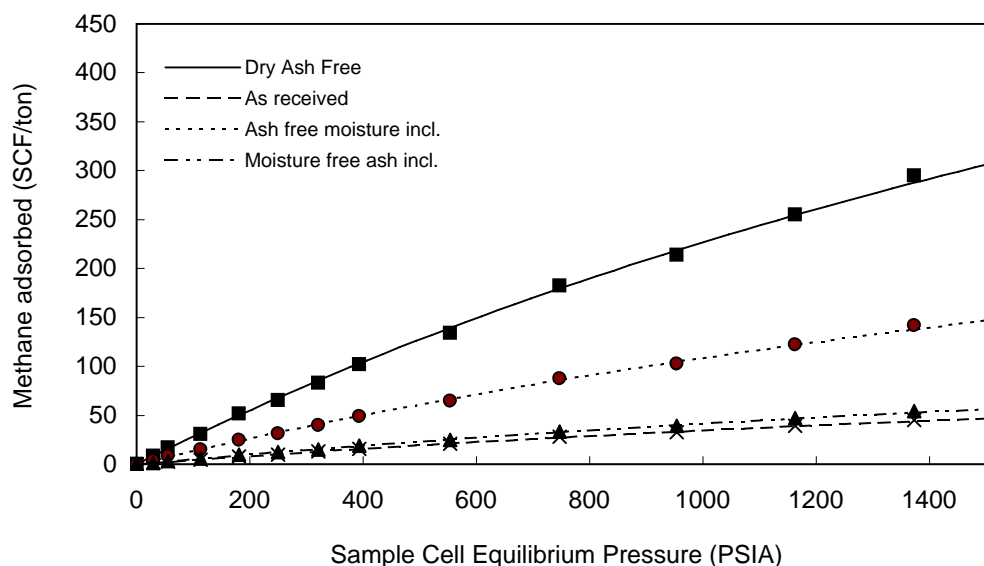


4-LA-8 Methane



Pressure (PSIA)	Adsorbed gas (ft ³ /ton)			
	As Received	moisture free ash incl.	ash free moisture incl.	Dry Ash Free
29	1.3	1.6	4.1	8.6
56	2.6	3.2	8.2	17.2
113	4.8	5.7	14.9	31.0
180	7.9	9.5	24.8	51.7
250	10.1	12.1	31.5	65.7
320	12.8	15.3	39.9	83.1
393	15.7	18.8	49.1	102.2
553	20.6	24.8	64.5	134.3
747	28.0	33.6	87.5	182.2
954	32.9	39.4	102.7	214.0
1162	39.1	47.0	122.3	254.8
1372	45.3	54.4	141.6	295.0

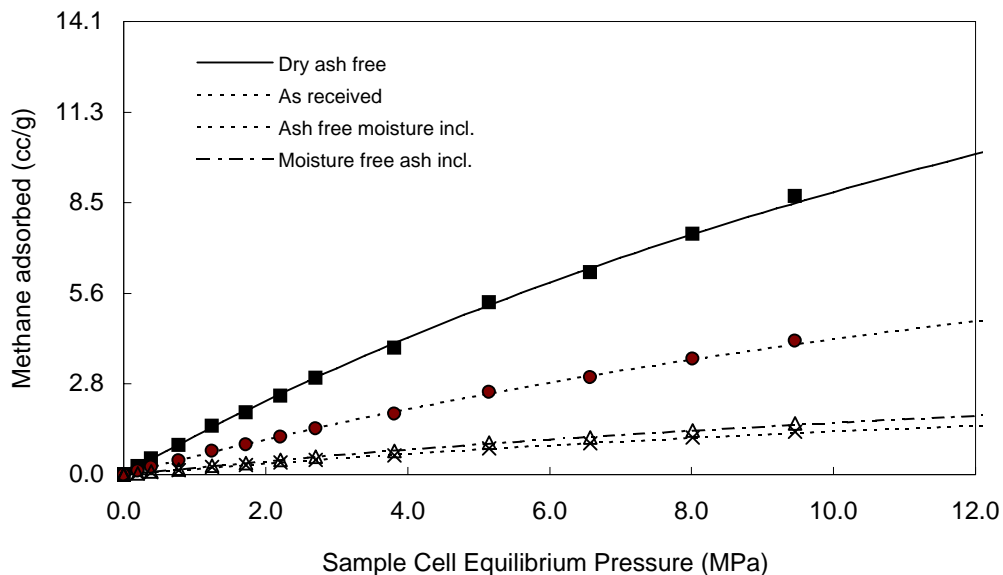
Langmuir Parameters

	As Received	Moisture free ash incl	Ash free moisture incl	Dry Ash Free
Vol. (ft ³ /ton)	157.4	188.8	491.8	1024.6
Pressure (PSIA)	3517.5	3517.5	3517.5	3517.5

SUMMARY OF ADSORPTION ANALYSES IMP. UNITS

Isotherm Temperature: 107.8 °F
 Goodness of fit of Langmuir regression: 0.93
 % Ash= 68.00 % Moisture= 16.64 Density g/cc 2.107

4-LA-8 Methane



Pressure (MPa)	Adsorbed gas (cc/g)			
	As Received	Moisture free ash incl.	ash free moisture incl	Dry Ash Free
0.203	0.04	0.05	0.12	0.25
0.385	0.08	0.09	0.24	0.51
0.777	0.14	0.17	0.44	0.91
1.243	0.23	0.28	0.73	1.52
1.725	0.30	0.36	0.93	1.93
2.210	0.38	0.45	1.17	2.44
2.708	0.46	0.55	1.44	3.00
3.816	0.61	0.73	1.90	3.95
5.151	0.82	0.99	2.57	5.36
6.575	0.97	1.16	3.02	6.29
8.012	1.15	1.38	3.59	7.49
9.461	1.33	1.60	4.16	8.67

Langmuir Parameters

	As Received	Moisture free ash incl.	Ash free moisture incl	Dry Ash Free
Vol. (cc/g)	4.63	5.55	14.45	30.11
Pressure (MPa)	24.25	24.25	24.25	24.25

SUMMARY OF ADSORPTION ANALYSES SI UNITS

Isotherm Temperature:

42.1 °C

Goodness of fit of Langmuir regression:

0.93

% Ash= 68.00

% Moisture =

16.64

Density (g/cc)

2.107

4-LA-8 Methane

Methane Adsorption (Imperial Units)

Summary of Analyses

	As Received	DAF basis
Langmuir Volume (SCF)	157	1025
Langmuir Pressure (PSIA)	3518	3518
Goodness of fit Langmuir		
Equation R-squared	0.93	0.93
Ash Content Wt.%	68.00	68.00
Equilibrium Moisture Wt.%	16.64	16.64

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

4-LA-8 Methane

GAS ADSORPTION ISOTHERM IMPERIAL UNITS

AS RECEIVED BASIS

Isotherm Temperature ° F:	107.8	Moisture Content % :	16.64
Gas used:	Methane	Ash Content, % :	68.00
		Helium Density g/cc	2.107

PRESSURE (PSI)	ADSORBED GAS (SCF/ton)	P / V
29	1.32	22.30
56	2.64	21.13
113	4.77	23.63
180	7.94	22.70
250	10.09	24.78
320	12.76	25.11
393	15.70	25.03
553	20.63	26.82
747	27.99	26.69
954	32.87	29.02
1162	39.14	29.69
1372	45.31	30.28

Saturated Monolayer Volume (SCF/ton):	157.4
Langmuir Pressure (PSIA):	3517.5
Correlation Coefficient:	0.9300

DRY ASH FREE BASIS

29	8.59	3.42
56	17.19	3.25
113	31.03	3.63
180	51.70	3.49
250	65.72	3.81
320	83.10	3.86
393	102.19	3.84
553	134.34	4.12
747	182.21	4.10
954	213.97	4.46
1162	254.82	4.56
1372	295.02	4.65

Saturated Monolayer Volume (SCF/ton, daf):	1025
Langmuir Pressure (PSIA):	3518
Correlation Coefficient:	0.9300

4-LA-8 Methane

GAS ADSORPTION ISOTHERM IMPERIAL UNITS

MOISTURE FREE ASH INCLUDED

Isotherm Temperature° F:	107.8	Moisture Content % :	16.64
Gas used:	Methane	Ash Content, % :	68.00
		Helium Density g/cc	2.107

PRESSURE (PSI)	ADSORBED GAS (SCF/ton)	P / V
29	2	18.59
56	3	17.61
113	6	19.70
180	10	18.92
250	12	20.66
320	15	20.93
393	19	20.86
553	25	22.36
747	34	22.25
954	39	24.19
1162	47	24.75
1372	54	25.24

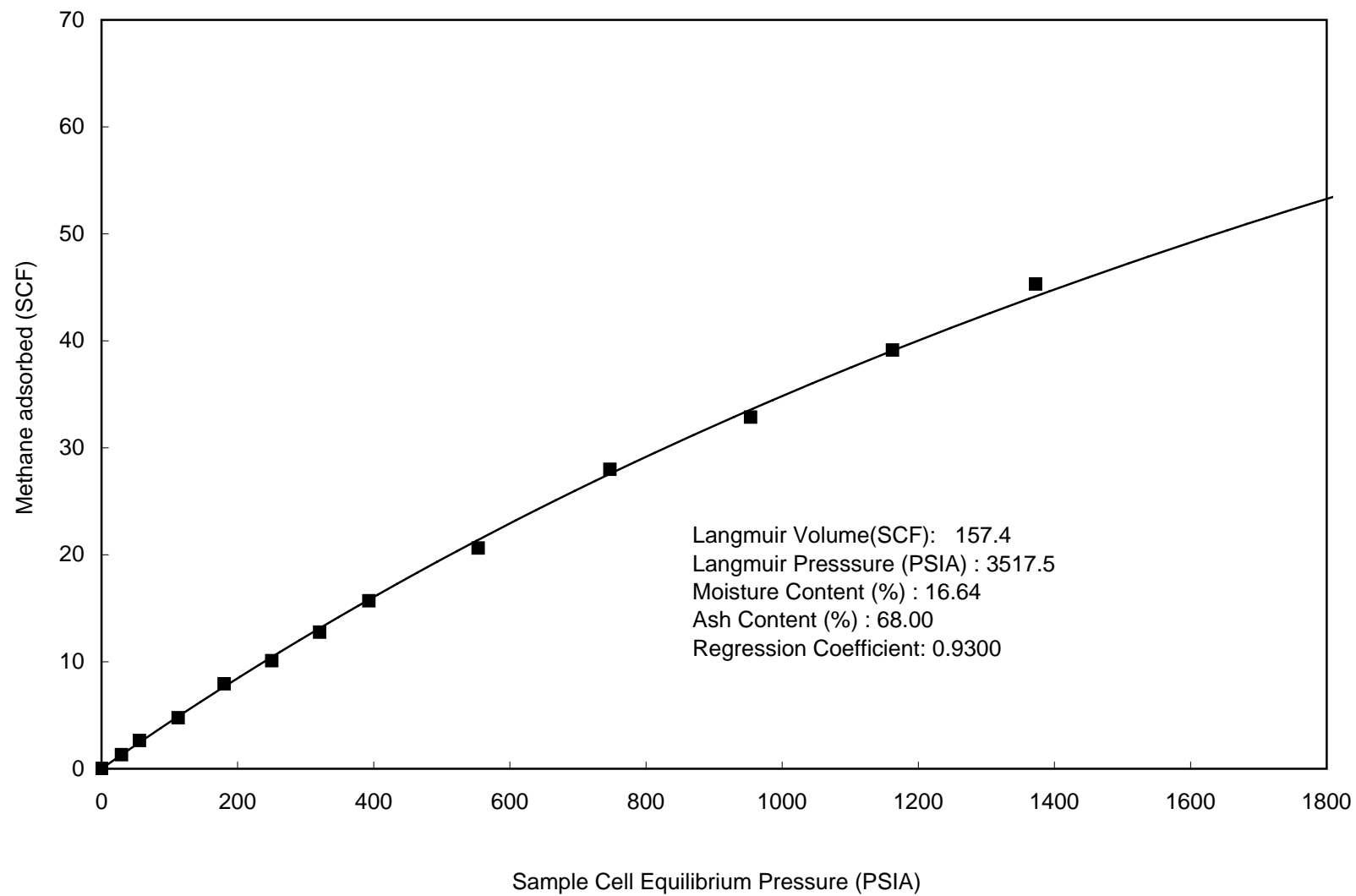
Saturated Monolayer Volume (SCF/ton):	189
Langmuir Pressure (PSIA):	3518
Correlation Coefficient:	0.9300

ASH FREE MOISTURE INCLUDED

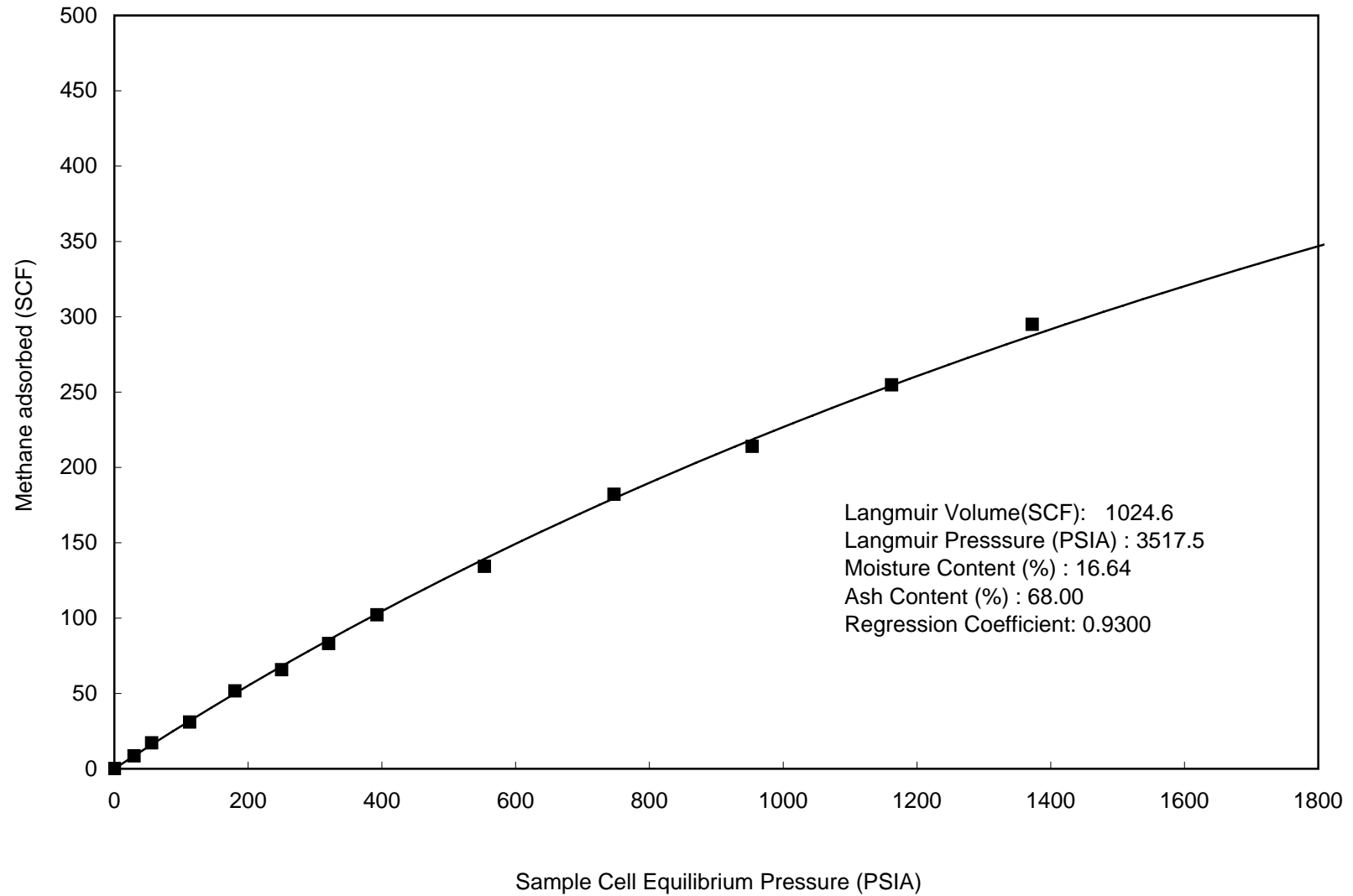
29	4	7.14
56	8	6.76
113	15	7.56
180	25	7.26
250	32	7.93
320	40	8.03
393	49	8.01
553	64	8.58
747	87	8.54
954	103	9.29
1162	122	9.50
1372	142	9.69

Saturated Monolayer Volume (SCF/ton):	492
Langmuir Pressure (PSIA):	3518
Correlation Coefficient:	0.9300

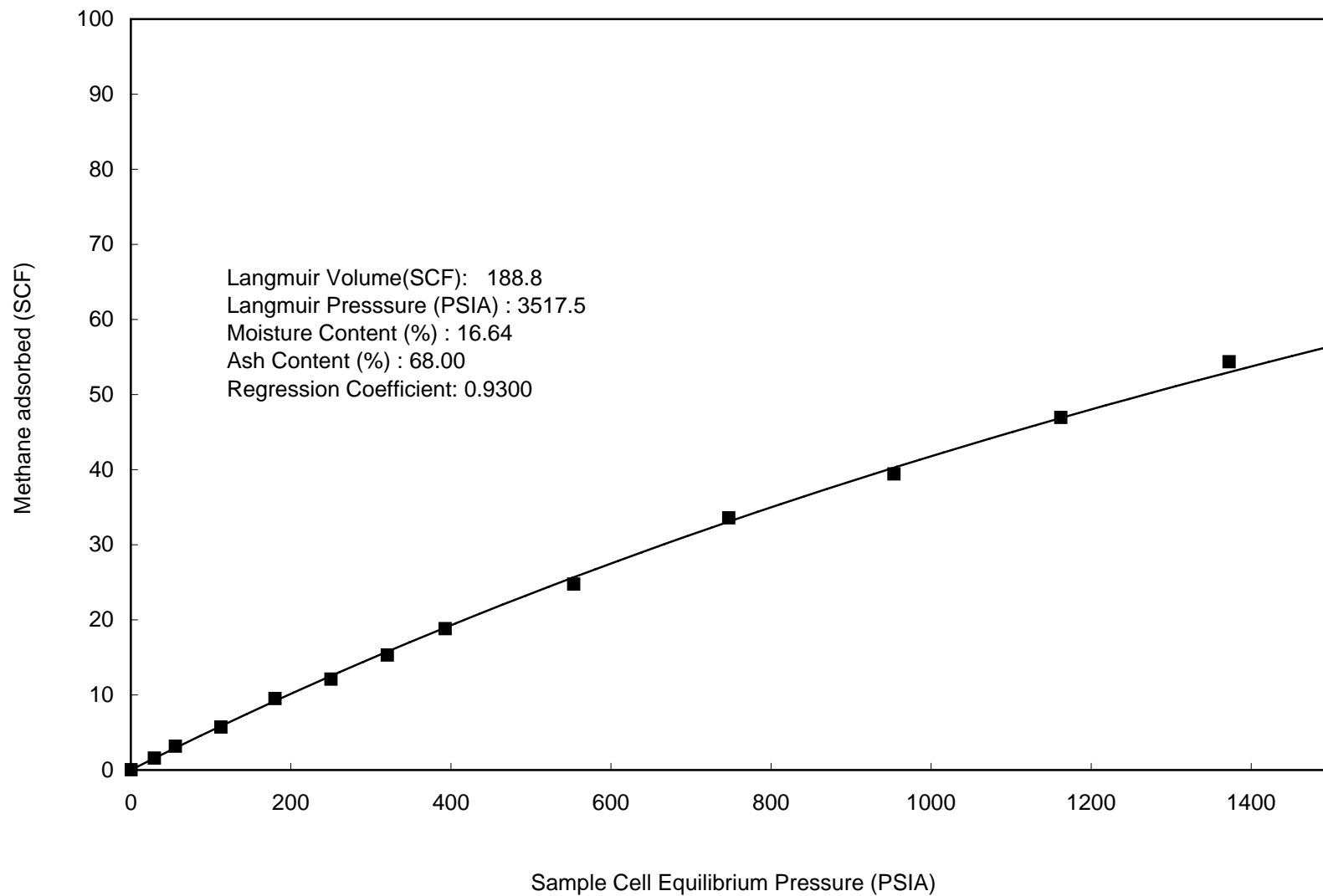
4-LA-8 Methane (as received basis)



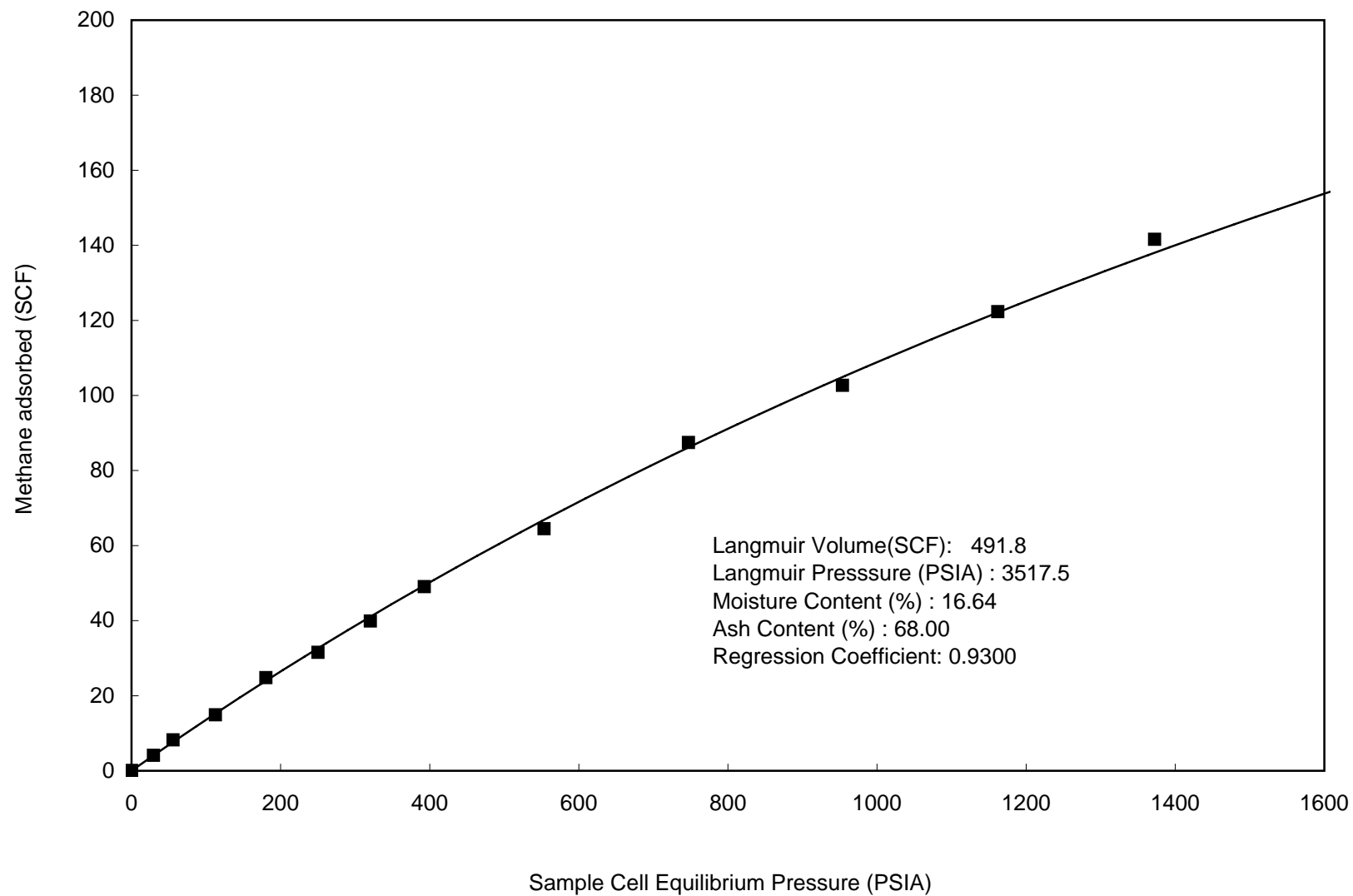
4-LA-8 Methane (dry & ash free basis)



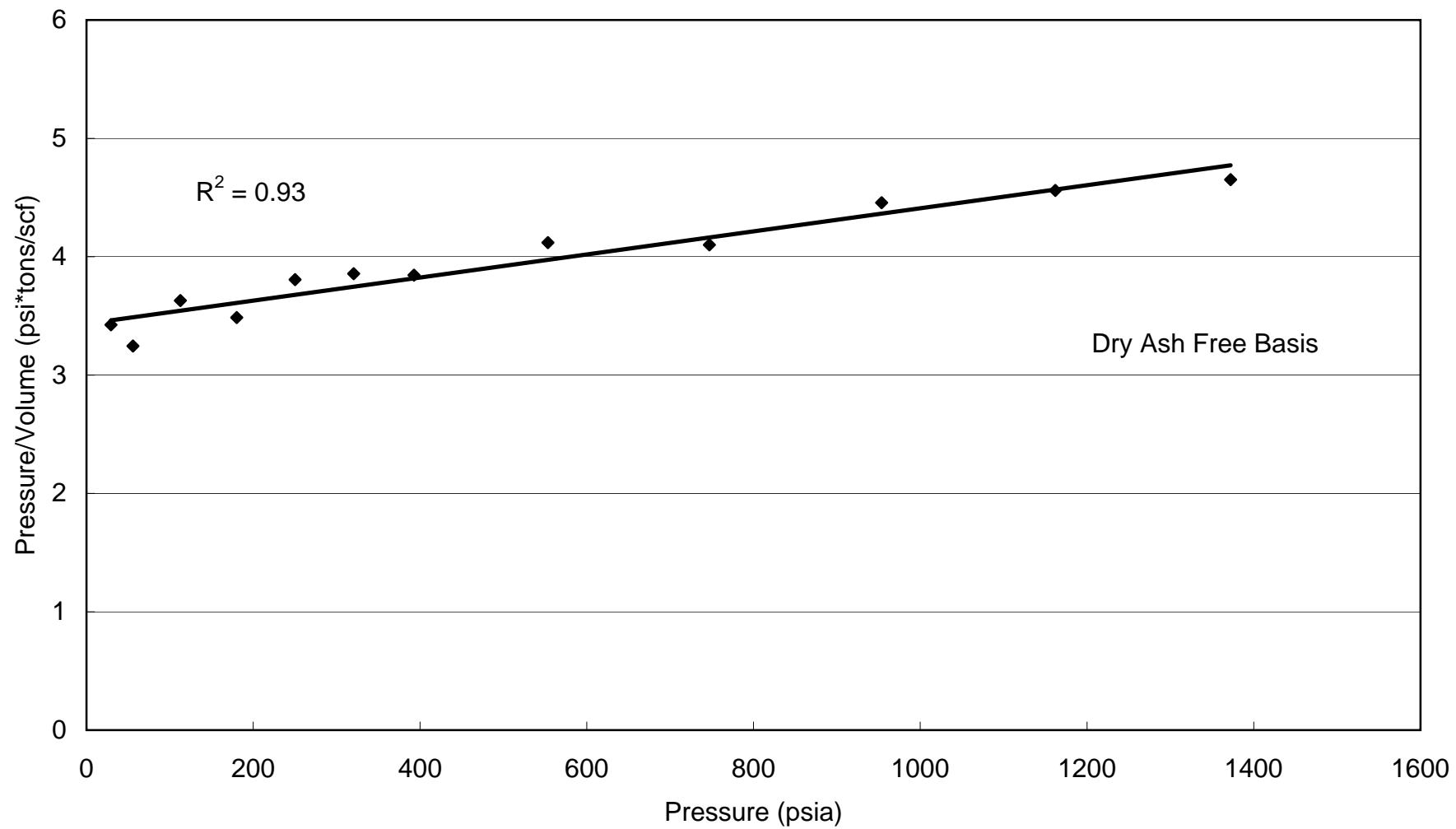
4-LA-8 Methane (moisture free, ash included basis)



4-LA-8 Methane (ash free, moisture included basis)



Adsorption Langmuir Plot



4-LA-8 Methane

Methane Adsorption (SI Units)

Summary of Analyses

	As Received	DAF basis
Langmuir Volume cc/g	4.63	30.11
Langmuir Pressure MPa	24.25	24.25
Goodness of fit Langmuir Equation R-squared	0.93	0.93
Ash Content Wt.%	68.00	68.00
Equilibrium Moisture Wt.%	16.64	16.64

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

4-LA-8 Methane

GAS ADSORPTION ISOTHERM SI UNITS

AS RECEIVED BASIS

Sample I.D. :	4-LA-8 Methane	Moisture Content (EQ) % :	16.64
Isotherm Temperature ° C:	42.1	Ash Content % :	68.00
Gas used:	Methane	Helium Density g/cc	2.107

PRESSURE (MPa)	ADSORBED GAS (cc/g @STP)	P / V
0.203	0.04	5.231
0.385	0.08	4.957
0.777	0.14	5.544
1.243	0.23	5.324
1.725	0.30	5.814
2.210	0.38	5.890
2.708	0.46	5.871
3.816	0.61	6.292
5.151	0.82	6.262
6.575	0.97	6.807
8.012	1.15	6.965
9.461	1.33	7.105

Saturated Monolayer Volume (cc/g @ STP):	4.63
Langmuir Pressure (MPa):	24.25

DRY ASH FREE BASIS

0.203	0.25	0.804
0.385	0.51	0.761
0.777	0.91	0.852
1.243	1.52	0.818
1.725	1.93	0.893
2.210	2.44	0.905
2.708	3.00	0.902
3.816	3.95	0.966
5.151	5.36	0.962
6.575	6.29	1.046
8.012	7.49	1.070
9.461	8.67	1.091

Saturated Monolayer Volume (cc/g @ STP, daf):	30.11
Langmuir Pressure (MPa):	24.25
Correlation Coefficient:	0.9300

4-LA-8 Methane

GAS ADSORPTION ISOTHERM SI UNITS

MOISTURE FREE ASH INCLUDED

Isotherm Temperature ° C:	42.1	Moisture Content (EQ) % :	16.64
Gas used:	Methane	Ash Content % :	68.00
		Helium Density g/cc	2.107

PRESSURE (MPa)	ADSORBED GAS (cc/g@STP)	P / V
0.203	0.05	4.36
0.385	0.09	4.13
0.777	0.17	4.62
1.243	0.28	4.44
1.725	0.36	4.85
2.210	0.45	4.91
2.708	0.55	4.89
3.816	0.73	5.25
5.151	0.99	5.22
6.575	1.16	5.67
8.012	1.38	5.81
9.461	1.60	5.92

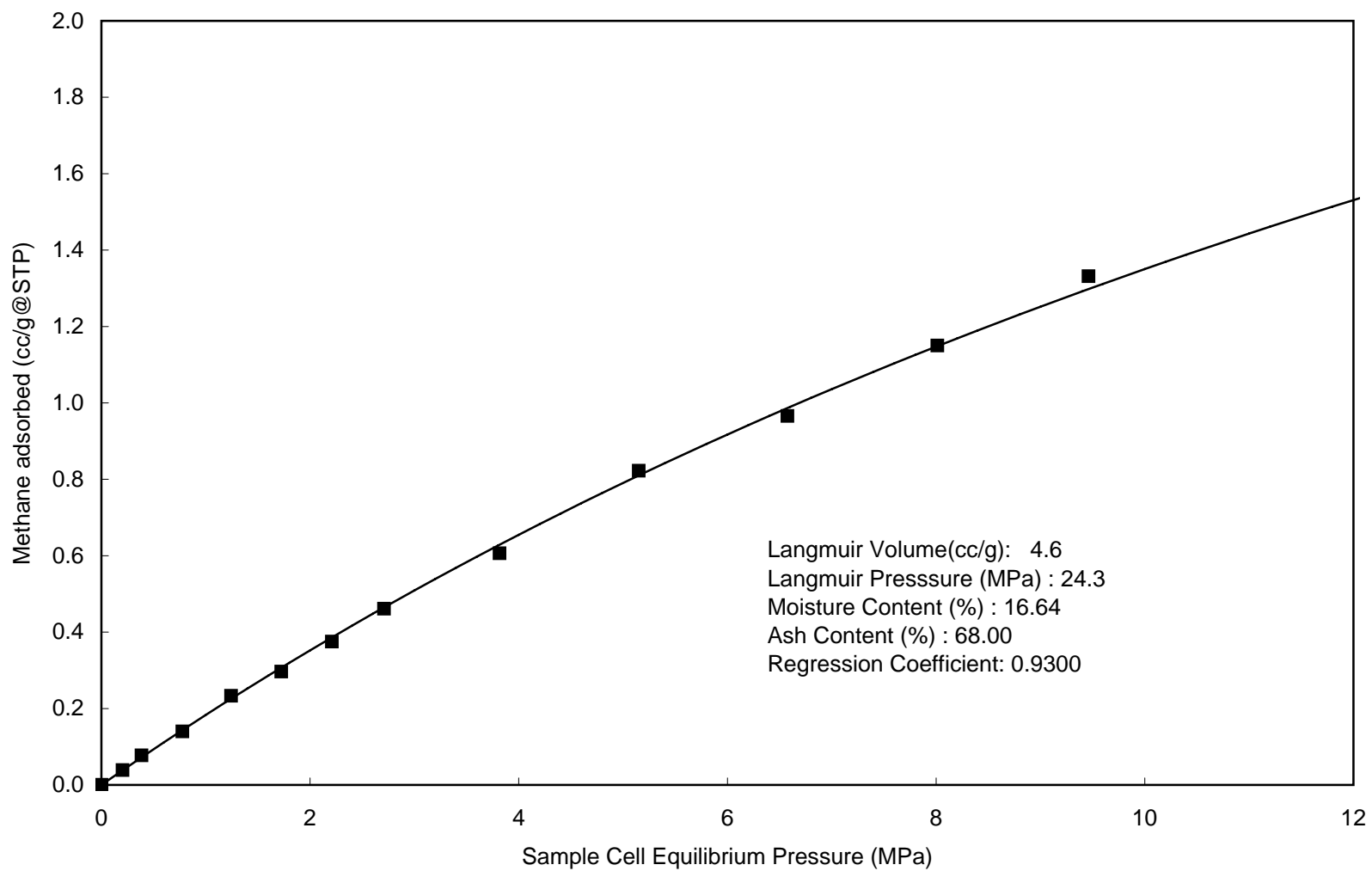
Saturated Monolayer Volume (cc/g):	5.55
Langmuir Pressure (MPa):	24.25

ASH FREE MOISTURE INCLUDED

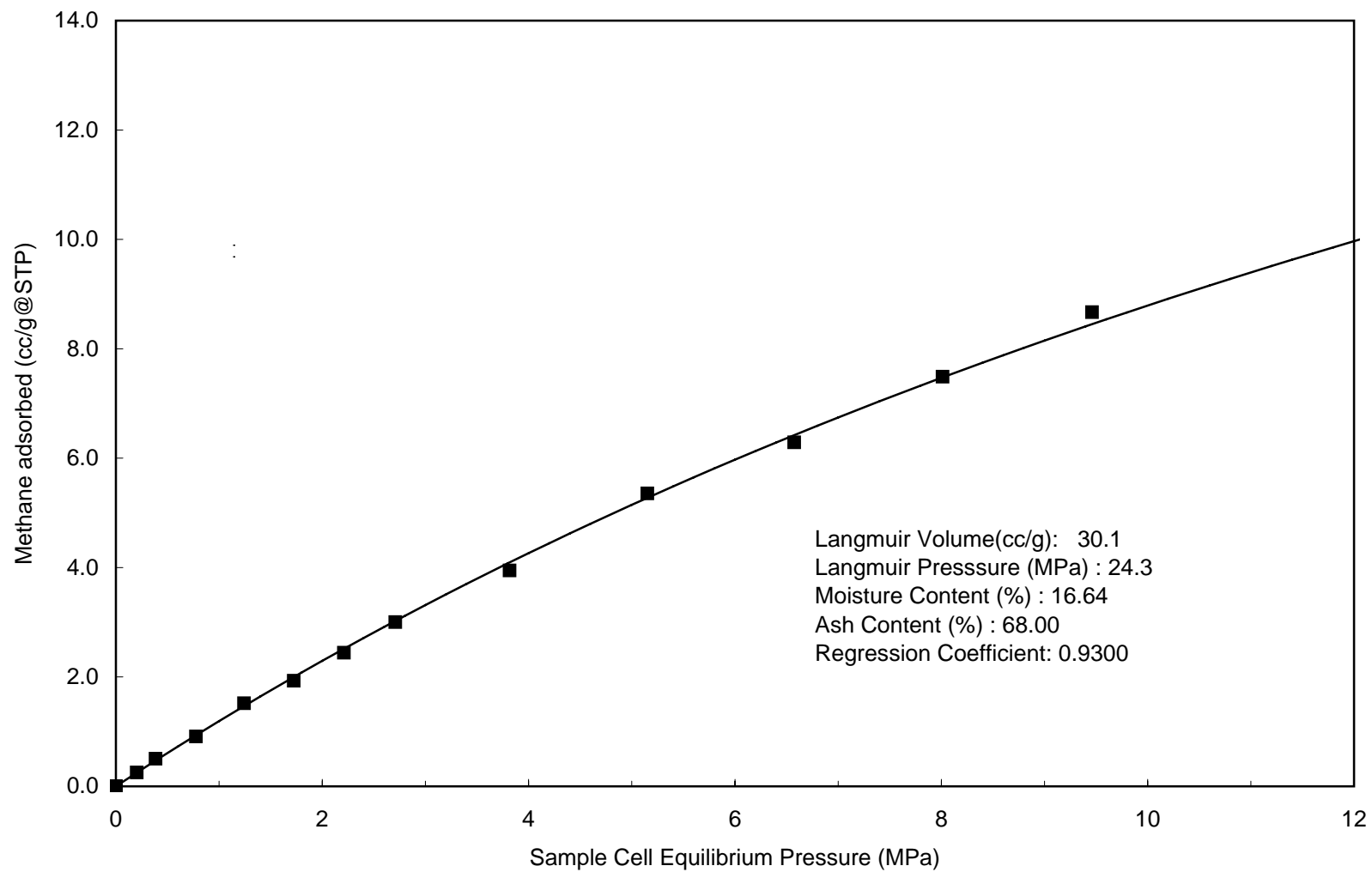
0.203	0.12	0.00
0.385	0.24	1.59
0.777	0.44	1.77
1.243	0.73	1.70
1.725	0.93	1.86
2.210	1.17	1.88
2.708	1.44	1.88
3.816	1.90	2.01
5.151	2.57	2.00
6.575	3.02	2.18
8.012	3.59	2.23
9.461	4.16	2.27

Saturated Monolayer Volume (cc/g, ash free):	14.45
Langmuir Pressure (MPa):	24.25
Correlation Coefficient:	0.9300

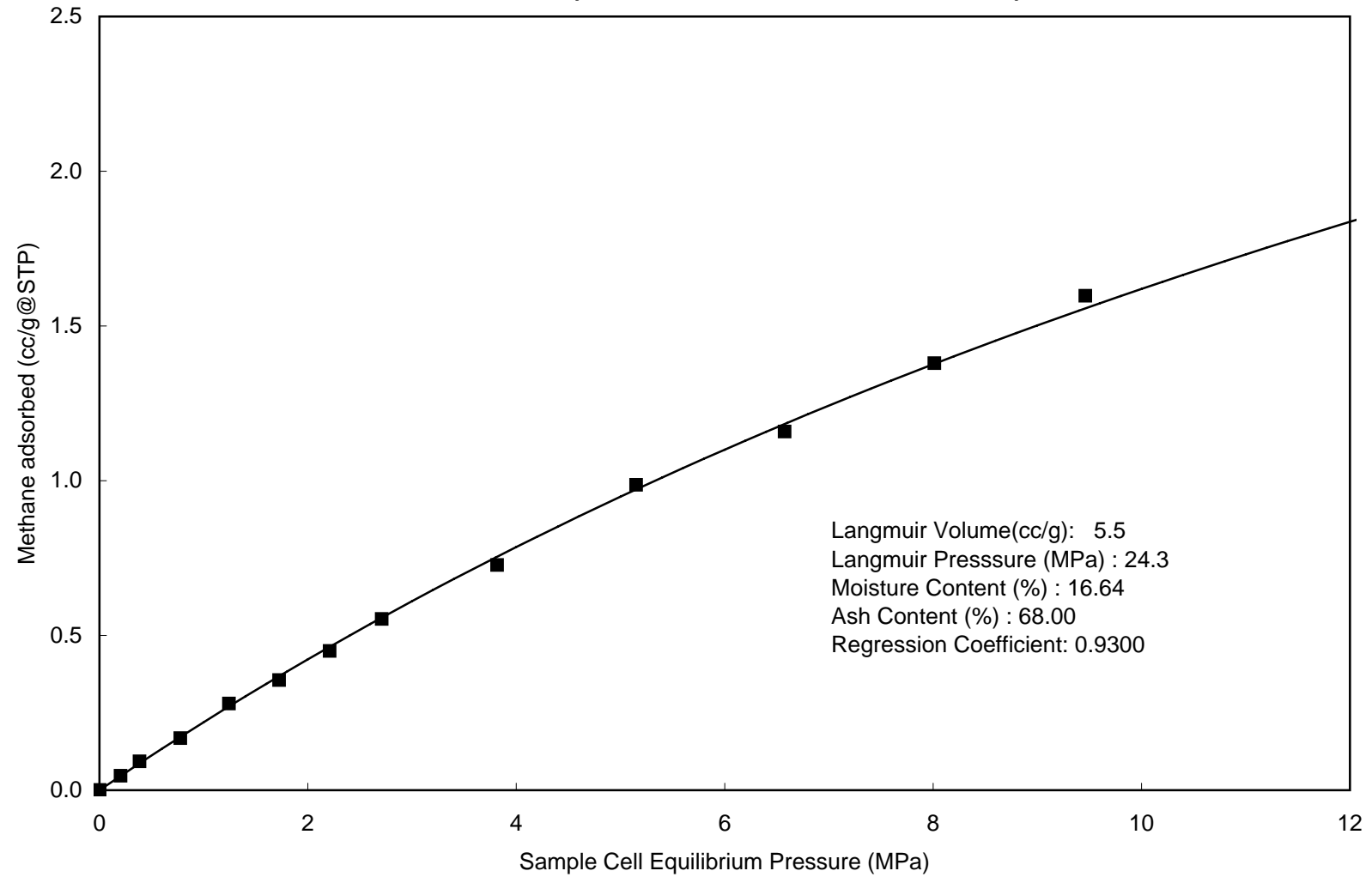
4-LA-8 Methane (as received basis)



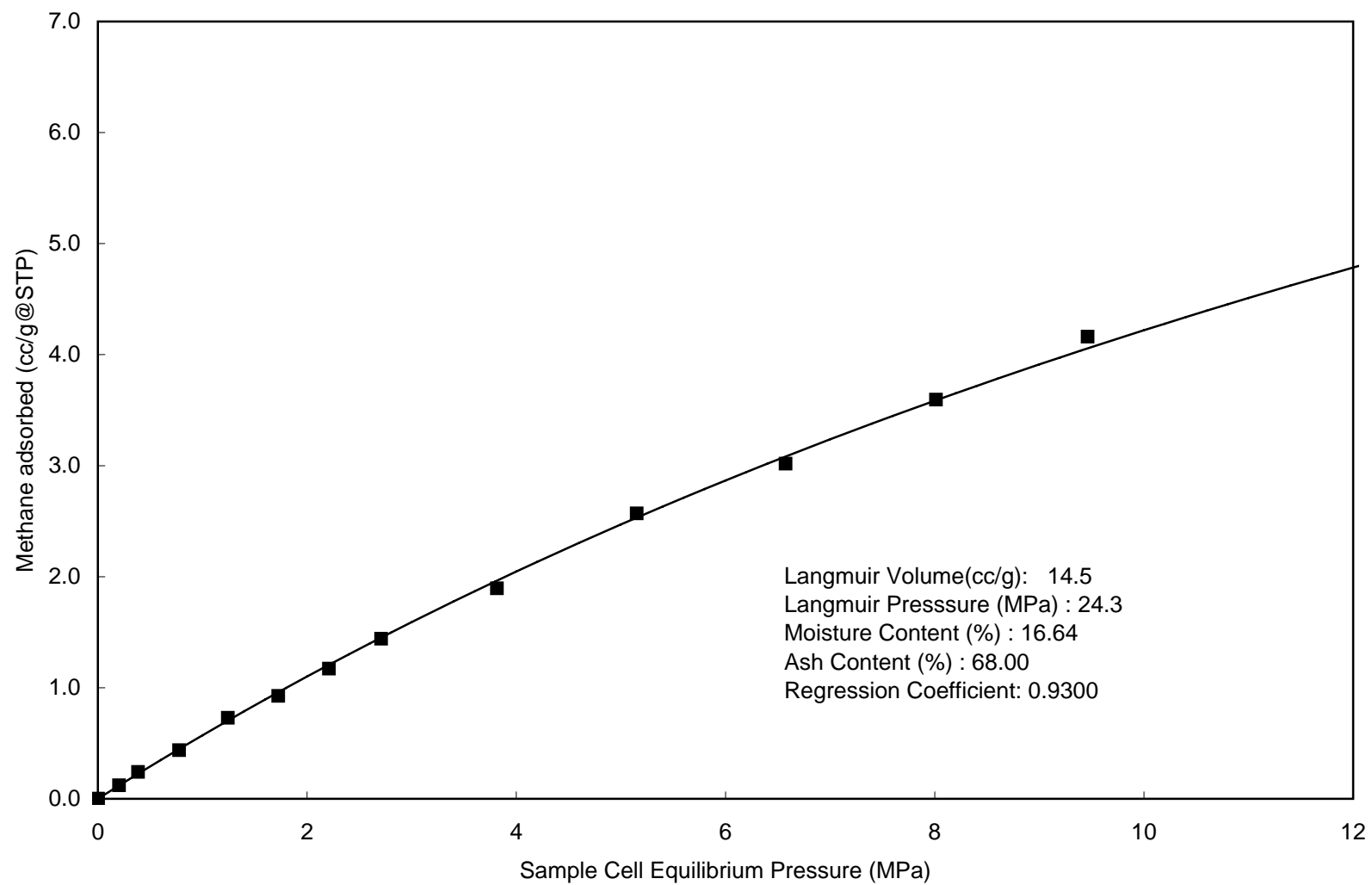
4-LA-8 Methane (dry & ash free basis)



4-LA-8 Methane (moisture free, ash included basis)



4-LA-8 Methane (ash free, moisture included basis)



Adsorption Langmuir Plot

