

ALPHA Resources LLC - USA

Coal and Coke Samples

Last Updated: 2/24/2020

Mercury in Coal (25 grams) "Chlorine Values Reference Only"					
Part #	Lot #	µg/g Mercury	µg/g Chlorine	Mean Weight % Sulfur	Mean Weight % Ash
AR3701	701617	0.071	"(1645)"	1.50	4.47
AR3702	702399JRC75	0.04	"(1713)"	0.77	6.45
AR3703	703399WAL99	0.1	"(<0.01)"	0.45	7.64
AR3704	704399LIG94	0.12	"(<0.01)"	1.17	10.31
AR3705	705399BLK5	0.16	"(<0.01)"	4.71	11.8

C,H,N Coal Standards (25 grams)				
Part #	Lot#	% Carbon	% Hydrogen	% Nitrogen
AR1905	Sold Out	Targeted	Replacement	Date 3/13/20
AR1906	906514	60.98	4.16	1.09
AR1907	071112	62.34	3.31	1.01
AR1908	908318	69.00	4.64	1.49

Ultra Low Sulfur Coal Standards			
Part #	17034	Lot#	% Sulfur
AR1681 (Blank)		681618	0.00
AR1682		682217	0.022
AR1683		683120	0.055
AR1684		841019	0.102
AR1685		685217	0.164

Sulfur Only Coal and Coke Standards (50 grams)				
Part #	17034	17025	Lot #	% Sulfur
AR1700			700219	0.36
AR1701			011119	0.48
AR1702			702819	0.76
AR1703			703415	0.89
AR1704			704518	1.09
AR1705			705517	1.48
AR1706			706818	2.04
AR1707			707617	2.63
AR1708			708716	3.03

AR1709			709618	3.54
AR1710			710317	4.25
AR1711			711218	5.13
AR1712			712318	5.79
AR1713			LIG96	1.18
AR1714			714416	1.71
AR1715			715617	7.06
AR719			191109	0.61
AR720			720317	0.77
AR723			723110	0.47
AR724			724517	1.21
AR2712			7120497	0.43
AR2713			131217	0.49
AR2714			714318	0.88
AR2715			715901	1.20
AR2716			716703	2.47
AR2717			717102	2.21
AR2719			719611	2.58
AR2720			201013	4.34

AR2721			211018	5.43
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The Ultimates (50 grams)										
	Met Coke AR2771	Met Coke AR2772	Coal AR2773	Coal AR2775	Coal AR2776	Coal AR2778	Coal AR2780	Coal AR2781	Coal AR2782	Anthracite AR2783
17034										
17025										
Lot#	711014	772914	773913	751219	776419	778418	780713	781918	782118	Sold Out
% Ash	7.53	9.35	5.03	6.31	10.02	5.54	23.69	42.89	23.64	Targeted
% Vol.	(0.79)	(0.47)	29.48	43.54	35.80	17.58	27.06	26.30	32.24	Replacement
% Fixed C	(91.68)	(90.18)	65.49	(50.15)	(54.18)	(76.88)	49.25	(30.81)	44.12	Date
BTU	13178	12871	12572	11888	12533	14829	10892	8097	10031	3/13/20
% Sulfur	0.57	0.77	0.52	0.41	1.12	0.76	3.61	2.27	5.39	
% Carbon	89.89	88.69	79.7	69.69	71.57	86.20	60.98	45.14	55.70	
% Hydrogen	(0.23)	(<0.1)	3.13	5.09	4.80	4.36	4.16	3.39	4.10	
% Nitrogen	1.08	1.10	0.64	1.00	1.26	1.20	1.09	0.91	(1.28)	
% Chlorine	(0.024)	(0.026)	(<0.01)				(0.14)		(0.0282)	
% Oxygen	(0.70)	(<0.01)	10.98	(17.5)	(11.23)	(1.94)	6.47	(5.40)	(9.89)	
(Values inside) Indicates Reference ONLY										

Sulfur Forms										
% Pyritic	(<0.01)	(0.01)	(0.06)	(0.02)	0.36	0.13	1.28	0.34	1.40	
% Sulfate	(<0.01)	(<0.01)	(0.43)	(0.01)	0.18	0.09	1.19	0.82	0.35	
% Organic	0.57	(0.76)	(0.03)	(0.38)	(0.58)	(0.54)	1.14	0.75	(0.52)	
<i>(Values inside) Indicates Reference ONLY</i>										
Mineral Analysis										
Phosphorus Pentoxide	0.34	0.35	0.48	0.55	0.36	(0.08)	0.22	0.44	(0.07)	
Silica	49.99	53.92	27.3	27.05	44.20	34.75	48.91	51.53	60.54	
Ferric Oxide	15.88	8.66	7.33	4.79	10.22	13.60	18.78	11.27	9.44	
Alumina	25.83	28.26	16.15	15.35	22.57	20.13	23.92	25.96	19.91	
Titania	1.35	1.59	0.92	1.24	1.23	1.10	1.20	1.23	9.44	
Sulfur Trioxide	(1.68)	(0.79)	19.17	14.99	(9.30)	13.45	1.28	2.58	(0.72)	
Potassium Oxide	1.80	1.96	0.31	(0.40)	1.90	1.13	2.37	2.55	3.55	
Sodium Oxide	0.81	0.54	1.82	1.79	0.60	0.46	0.23	(0.36)	0.57	
Calcium Oxide	2.85	1.91	19.36	25.55	6.99	12.76	1.04	2.54	0.50	
Magnesium Oxide	1.16	0.95	5.24	(0.03)	2.05	1.85	0.85	0.97	1.48	
Strontium Oxide	(0.13)	(0.13)	0.39	(0.51)	0.14	0.30	0.06	0.09	(0.04)	
Barium Oxide	(0.21)	(0.17)	0.51	0.61	0.27	0.23	0.09	<0.01	0.14	
Manganese Oxide	(0.12)	(0.09)	0.03	(0.03)	(0.02)	0.06	0.04	0.02	0.05	

Undetermined	(0.85)	(0.68)	0.99	(0.44)	(0.15)	(0.1)	1.01	0.46	(2.03)	
<i>(Values Inside) Indicates Reference ONLY</i>										
Ash Fusion Temperature										
Lot #	711014	772914	773913	751219	776419	778418	780713	781411	781918	
Initial Reducing	2169	2606	2065	(2283)	2181	2201	2152	2404	2231	
Initial Oxidizing	2495	>2700	2163	(2261)	2303	2378	2504	2563	2443	
Softening Reducing (H=W)	2365	>2700	2105	(2309)	2254	2346	2392	2467	2346	
Softening Oxidizing (H=W)	2549	>2700	2201	(2312)	2354	2427	2574	2620	2564	
Softening Reducing (H=1/2W)	2449	>2700	2130	(2313)	2292		2468	2533		
Softening Oxidizing (H=1/2W)	2589	>2700	2226	(2328)	2407		2634	2664		2733
Fluid - Reducing	2527	>2700	2185	(2319)	2360	2437	2580	2597	2562	
Fluid - Oxidizing	2635	>2700	2275	(2328)	2464	2496	2670	<2700	2667	

Petroleum Coke (50 Grams)					
	Part #	Part #	Part #	Part #	Part #
	AR742B	AR744	AR745	AR747	AR756
Lot #	742815	744216	745418	747919	561117
% Sulfur	1.11	2.50	0.49	3.66	5.00
% Ash	(0.12)	(0.27)	(0.09)	0.41	(0.60)

% Vol. Matter	11.78	(0.57)	5.79	10.97	6.85
BTU	15,636	13,939	14,861	14,919	14,204
Fixed C%	(88.10)	(99.16)	(94.12)	(88.62)	(92.55)
% C	91.39	96.21	95.92	88.46	87.89
% H	3.83	(0.22)	1.91	3.11	1.89
% N	1.83	1.03	0.80	1.45	1.79
Ni	250 ppm ug/g	143 ppm ug/g	(93) ug/g	203 ug/g	281 ppm ug/g
Fe	221 ppm ug/g	855 ppm ug/g	227 ug/g	492 ug/g	282 ppm ug/g
V	124 ppm ug/g	230 ppm ug/g	(40) ug/g	794 ug/g	1651 ppm ug/g
Ca	44 ppm ug/g	83 ppm ug/g	(34) ug/g	241 ug/g	91 ppm ug/g
Si	34 ppm ug/g	0.131 ug/g	(64) ug/g	418 ug/g	343 ppm ug/g

Prox Coal and Coke Standards								
Part #	17034	17025	Lot #	% Sulfur	% Ash	% Vol. Matter	BTU	Fixed C
AR1720			720220	0.41	6.31	43.54	11888	(50.15)
AR1721			721913	0.52	5.03	29.48	12572	65.49
AR1722			722719	1.12	10.02	35.80	12533	(54.18)
AR1723			Sold out	Targeted	Replacement	Date	3/20/20	51.04
AR1724			241014	1.42	17.26	32.27	12216	50.47

AR1726			726516	2.01	47.09	23.47	7409	29.44
AR1727			Discontinued	Indefinitely	No	Replacement		
AR1728			Discontinued	Indefinitely	No	Replacement		
AR1729			729713	3.62	23.69	27.06	10892	49.25
AR1730			730219	5.38	23.64	32.24	10031	(44.12)
AR1731			311014	1.80	41.64	26.39	8377	31.97
AR1732			321208	6.26	13.09	38.18	10686	48.73
AR1733			Sold out	Targeted	Replacement	Date	3/13/20	
AR1933			TEXLIG896	0.61	7.56	36.31	13181	56.13
AR732			732514	0.47	6.57	1.15	13242	92.28
AR733			711014	0.57	7.53	(0.79)	13178	(91.68)
AR734			734914	0.77	9.35	(0.47)	12871	(90.18)

Mineral Analysis for Coal

Mineral Analysis - % Weight Ignited Basis - 50 Grams/Bottle

Ash Content is provided for those analysts who wish to convert the values to a whole coal basis

	AR2752A	AR2753	AR2754	AR2755	AR2760
Lot#	752102	753716	754714	755898	90
Silicon Dioxide	40.10	27.30	48.91	40.96	49.48

Aluminum Dioxide	14.44	16.15	23.92	13.29	27.36
Titanium Dioxide	1.98	0.92	1.20	0.82	1.33
Ferric Oxide	4.89	7.33	18.78	37.10	15.16
Calcium Oxide	20.84	19.36	1.04	1.76	1.07
Magnesium Oxide	4.59	5.24	0.85	0.56	0.77
Potassium Oxide	0.26	0.31	2.37	1.22	2.47
Sodium Oxide	0.33	1.82	0.23	0.39	0.16
Sulfur Trioxide	10.45	19.17	1.28	0.74	0.39
Phosphorus Pentoxide	0.30	0.48	0.22	0.19	0.30
Strontium Oxide	0.09	0.39	0.06	0.02	0.07
Barium Oxide	0.07	0.51	0.09	0.11	0.00
Manganese Oxide	0.03	(0.03)			
Undetermined		(0.99)	1.01	0.00	1.33
Ash Content of Whole Coal	Not Determined	5.03	23.69	Not Determined	15.00