Dry Ash Free
54	8.2	10.8	9.4	13.1
111	20.7	27.3	23.8	33.0
178	31.3	41.3	36.0	50.0
249	40.7	53.7	46.8	64.9
318	50.3	66.4	57.9	80.3
391	58.3	77.0	67.1	93.0
481	68.9	90.9	79.3	109.9
585	78.6	103.8	90.5	125.4
758	96.4	127.2	111.0	153.8
957	110.9	146.3	127.6	176.9
1164	125.8	166.0	144.7	200.6
1374	139.7	184.4	160.8	222.9
1741	156.6	206.6	180.2	249.7

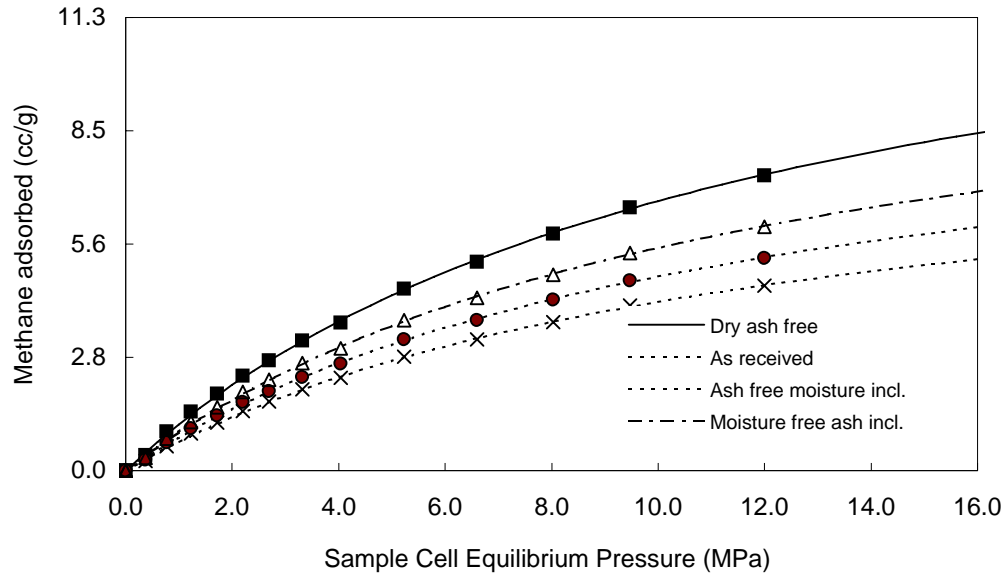
Langmuir Parameters

	As Received	Moisture free ash incl	Ash free moisture incl	Dry Ash Free
Vol. (ft ³ /ton)	309.8	408.8	356.6	494.2
Pressure (PSIA)	1690.0	1690.0	1690.0	1690.0

SUMMARY OF ADSORPTION ANALYSES IMP. UNITS

Isotherm Temperature: 107.6 °F
 Goodness of fit of Langmuir regression: 0.96
 % Ash= 13.10 % Moisture= 24.21 Density g/cc 1.368

5-1B Methane



Pressure (MPa)	Adsorbed gas (cc/g)			
	As Received	Moisture free ash incl.	ash free moisture incl	Dry Ash Free
0.372	0.24	0.32	0.28	0.38
0.764	0.61	0.80	0.70	0.97
1.229	0.92	1.21	1.06	1.47
1.717	1.20	1.58	1.38	1.91
2.195	1.48	1.95	1.70	2.36
2.695	1.71	2.26	1.97	2.73
3.313	2.03	2.67	2.33	3.23
4.036	2.31	3.05	2.66	3.69
5.229	2.83	3.74	3.26	4.52
6.599	3.26	4.30	3.75	5.20
8.029	3.70	4.88	4.25	5.90
9.470	4.11	5.42	4.73	6.55
12.001	4.60	6.07	5.29	7.34

Langmuir Parameters

	As Received	Moisture free ash incl.	Ash free moisture incl	Dry Ash Free
Vol. (cc/g)	9.11	12.01	10.48	14.53
Pressure (MPa)	11.65	11.65	11.65	11.65

SUMMARY OF ADSORPTION ANALYSES SI UNITS

Isotherm Temperature:

42.0 °C

Goodness of fit of Langmuir regression:

0.96

% Ash= 13.10

% Moisture =

24.21

Density (g/cc)

1.368

5-1B Methane

Methane Adsorption (Imperial Units)

Summary of Analyses

	As Received	DAF basis
Langmuir Volume (SCF)	310	494
Langmuir Pressure (PSIA)	1690	1690
Goodness of fit Langmuir		
Equation R-squared	0.96	0.96
Ash Content Wt.%	13.10	13.10
Equilibrium Moisture Wt.%	24.21	24.21

Contents of Appendix

data sheets

As Received
Dry Ash Free
Dry Ash Included
Moist Ash Free

Charts

As Received
Dry Ash Free
Dry Ash Included
Moist Ash Free

5-1B Methane
GAS ADSORPTION ISOTHERM IMPERIAL UNITS

AS RECEIVED BASIS

Isotherm Temperature ° F:	107.6	Moisture Content % :	24.21
Gas used:	Methane	Ash Content, % :	13.10
		Helium Density g/cc	1.368

PRESSURE (PSI)	ADSORBED GAS (SCF/ton)	P / V
54	8.20	6.58
111	20.67	5.36
178	31.31	5.69
249	40.68	6.12
318	50.33	6.32
391	58.32	6.70
481	68.92	6.97
585	78.64	7.44
758	96.44	7.86
957	110.91	8.63
1164	125.78	9.26
1374	139.74	9.83
1741	156.56	11.12

Saturated Monolayer Volume (SCF/ton):	309.8
Langmuir Pressure (PSIA):	1690.0
Correlation Coefficient:	0.9641

DRY ASH FREE BASIS

54	13.08	4.12
111	32.98	3.36
178	49.95	3.57
249	64.89	3.84
318	80.29	3.96
391	93.04	4.20
481	109.93	4.37
585	125.45	4.67
758	153.84	4.93
957	176.92	5.41
1164	200.63	5.80
1374	222.91	6.16
1741	249.73	6.97

Saturated Monolayer Volume (SCF/ton, daf):	494
Langmuir Pressure (PSIA):	1690
Correlation Coefficient:	0.9641

5-1B Methane

GAS ADSORPTION ISOTHERM IMPERIAL UNITS

MOISTURE FREE ASH INCLUDED

Isotherm Temperature° F:	107.6	Moisture Content % :	24.21
Gas used:	Methane	Ash Content, % :	13.10
		Helium Density g/cc	1.368

PRESSURE (PSI)	ADSORBED GAS (SCF/ton)	P / V
54	11	4.99
111	27	4.06
178	41	4.31
249	54	4.64
318	66	4.79
391	77	5.08
481	91	5.28
585	104	5.64
758	127	5.96
957	146	6.54
1164	166	7.02
1374	184	7.45
1741	207	8.43

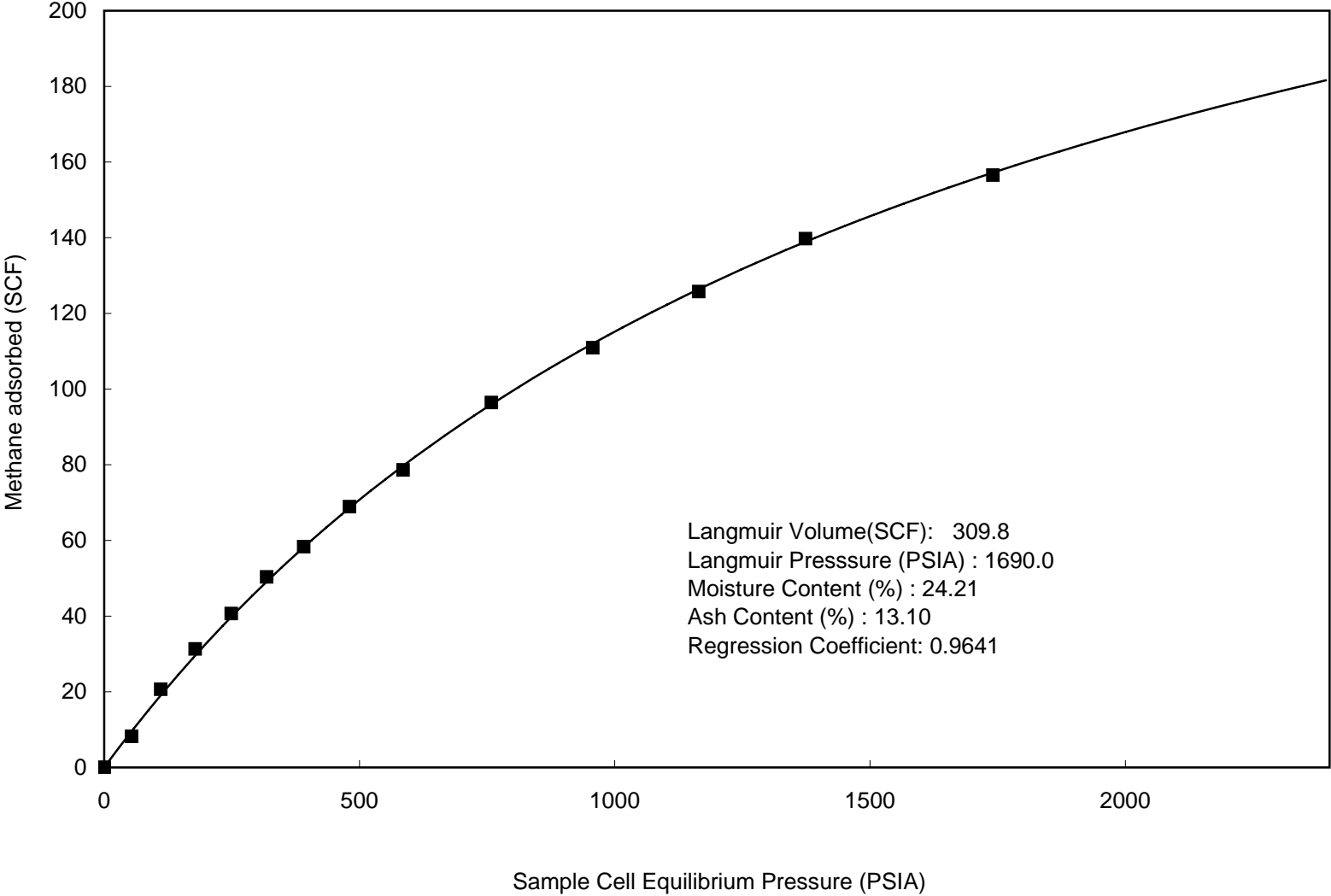
Saturated Monolayer Volume (SCF/ton):	409
Langmuir Pressure (PSIA):	1690
Correlation Coefficient:	0.9641

ASH FREE MOISTURE INCLUDED

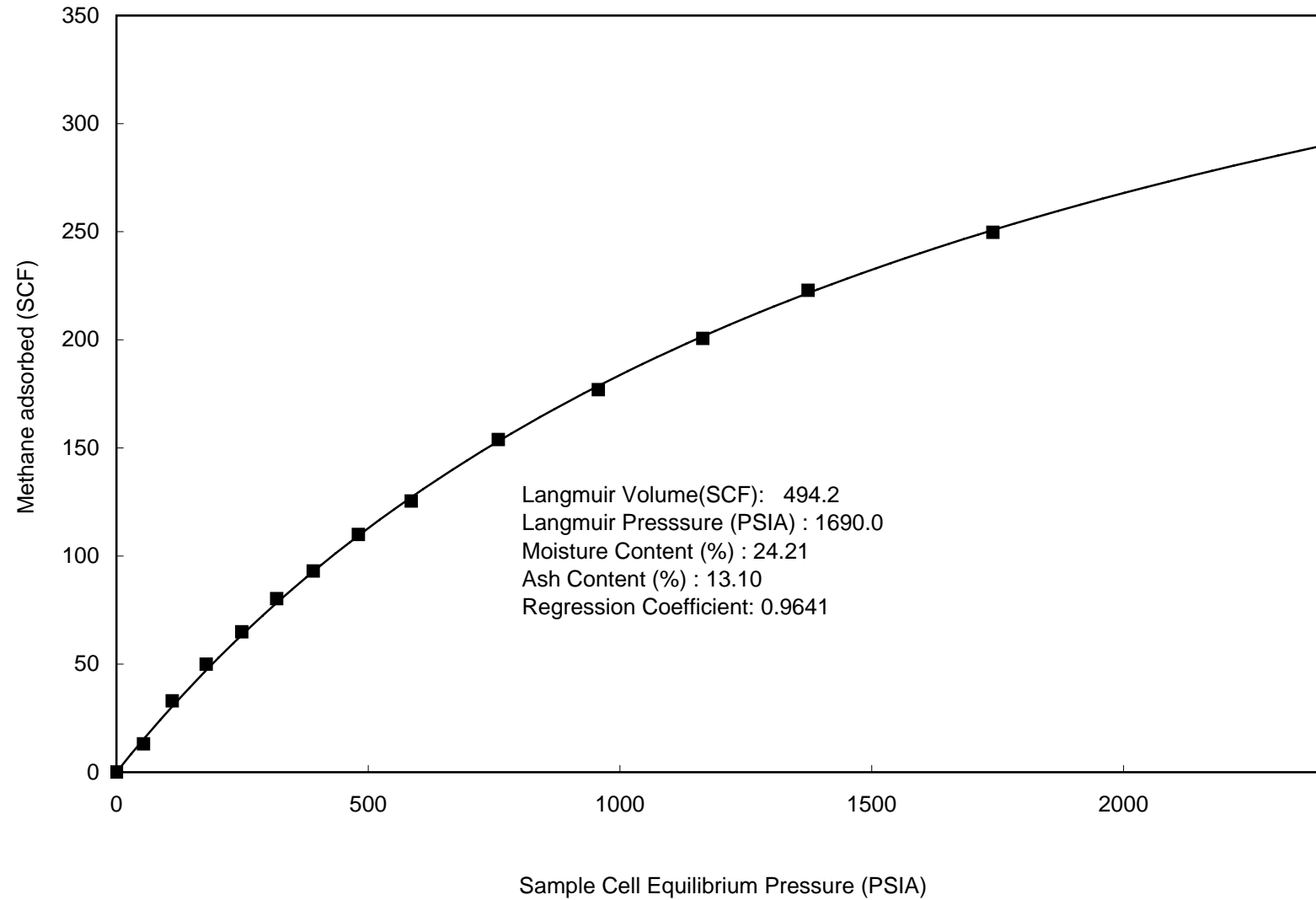
54	9	5.72
111	24	4.66
178	36	4.95
249	47	5.32
318	58	5.50
391	67	5.82
481	79	6.06
585	90	6.47
758	111	6.83
957	128	7.50
1164	145	8.05
1374	161	8.54
1741	180	9.66

Saturated Monolayer Volume (SCF/ton):	357
Langmuir Pressure (PSIA):	1690
Correlation Coefficient:	0.9641

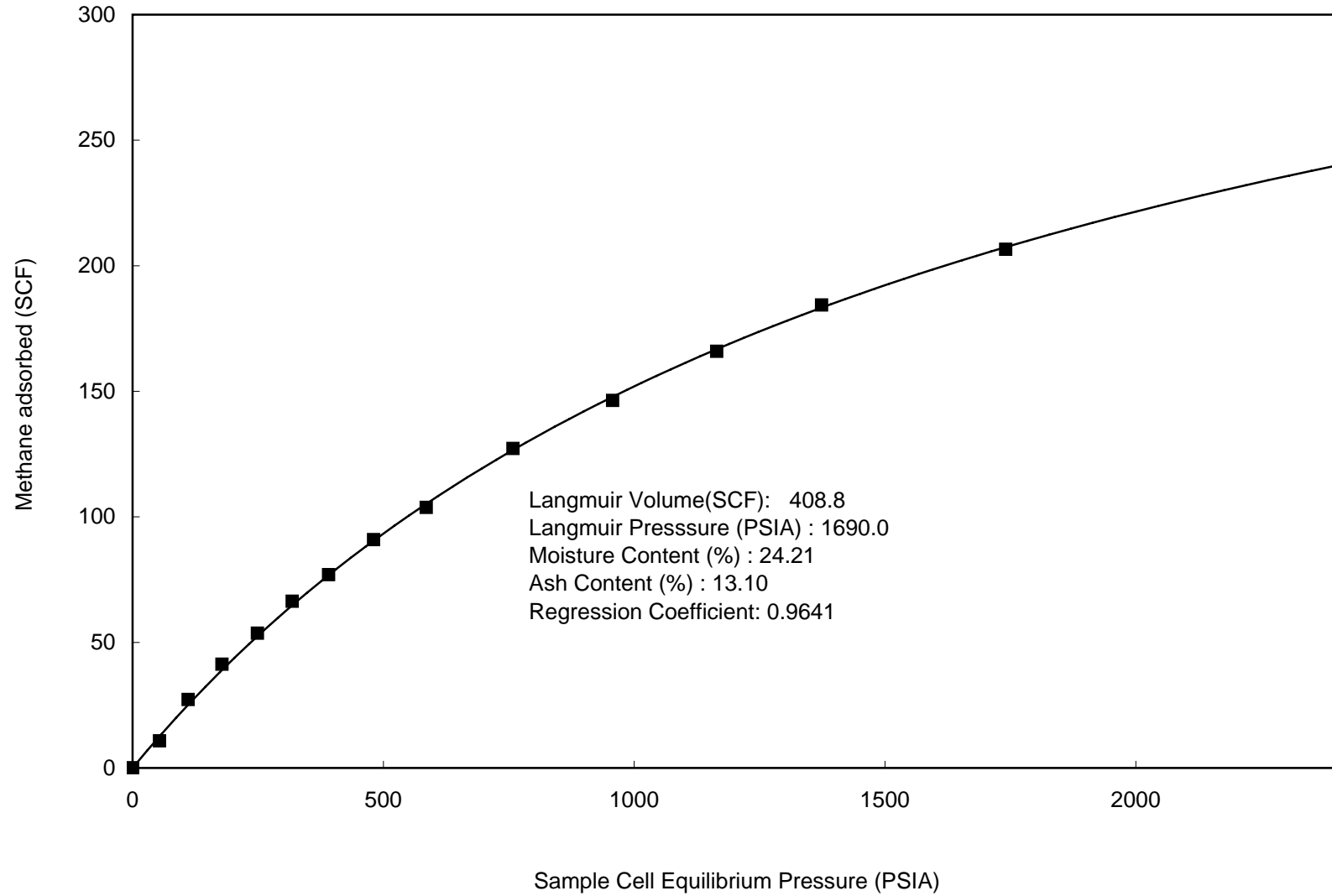
5-1B Methane (as received basis)



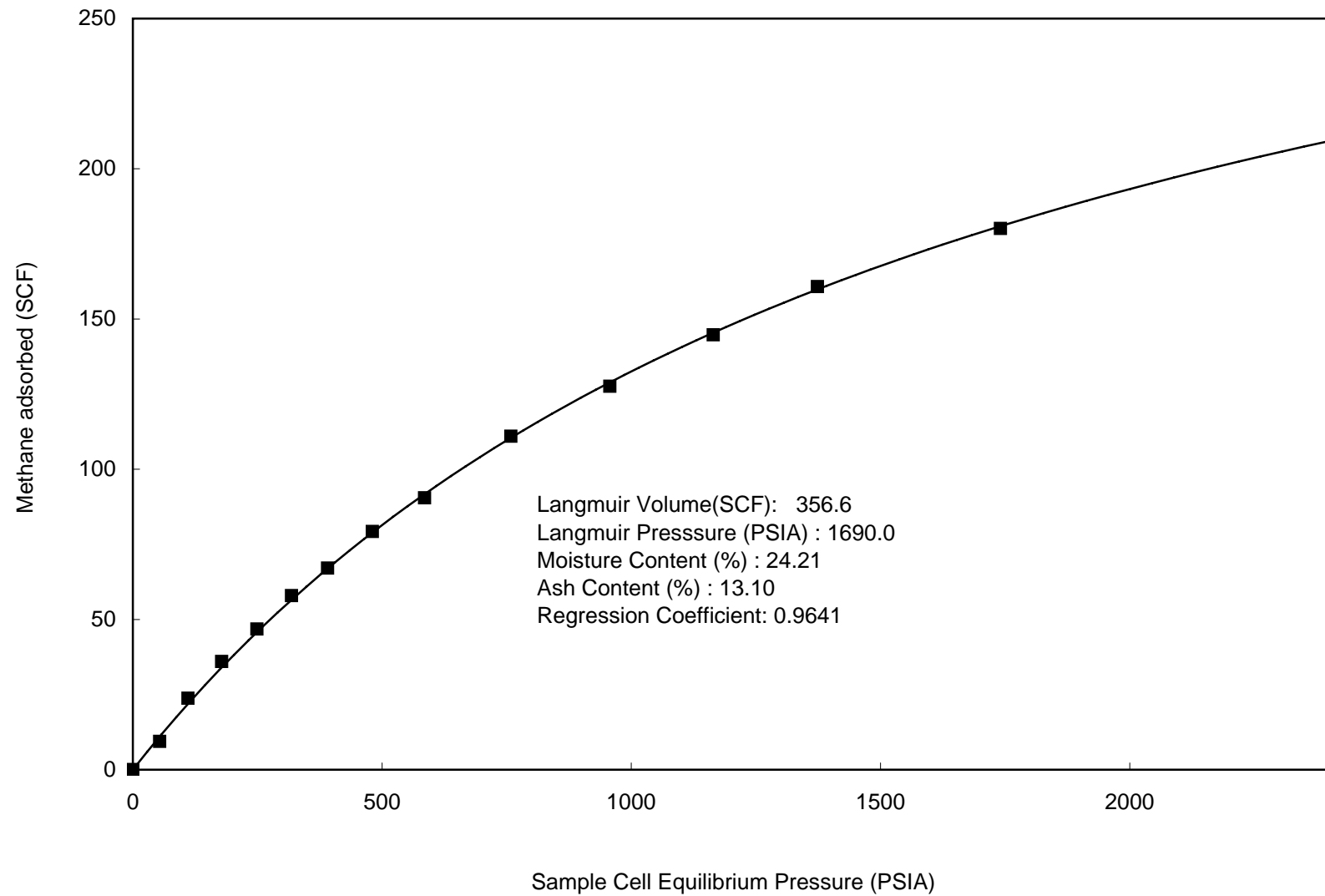
5-1B Methane (dry & ash free basis)



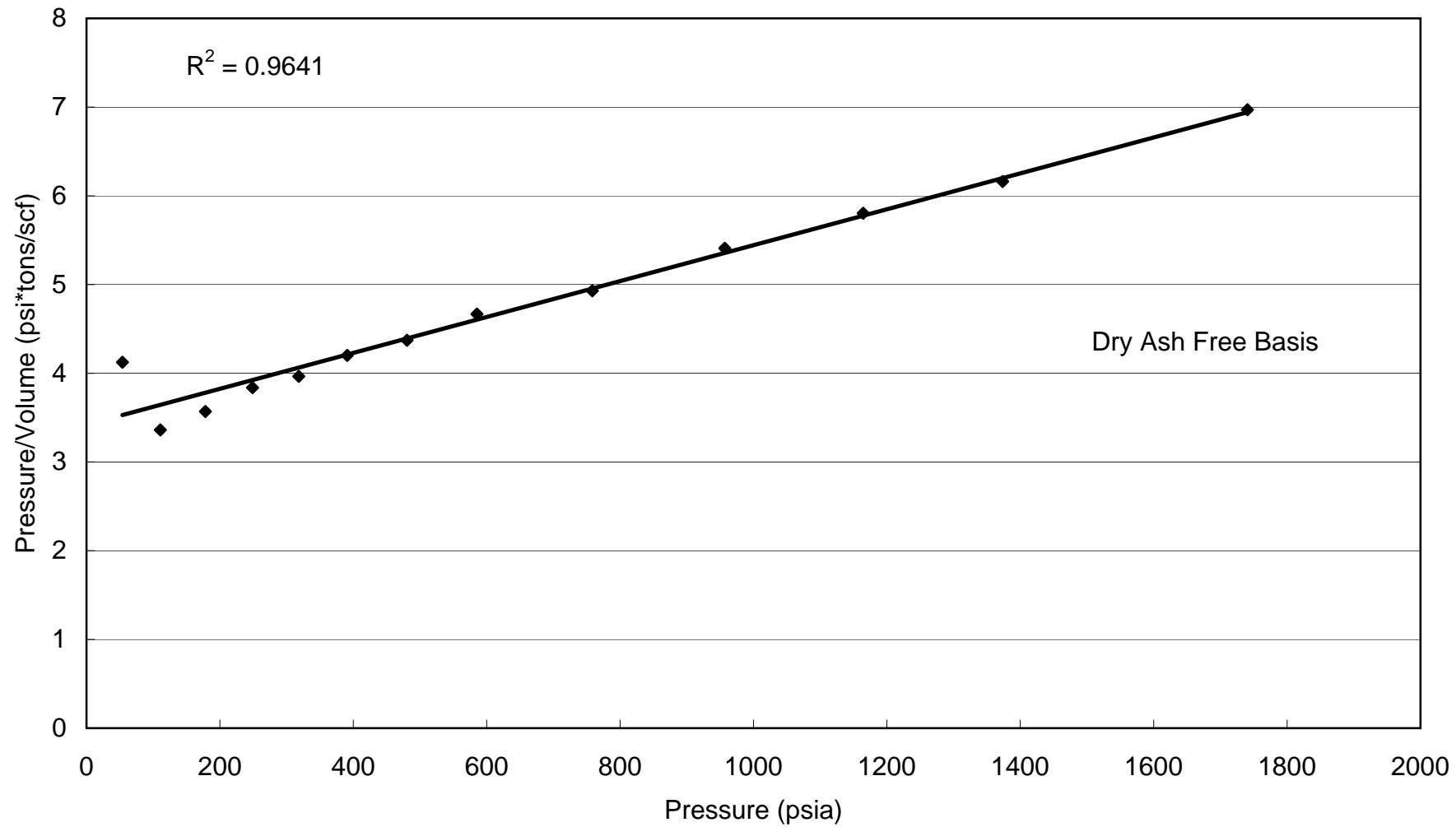
5-1B Methane (moisture free, ash included basis)



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



Adsorption Langmuir Plot



5-1B Methane

Methane Adsorption (SI Units)

Summary of Analyses

	As Received	DAF basis
Langmuir Volume cc/g	9.11	14.53
Langmuir Pressure MPa	11.65	11.65
Goodness of fit Langmuir Equation R-squared	0.96	0.96
Ash Content Wt.%	13.10	13.10
Equilibrium Moisture Wt.%	24.21	24.21

Contents of Appendix

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As Received
Dry Ash Free
Dry Ash Included
Moist Ash Free

Charts

As Received
Dry Ash Free
Dry Ash Included
Moist Ash Free

5-1B Methane
GAS ADSORPTION ISOTHERM SI UNITS

AS RECEIVED BASIS

Sample I.D. :	5-1B Methane	Moisture Content (EQ) % :	24.21
Isotherm Temperature ° C: 42		Ash Content % :	13.10
Gas used:	Methane	Helium Density g/cc	1.368

PRESSURE (MPa)	ADSORBED GAS (cc/g @STP)	P / V
0.372	0.24	1.543
0.764	0.61	1.258
1.229	0.92	1.336
1.717	1.20	1.436
2.195	1.48	1.484
2.695	1.71	1.572
3.313	2.03	1.636
4.036	2.31	1.746
5.229	2.83	1.845
6.599	3.26	2.024
8.029	3.70	2.172
9.470	4.11	2.306
12.001	4.60	2.608

Saturated Monolayer Volume (cc/g @ STP):	9.11
Langmuir Pressure (MPa):	11.65

DRY ASH FREE BASIS

0.372	0.38	0.967
0.764	0.97	0.788
1.229	1.47	0.837
1.717	1.91	0.900
2.195	2.36	0.930
2.695	2.73	0.986
3.313	3.23	1.026
4.036	3.69	1.095
5.229	4.52	1.157
6.599	5.20	1.269
8.029	5.90	1.362
9.470	6.55	1.446
12.001	7.34	1.635

Saturated Monolayer Volume (cc/g @ STP, daf):	14.53
Langmuir Pressure (MPa):	11.65
Correlation Coefficient:	0.9641

5-1B Methane

GAS ADSORPTION ISOTHERM SI UNITS

MOISTURE FREE ASH INCLUDED

Isotherm Temperature ° C:	42	Moisture Content (EQ) % :	24.21
Gas used:	Methane	Ash Content % :	13.10
		Helium Density g/cc	1.368

PRESSURE (MPa)	ADSORBED GAS (cc/g@STP)	P / V
0.372	0.32	1.17
0.764	0.80	0.95
1.229	1.21	1.01
1.717	1.58	1.09
2.195	1.95	1.12
2.695	2.26	1.19
3.313	2.67	1.24
4.036	3.05	1.32
5.229	3.74	1.40
6.599	4.30	1.53
8.029	4.88	1.65
9.470	5.42	1.75
12.001	6.07	1.98

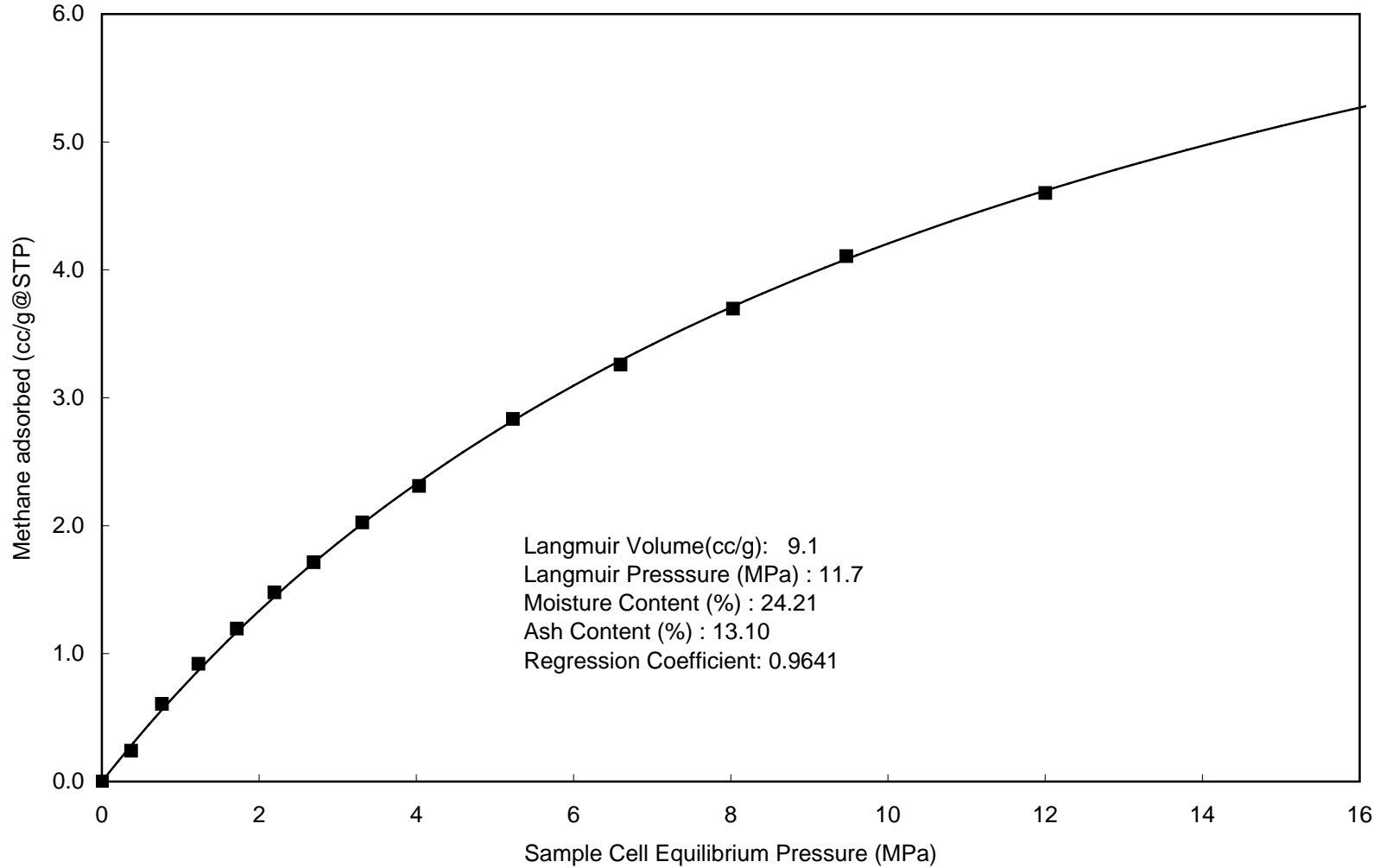
Saturated Monolayer Volume (cc/g):	12.01
Langmuir Pressure (MPa):	11.65

ASH FREE MOISTURE INCLUDED

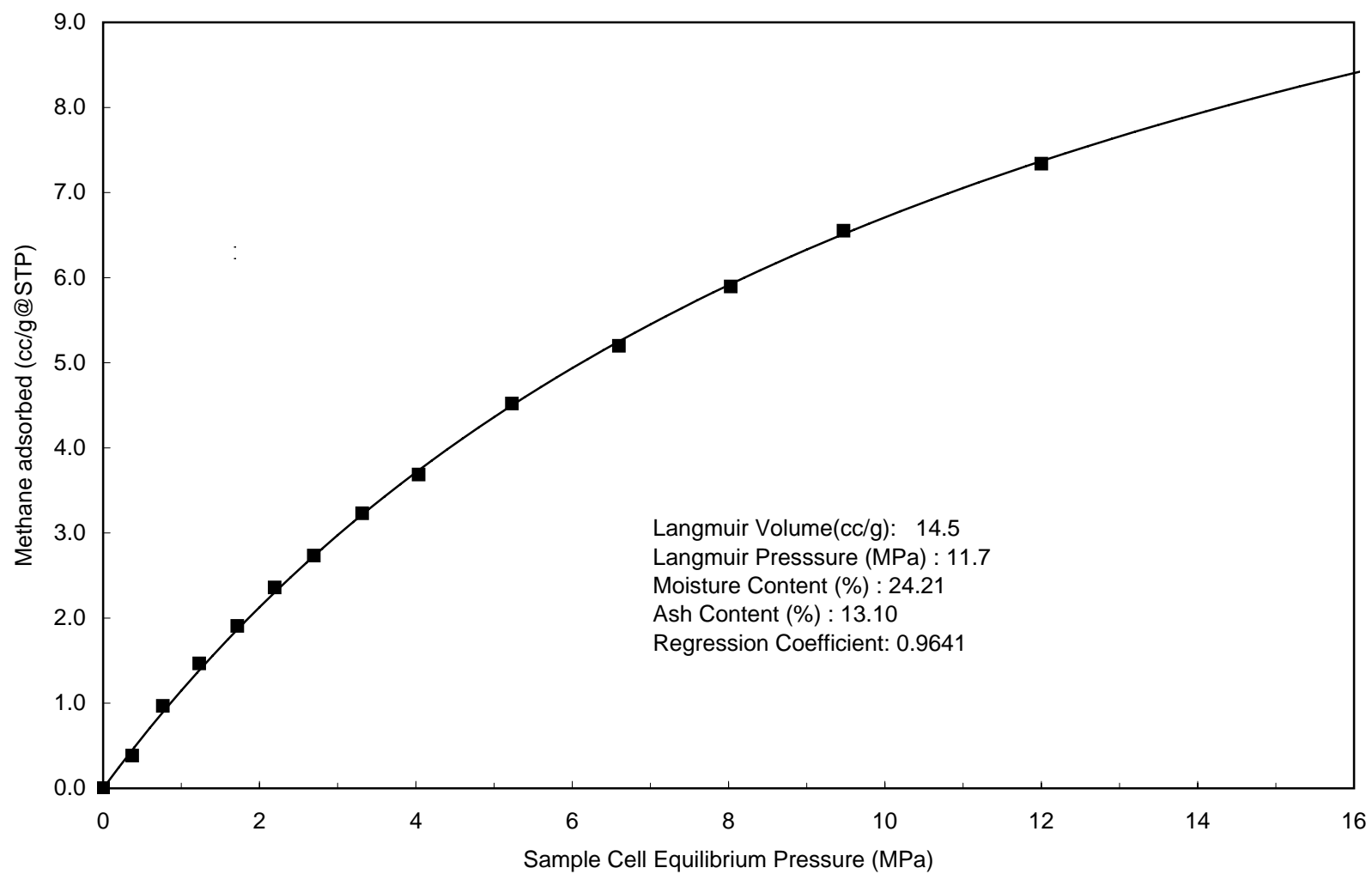
0.372	0.28	0.00
0.764	0.70	1.09
1.229	1.06	1.16
1.717	1.38	1.25
2.195	1.70	1.29
2.695	1.97	1.37
3.313	2.33	1.42
4.036	2.66	1.52
5.229	3.26	1.60
6.599	3.75	1.76
8.029	4.25	1.89
9.470	4.73	2.00
12.001	5.29	2.27

Saturated Monolayer Volume (cc/g, ash free):	10.48
Langmuir Pressure (MPa):	11.65
Correlation Coefficient:	0.9641

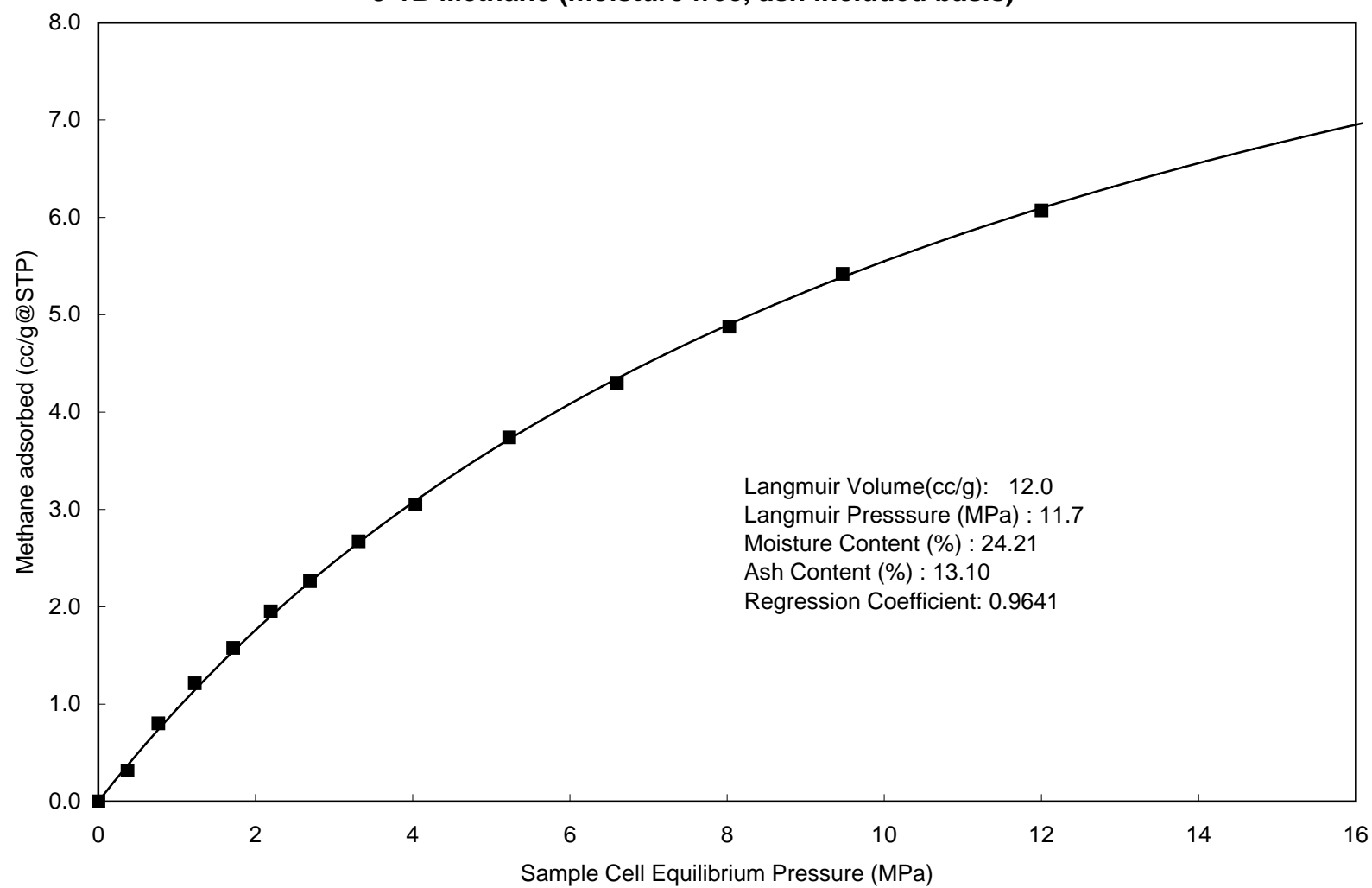
5-1B Methane (as received basis)



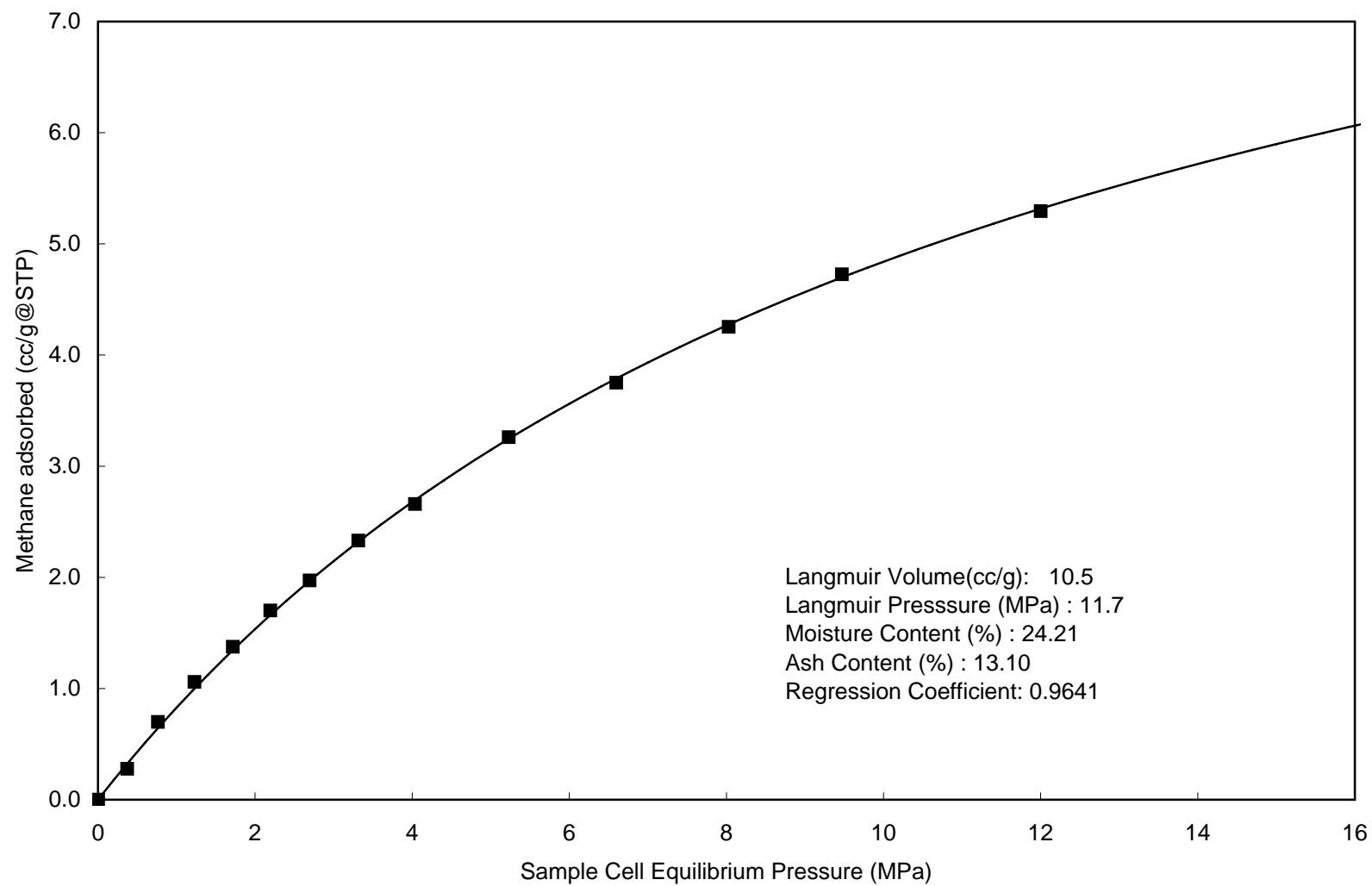
5-1B Methane (dry & ash free basis)



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



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



Adsorption Langmuir Plot

