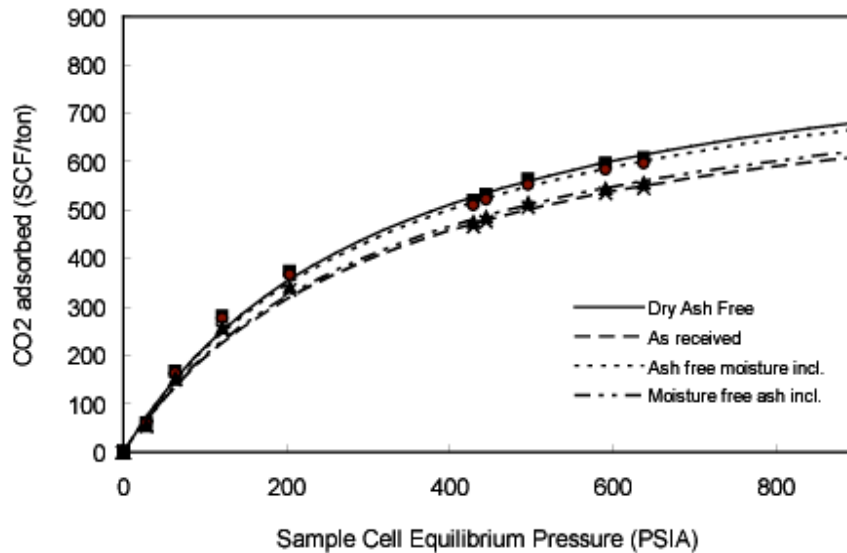


Appendix 4 – Results of high pressure carbon dioxide adsorption isotherms for the Upper Kittanning, Middle Kittanning, and Clarion coal beds. Abbreviations; incl. = included; PSIA = pounds per square inch of area; ft³ = cubic feet; Vol. = volume; F° = degrees Fahrenheit; g/cc = grams per centimeter.

Upper Kittanning coal bed Mylan Park
1,121.70 - 1,123.40 ft.



Pressure (PSIA)	Adsorbed gas (ft ³ /ton)			
	As Received	moisture free ash incl.	ash free moisture incl.	Dry Ash Free
29	54.0	55.0	59.1	60.3
64	149.4	152.2	163.4	166.8
122	252.4	257.1	276.1	281.8
204	334.8	341.1	366.2	373.7
430	465.8	474.6	509.6	520.0
445	476.6	485.5	521.3	532.0
497	505.0	514.5	552.4	563.8
591	534.1	544.1	584.2	596.2
638	545.2	555.4	596.4	608.6

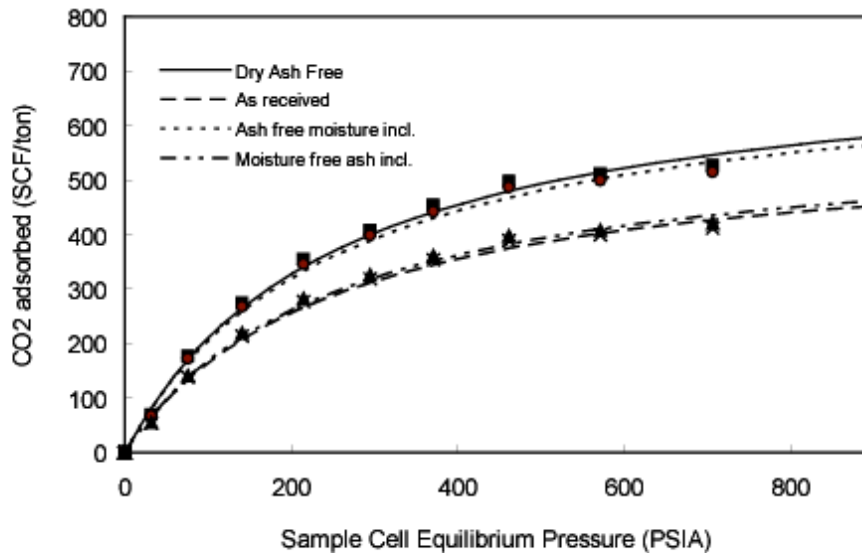
Langmuir Parameters

	As Received	Moisture free ash incl	Ash free moisture incl	Dry Ash Free
Vol. (ft ³ /ton)	831.8	847.4	909.9	928.6
Pressure (PSIA)	327.1	327.1	327.1	327.1

SUMMARY OF ADSORPTION ANALYSES IMP. UNITS

Isotherm Temperature: 69.8 °F
 Goodness of fit of Langmuir regression: 0.97
 % Ash= 8.58 % Moisture= 1.84 Density g/cc 1.336

Middle Kittanning coal zone - Mylan Park
1,184.10 - 1,190.45 ft.



Pressure (PSIA)	Adsorbed gas (ft ³ /ton)			
	As Received	moisture free ash incl.	ash free moisture incl.	Dry Ash Free
32	54.0	55.0	67.4	69.1
76	137.9	140.6	172.1	176.4
141	214.2	218.5	267.5	274.2
215	277.1	282.6	345.9	354.6
295	319.0	325.4	398.3	408.3
371	354.1	361.2	442.1	453.2
462	389.4	397.2	486.2	498.4
572	399.3	407.3	498.6	511.1
707	412.1	420.3	514.6	527.5

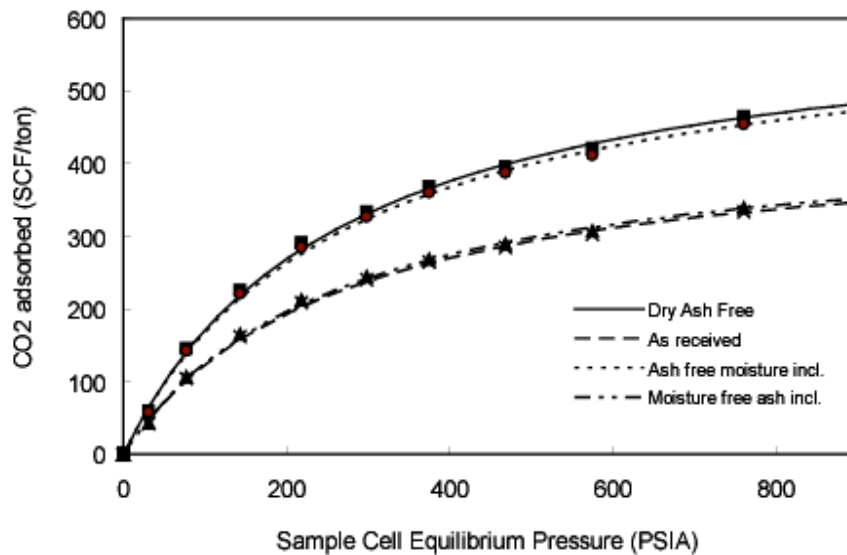
Langmuir Parameters

	As Received	Moisture free ash incl	Ash free moisture incl	Dry Ash Free
Vol. (ft ³ /ton)	580.0	591.6	724.2	742.4
Pressure (PSIA)	253.6	253.6	253.6	253.6

SUMMARY OF ADSORPTION ANALYSES IMP. UNITS

Isotherm Temperature: 69.8 °F
 Goodness of fit of Langmuir regression: 0.98
 % Ash= 19.91 % Moisture= 1.96 Density g/cc 1.495

Clarion coal zone - Mylan Park
1,270.50 - 1271.5 and 1278.7 - 1,280.80 ft.



Pressure (PSIA)	Adsorbed gas (ft ³ /ton)			
	As Received	moisture free ash incl.	ash free moisture incl.	Dry Ash Free
31	42.3	43.0	57.6	58.8
77	104.6	106.2	142.4	145.5
143	162.2	164.8	220.9	225.7
219	208.9	212.3	284.5	290.7
298	240.1	244.0	327.0	334.2
375	264.6	268.9	360.4	368.3
468	284.9	289.4	387.9	396.4
575	302.5	307.3	411.9	420.9
761	333.7	339.0	454.4	464.3

Langmuir Parameters

	As Received	Moisture free ash incl	Ash free moisture incl	Dry Ash Free
Vol. (ft ³ /ton)	449.4	456.5	612.0	625.3
Pressure (PSIA)	265.9	265.9	265.9	265.9

SUMMARY OF ADSORPTION ANALYSES IMP. UNITS

Isotherm Temperature: 69.8 °F
 Goodness of fit of Langmuir regression: 1.00
 % Ash= 26.57 % Moisture= 1.57 Density g/cc 1.603