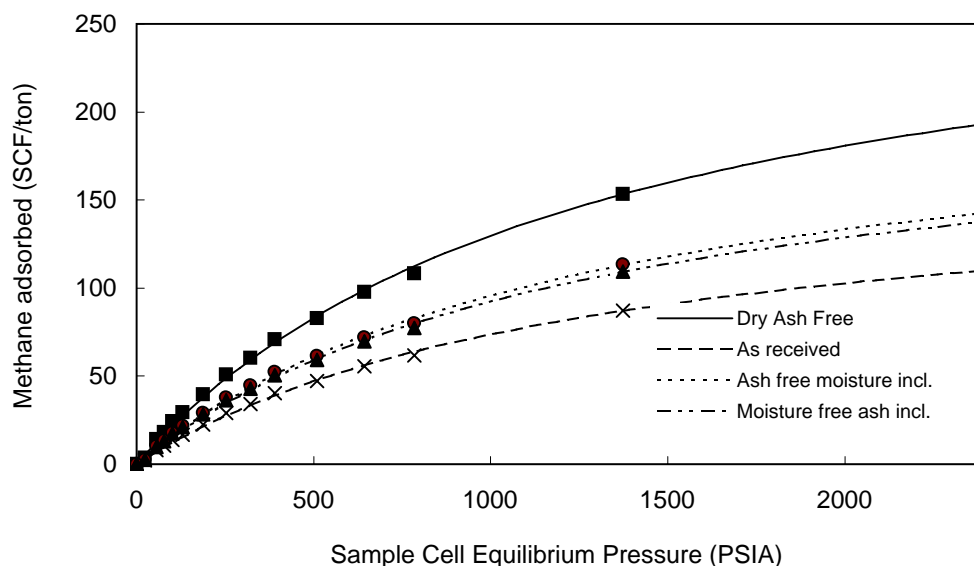


9-1C Methane



Pressure (PSIA)	Adsorbed gas (ft ³ /ton)			
	As Received	moisture free ash incl.	ash free moisture incl.	Dry Ash Free
23	2.1	2.6	2.7	3.6
57	8.0	10.0	10.4	14.0
77	10.4	13.0	13.4	18.2
102	13.8	17.3	17.9	24.2
130	16.7	20.9	21.7	29.3
187	22.5	28.2	29.2	39.6
253	29.0	36.3	37.6	51.0
322	34.3	43.0	44.5	60.3
391	40.4	50.5	52.4	70.9
510	47.2	59.1	61.2	82.9
644	55.6	69.6	72.1	97.6
785	61.7	77.2	80.0	108.4
1374	87.4	109.4	113.4	153.5

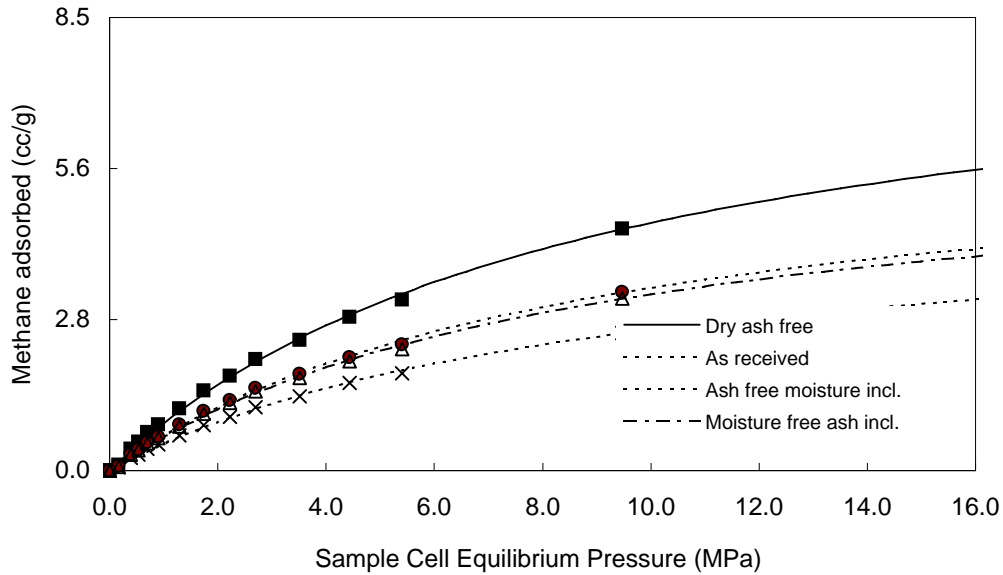
Langmuir Parameters

	As Received	Moisture free ash incl	Ash free moisture incl	Dry Ash Free
Vol. (ft ³ /ton)	169.4	212.1	219.8	297.6
Pressure (PSIA)	1292.3	1292.3	1292.3	1292.3

SUMMARY OF ADSORPTION ANALYSES IMP. UNITS

Isotherm Temperature: 107.6 °F
 Goodness of fit of Langmuir regression: 0.80
 % Ash= 22.94 % Moisture= 20.14 Density g/cc 1.488

9-1C Methane



Pressure (MPa)	Adsorbed gas (cc/g)			
	As Received	Moisture free ash incl.	ash free moisture incl	Dry Ash Free
0.160	0.06	0.08	0.08	0.11
0.390	0.23	0.29	0.30	0.41
0.530	0.30	0.38	0.40	0.54
0.702	0.41	0.51	0.53	0.71
0.895	0.49	0.61	0.64	0.86
1.292	0.66	0.83	0.86	1.16
1.744	0.85	1.07	1.11	1.50
2.219	1.01	1.26	1.31	1.77
2.695	1.19	1.49	1.54	2.08
3.516	1.39	1.74	1.80	2.44
4.439	1.63	2.05	2.12	2.87
5.410	1.81	2.27	2.35	3.18
9.470	2.57	3.22	3.33	4.51

Langmuir Parameters

	As Received	Moisture free ash incl.	Ash free moisture incl	Dry Ash Free
Vol. (cc/g)	4.98	6.23	6.46	8.74
Pressure (MPa)	8.91	8.91	8.91	8.91

SUMMARY OF ADSORPTION ANALYSES SI UNITS

Isotherm Temperature:

42.0 °C

Goodness of fit of Langmuir regression:

0.80

% Ash= 22.94

% Moisture =

20.14

Density (g/cc)

1.488

9-1C Methane

Methane Adsorption (Imperial Units)

Summary of Analyses

	As Received	DAF basis
Langmuir Volume (SCF)	169	298
Langmuir Pressure (PSIA)	1292	1292
Goodness of fit Langmuir		
Equation R-squared	0.80	0.80
Ash Content Wt.%	22.94	22.94
Equilibrium Moisture Wt.%	20.14	20.14

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

9-1C Methane
GAS ADSORPTION ISOTHERM IMPERIAL UNITS

AS RECEIVED BASIS

Isotherm Temperature ° F:	107.6	Moisture Content % :	20.14
Gas used:	Methane	Ash Content, % :	22.94
		Helium Density g/cc	1.488

PRESSURE (PSI)	ADSORBED GAS (SCF/ton)	P / V
23	2.07	11.26
57	7.98	7.09
77	10.36	7.41
102	13.80	7.38
130	16.70	7.78
187	22.54	8.32
253	29.01	8.72
322	34.33	9.38
391	40.35	9.68
510	47.19	10.81
644	55.58	11.58
785	61.68	12.72
1374	87.37	15.72

Saturated Monolayer Volume (SCF/ton):	169.4
Langmuir Pressure (PSIA):	1292.3
Correlation Coefficient:	0.8013

DRY ASH FREE BASIS

23	3.63	6.41
57	14.02	4.04
77	18.21	4.22
102	24.25	4.20
130	29.34	4.43
187	39.59	4.73
253	50.97	4.96
322	60.31	5.34
391	70.90	5.51
510	82.91	6.15
644	97.65	6.59
785	108.37	7.24
1374	153.49	8.95

Saturated Monolayer Volume (SCF/ton, daf):	298
Langmuir Pressure (PSIA):	1292
Correlation Coefficient:	0.8013

9-1C Methane

GAS ADSORPTION ISOTHERM IMPERIAL UNITS

MOISTURE FREE ASH INCLUDED

Isotherm Temperature° F:	107.6	Moisture Content % :	20.14
Gas used:	Methane	Ash Content, % :	22.94
		Helium Density g/cc	1.488

PRESSURE (PSI)	ADSORBED GAS (SCF/ton)	P / V
23	3	8.99
57	10	5.66
77	13	5.92
102	17	5.89
130	21	6.21
187	28	6.64
253	36	6.96
322	43	7.49
391	51	7.73
510	59	8.63
644	70	9.25
785	77	10.16
1374	109	12.56

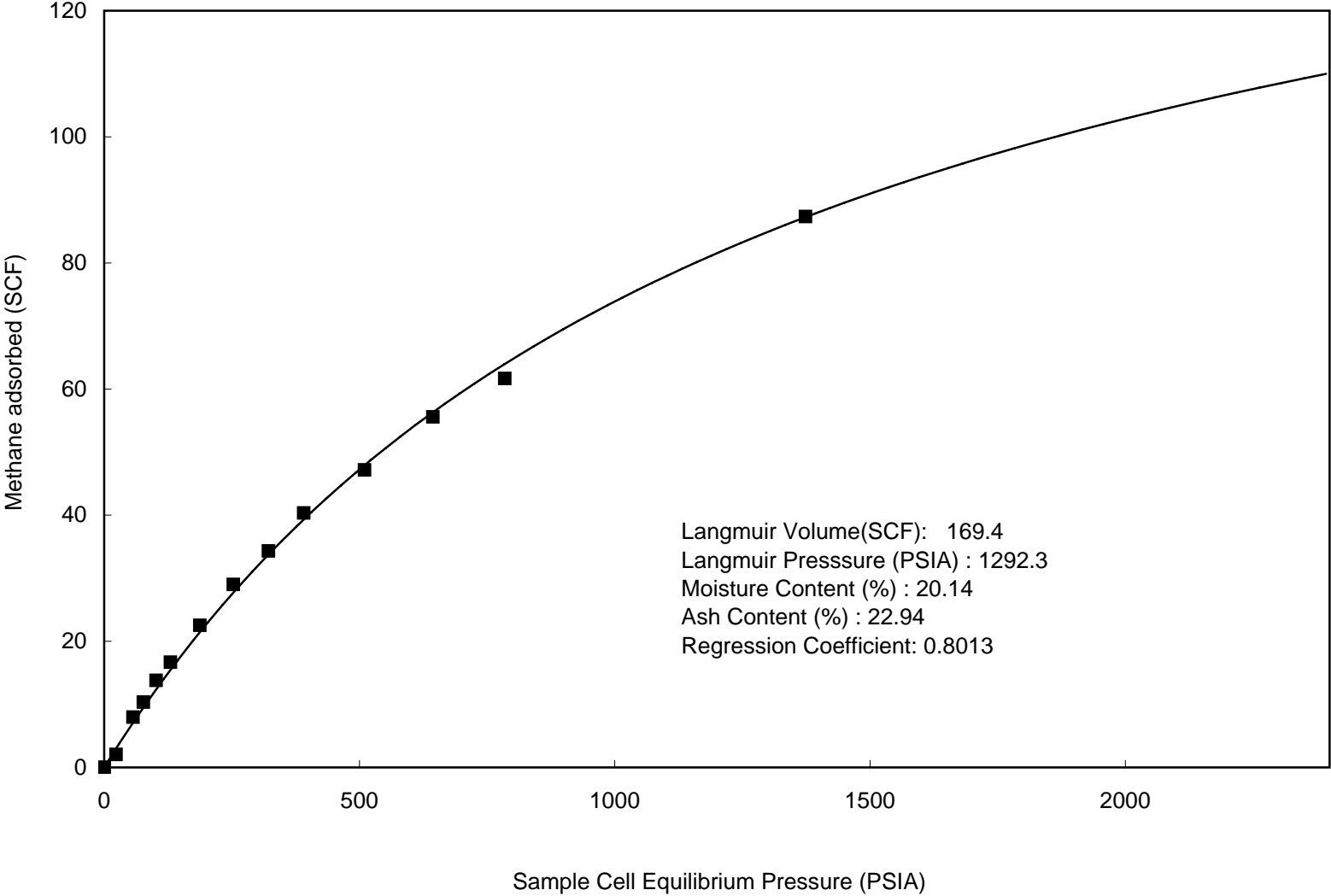
Saturated Monolayer Volume (SCF/ton):	212
Langmuir Pressure (PSIA):	1292
Correlation Coefficient:	0.8013

ASH FREE MOISTURE INCLUDED

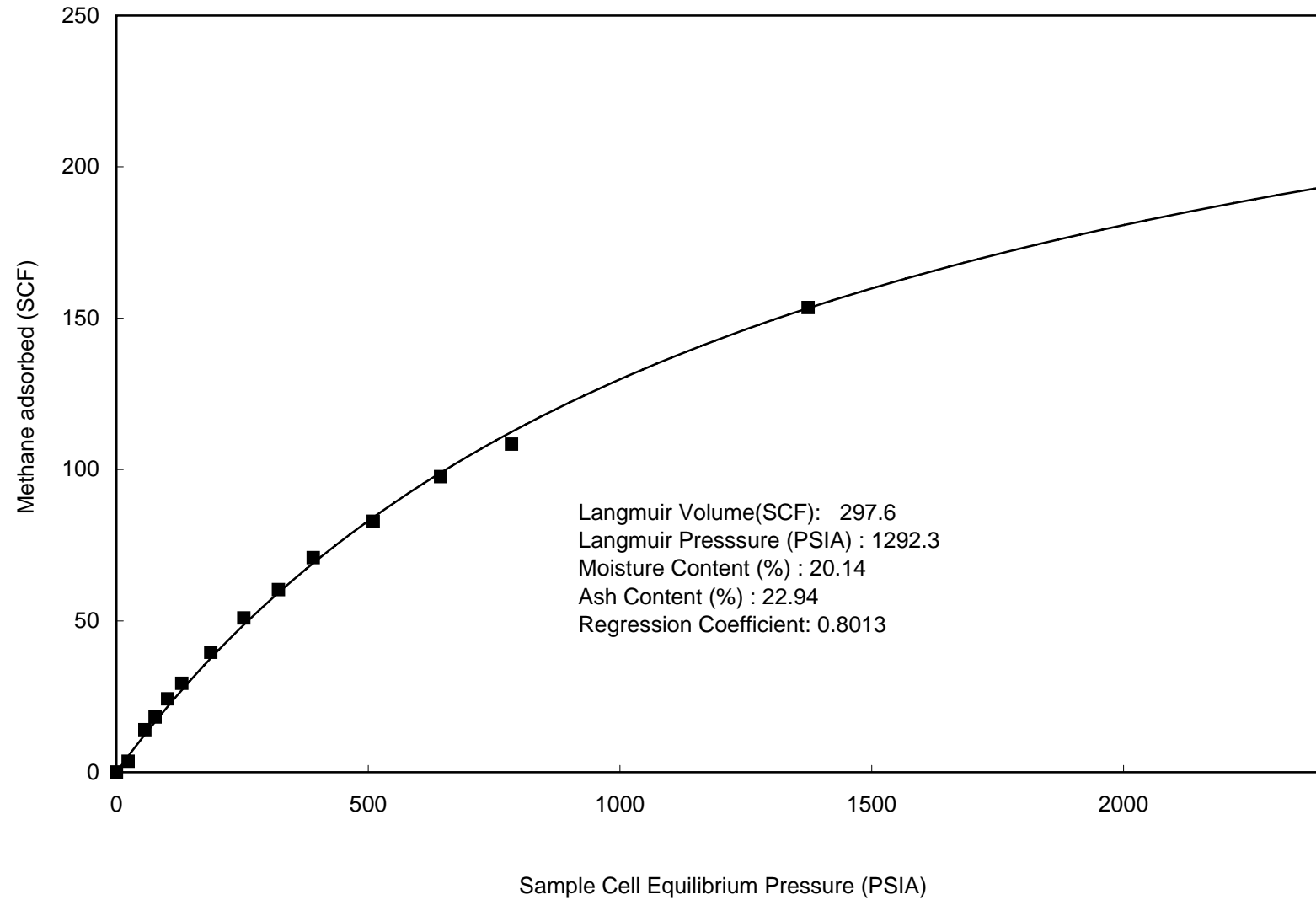
23	3	8.67
57	10	5.47
77	13	5.71
102	18	5.69
130	22	5.99
187	29	6.41
253	38	6.72
322	45	7.23
391	52	7.46
510	61	8.33
644	72	8.93
785	80	9.80
1374	113	12.12

Saturated Monolayer Volume (SCF/ton):	220
Langmuir Pressure (PSIA):	1292
Correlation Coefficient:	0.8013

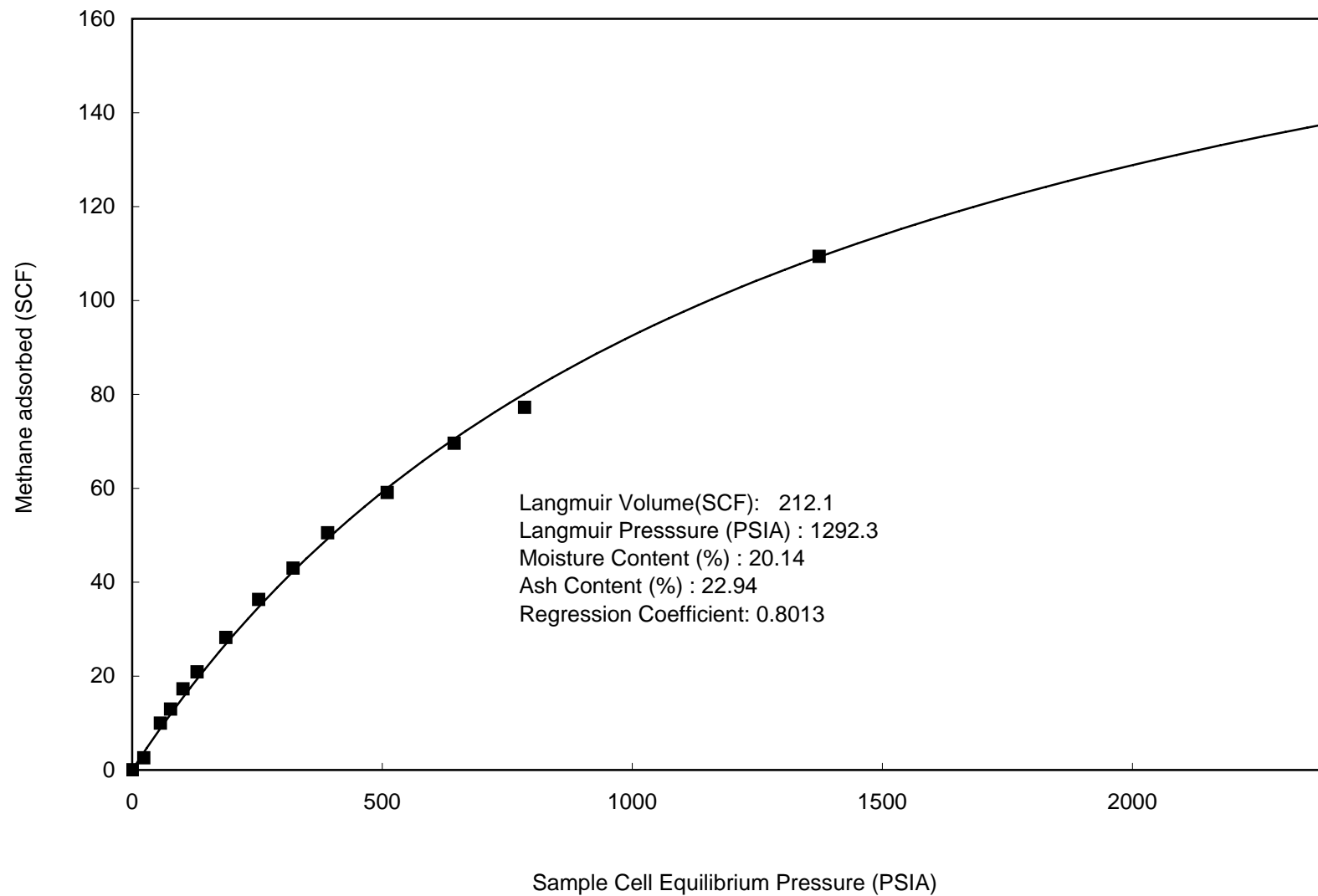
9-1C Methane (as received basis)



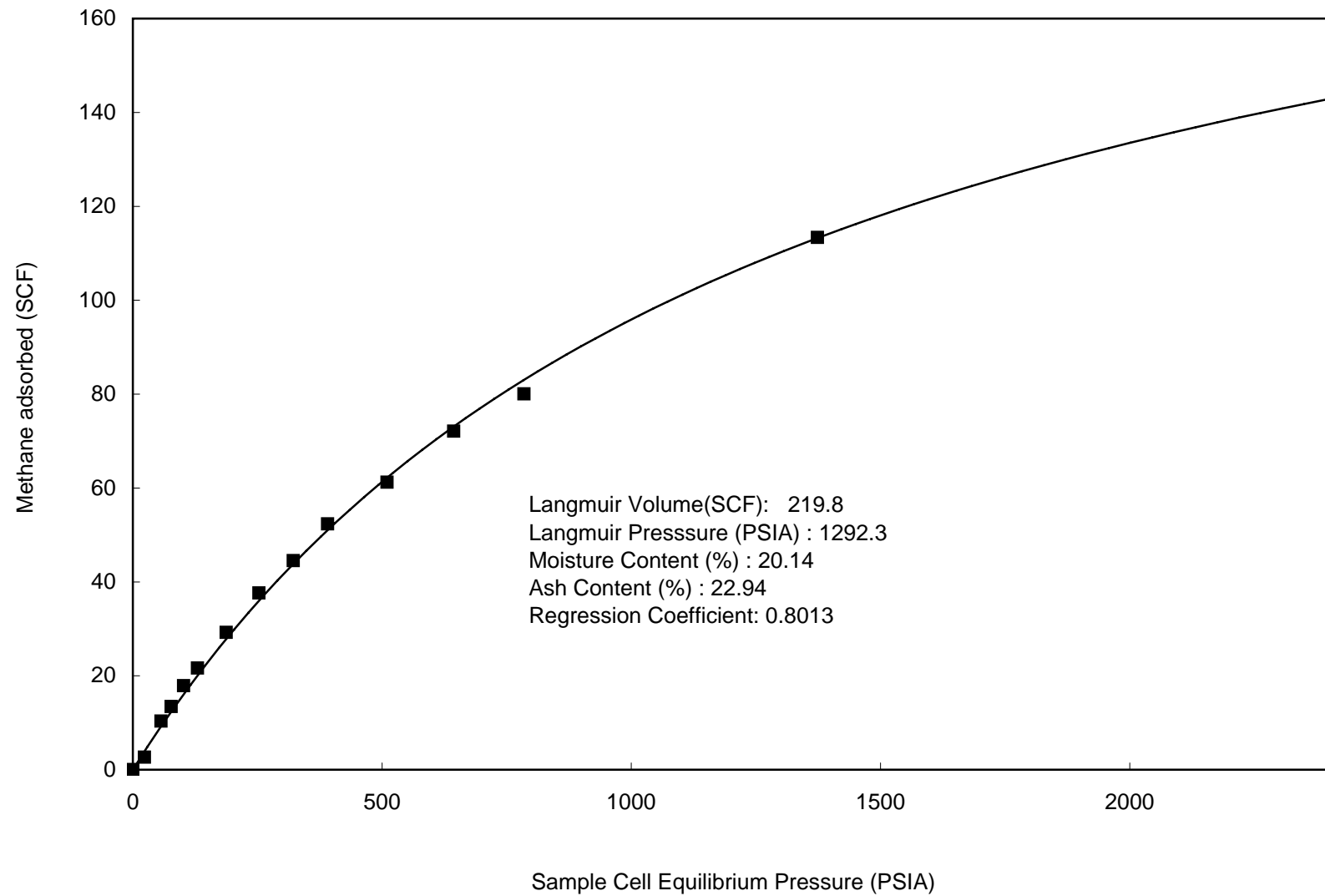
9-1C Methane (dry & ash free basis)



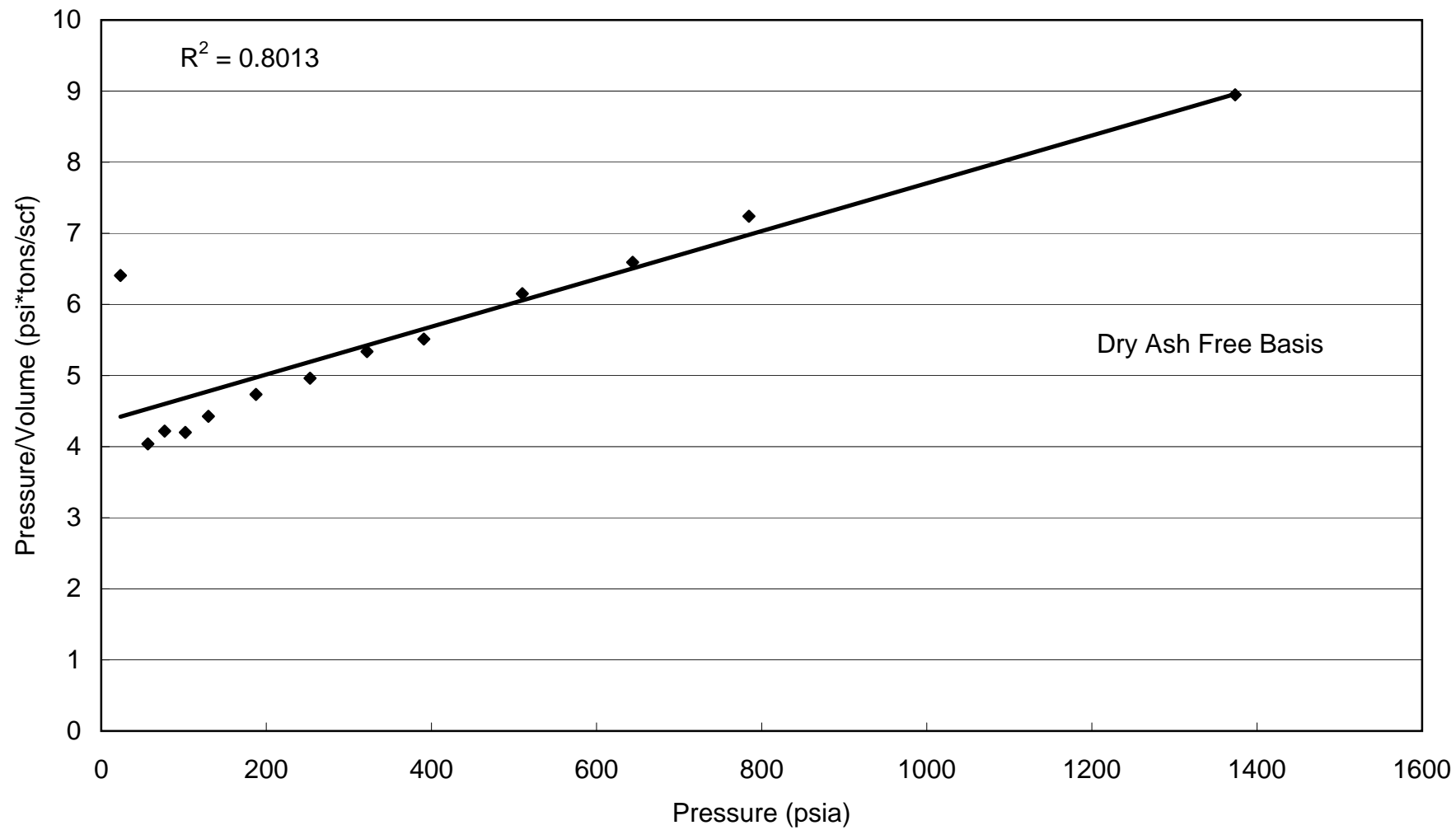
9-1C Methane (moisture free, ash included basis)



9-1C Methane (ash free, moisture included basis)



Adsorption Langmuir Plot



9-1C Methane

Methane Adsorption (SI Units)

Summary of Analyses

	As Received	DAF basis
Langmuir Volume cc/g	4.98	8.74
Langmuir Pressure MPa	8.91	8.91
Goodness of fit Langmuir Equation R-squared	0.80	0.80
Ash Content Wt.%	22.94	22.94
Equilibrium Moisture Wt.%	20.14	20.14

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

9-1C Methane
GAS ADSORPTION ISOTHERM SI UNITS

AS RECEIVED BASIS

Sample I.D. :	9-1C Methane	Moisture Content (EQ) % :	20.14
Isotherm Temperature ° C: 42		Ash Content % :	22.94
Gas used:	Methane	Helium Density g/cc	1.488

PRESSURE (MPa)	ADSORBED GAS (cc/g @STP)	P / V
0.160	0.06	2.641
0.390	0.23	1.664
0.530	0.30	1.739
0.702	0.41	1.731
0.895	0.49	1.824
1.292	0.66	1.951
1.744	0.85	2.045
2.219	1.01	2.200
2.695	1.19	2.272
3.516	1.39	2.536
4.439	1.63	2.717
5.410	1.81	2.984
9.470	2.57	3.688

Saturated Monolayer Volume (cc/g @ STP):	4.98
Langmuir Pressure (MPa):	8.91

DRY ASH FREE BASIS

0.160	0.11	1.503
0.390	0.41	0.947
0.530	0.54	0.990
0.702	0.71	0.985
0.895	0.86	1.038
1.292	1.16	1.111
1.744	1.50	1.164
2.219	1.77	1.252
2.695	2.08	1.293
3.516	2.44	1.443
4.439	2.87	1.547
5.410	3.18	1.699
9.470	4.51	2.099

Saturated Monolayer Volume (cc/g @ STP, daf):	8.74
Langmuir Pressure (MPa):	8.91
Correlation Coefficient:	0.8013

9-1C Methane

GAS ADSORPTION ISOTHERM SI UNITS

MOISTURE FREE ASH INCLUDED

Isotherm Temperature ° C:	42	Moisture Content (EQ) % :	20.14
Gas used:	Methane	Ash Content % :	22.94
		Helium Density g/cc	1.488

PRESSURE (MPa)	ADSORBED GAS (cc/g@STP)	P / V
0.160	0.08	2.11
0.390	0.29	1.33
0.530	0.38	1.39
0.702	0.51	1.38
0.895	0.61	1.46
1.292	0.83	1.56
1.744	1.07	1.63
2.219	1.26	1.76
2.695	1.49	1.81
3.516	1.74	2.02
4.439	2.05	2.17
5.410	2.27	2.38
9.470	3.22	2.95

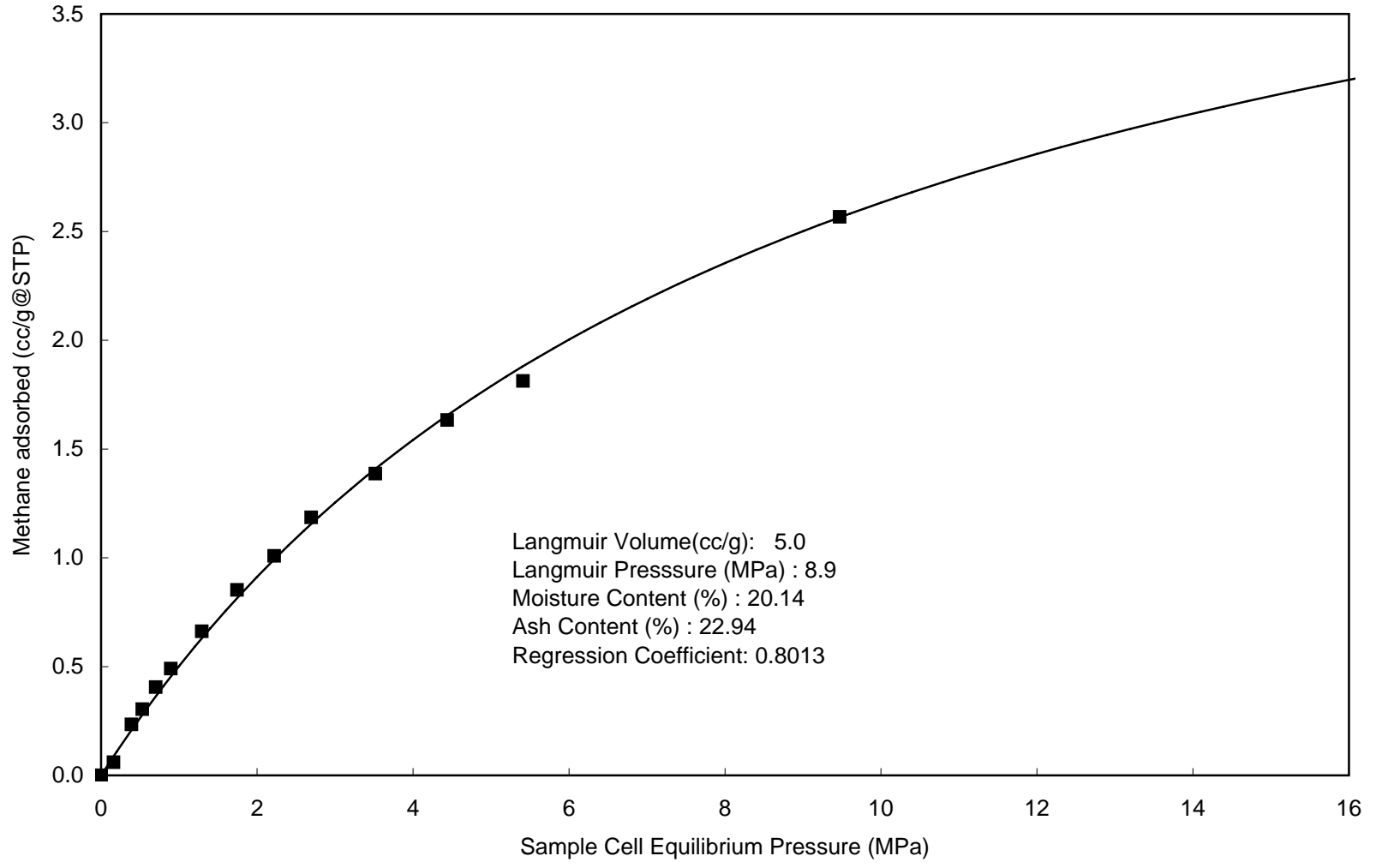
Saturated Monolayer Volume (cc/g):	6.23
Langmuir Pressure (MPa):	8.91

ASH FREE MOISTURE INCLUDED

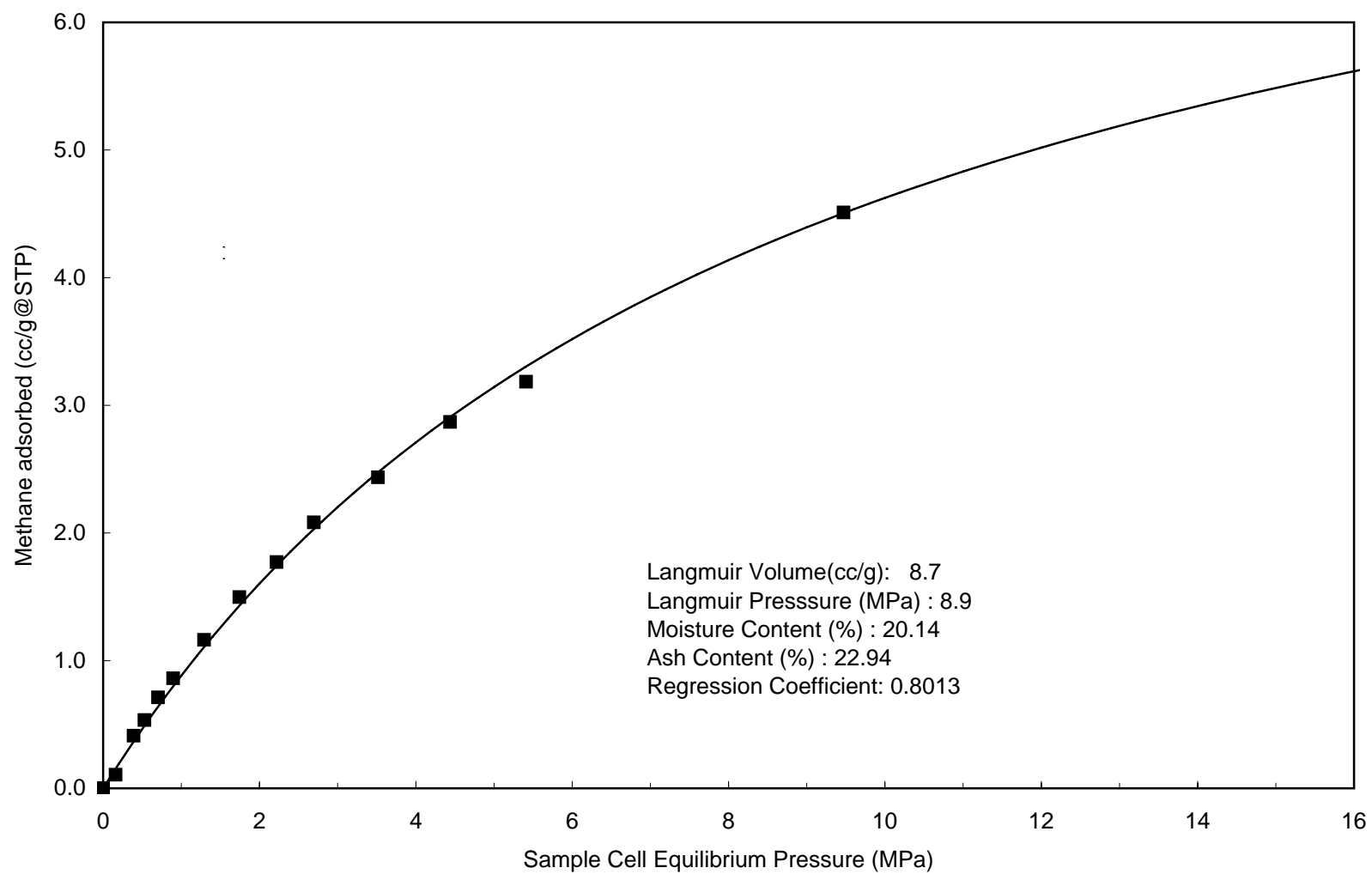
0.160	0.08	0.00
0.390	0.30	1.28
0.530	0.40	1.34
0.702	0.53	1.33
0.895	0.64	1.41
1.292	0.86	1.50
1.744	1.11	1.58
2.219	1.31	1.70
2.695	1.54	1.75
3.516	1.80	1.95
4.439	2.12	2.09
5.410	2.35	2.30
9.470	3.33	2.84

Saturated Monolayer Volume (cc/g, ash free):	6.46
Langmuir Pressure (MPa):	8.91
Correlation Coefficient:	0.8013

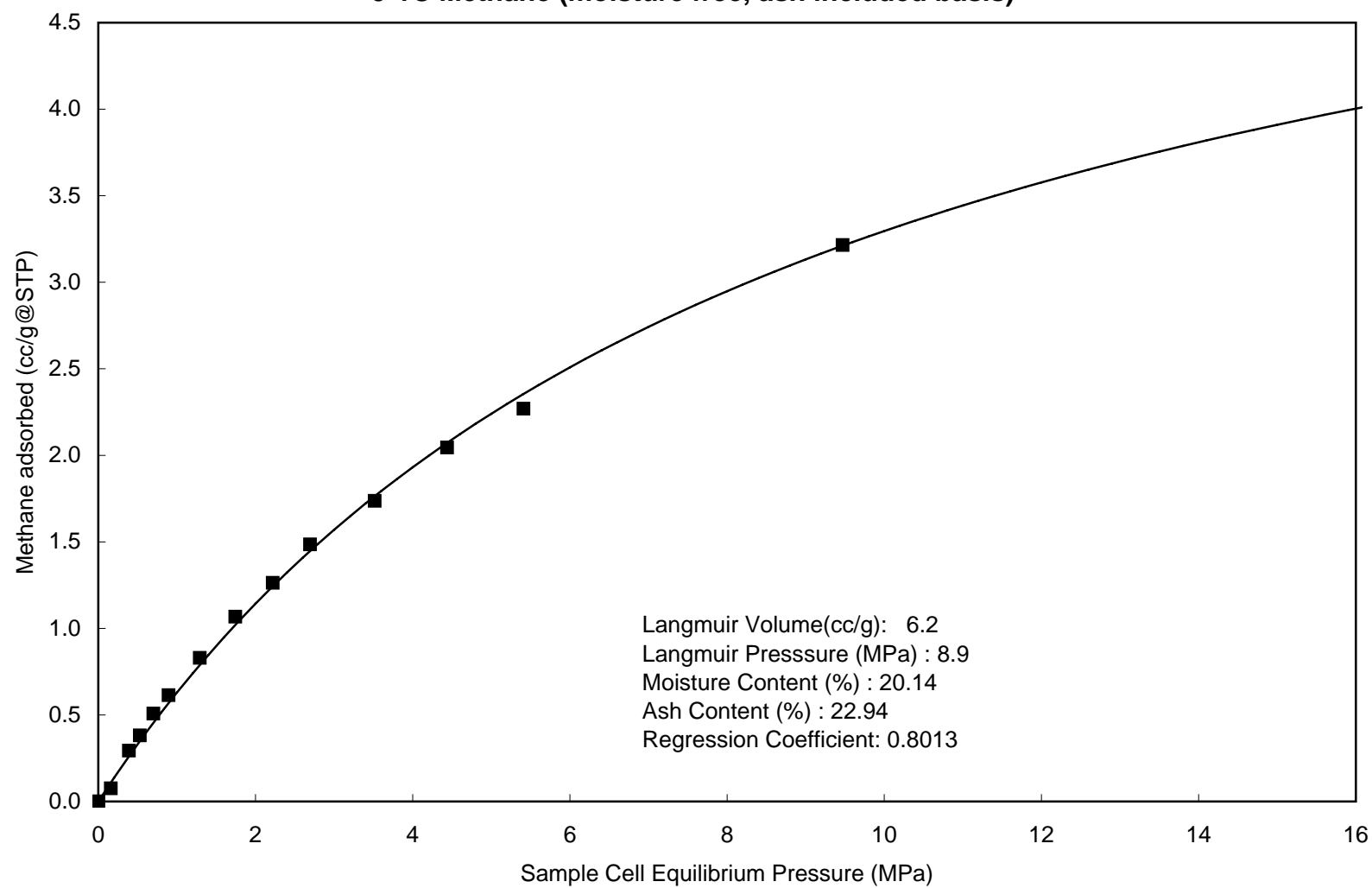
9-1C Methane (as received basis)



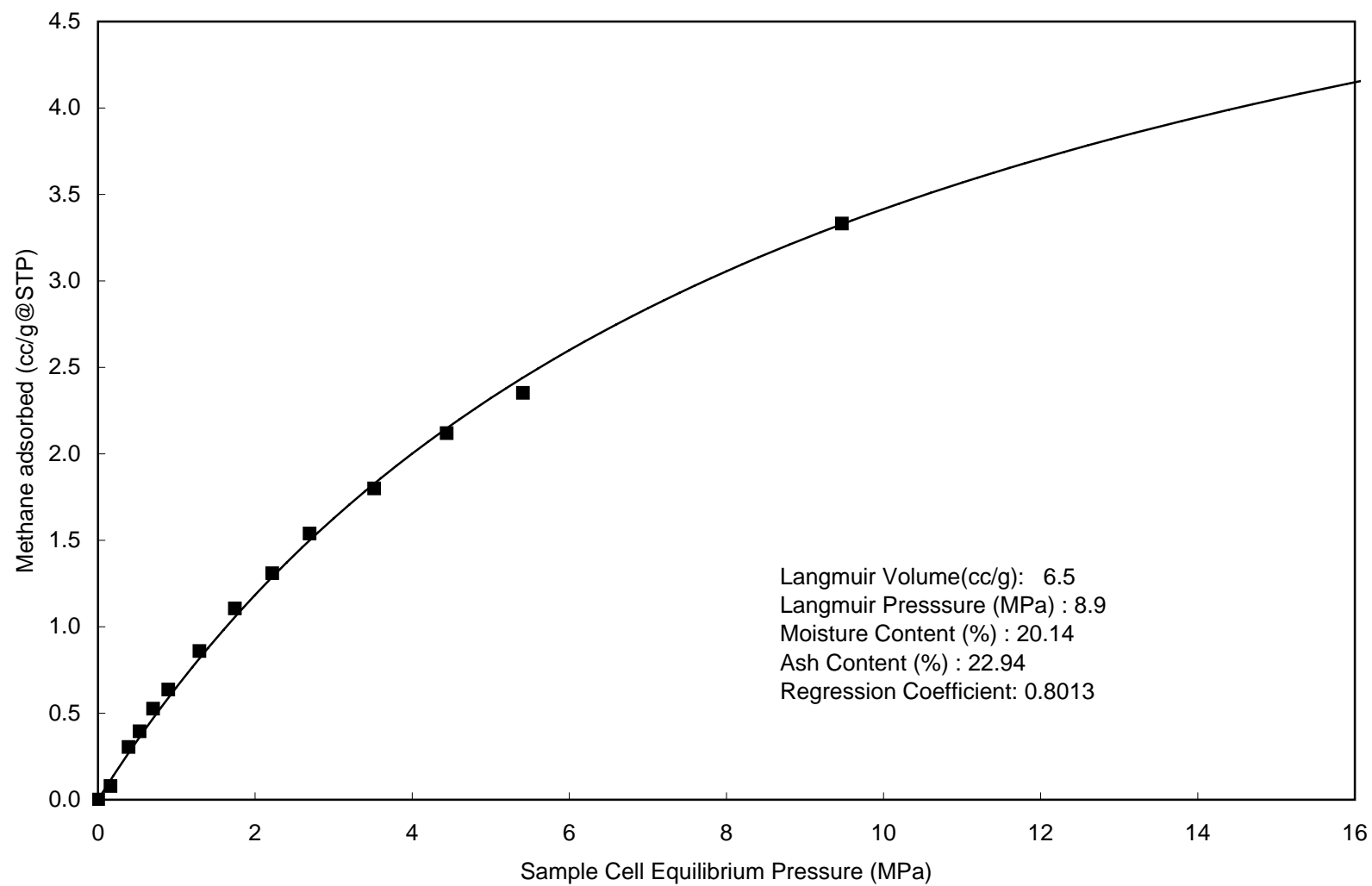
9-1C Methane (dry & ash free basis)



9-1C Methane (moisture free, ash included basis)



9-1C Methane (ash free, moisture included basis)



Adsorption Langmuir Plot

