

COAL/COKE/PITCH					CARBON					TRACE ELEMENT										POWDER				
	Al	As	Ca	Co	Cr	Cu	Fe	Mg	Mn	Mo	Ni	Pb	Sb	Si	Sr	Ti	V	Zn	Zr	Others/Set Only	Size	Type	Origin	
248-KD1	ppm	12	-0.09	74	-0.19	3.2	0.97	428	-6.7	56	-0.95	6	-1.1	-0.03	-390	-1.8	-53	-6.6	-2.3	-7.5		50g	RM	
248-KD2	ppm	35	-0.05	98	-0.1	1.3	1	180	-21	23	-0.22	3.9	-1.6	-0.05	-145	-2.8	-46	-3.6	-4.4	-3.7		50g	RM	
248-KD3	ppm	15	-0.04	62	-0.07	0.69	0.81	111	-22	13	-0.44	4.2	-0.9	-0.02	-147	-1.9	-38	-3.8	-1.2	-4.5		50g	RM	
248-KD6	ppm	8.4	-0.04	79	-0.03	0.44	0.62	37		4.3	-0.39	2	-1.2	-0.03	-66	-1.9	-51	-4.9	-1.7	-6		50g	RM	
248-LD4	ppm	33	-0.06	126	-0.11	3.4	1.3	149	-7.5	3.5	-0.62	5.5	-1.1	-0.03	-404	-2.7	-49	-4.3	-2.9	-8.6		50g	RM	
248-PD5	ppm	7.7	-0.03	18	-0.03	0.74	0.53	36	-3.1	0.34	-0.11	1.2	(-1)	-0.02	-53	-0.6	-20	-2	-0.8	-2.4		50g	RM	
248-PD7	ppm	5.5	-0.03	22	-0.03	2.2	0.51	59		1.1	-0.25	1.1	-1	-0.02	-50	-1.3	-29	-2	-0.9	-4.5		50g	RM	
CARBON					SETTING UP SAMPLES (SUS)										DISC/BLOCK									
	Al	As	Ca	Co	Cr	Cu	Fe	Mg	Mn	Mo	Ni	Pb	Sb	Si	Sr	Ti	V	Zn	Zr	Others/Set Only	Size	Type	Origin	
254-RW1711/1	ppm		<0.2			<0.08	0.2	0.01						0.5		<0.5	<0.2				B <0.01	Ø 40x5mm	SUS	Graphite
COAL					MAJOR ELEMENTS										POWDER									
S	S	Others/Set Only	Size	Type	Origin	CL	CI	Others/Set Only	Size	Type	Origin													
191-331	%	4.99	20g Ampoule	CRM		267-1910	%	0.05	50g	RM														
191-332	%	9.61	20g Ampoule	CRM		267-1911	%	0.22	50g	RM														
191-333	%	13.44	20g Ampoule	CRM		267-1912	%	0.38	50g	RM														
191-334	%	16.09	20g Ampoule	CRM																				
191-335	%	50.8	20g Ampoule	CRM		OTHERS	C	S	Ash	VM	GCV	Others/Set Only	Size	Type	Origin									
191-336	%	32.9	20g Ampoule	CRM		267-1720	%	53.15	0.25	5.23	41.62	12500b	50g	RM										
						267-1721	%	47.71	0.5	7.14	45.15	11755b	50g	RM										
267-1700	%	0.25	50g	RM		267-1722	%	75.18	0.8	6.23	18.59	14646b	50g	RM										
267-1701	%	0.48	50g	RM		267-1723	%	54.11	0.96	9.72	36.17	13335b	50g	RM										
267-1702	%	0.71	50g	RM		267-1724	%	54.36	1.5	13.61	32.03	11861b	50g	RM										
267-1703	%	0.8	50g	RM																				
267-1704	%	0.97	50g	RM		267-1726	%	52.32	2.05	10.75	36.93	12585b	50g	RM										
267-1705	%	1.51	50g	RM		267-1727	%	51.86	2.49	12.03	36.11	12816b	50g	RM										
267-1706	%	2.06	50g	RM		267-1728	%	52.83	3.09	11.57	35.6	13124b	50g	RM										
267-1707	%	2.47	50g	RM		267-1729	%	49.63	3.33	12.16	38.2	12588b	50g	RM										
267-1708	%	3.1	50g	RM		267-1730	%	52.96	4.73	12.49	34.55	11806b	50g	RM										
267-1709	%	3.3	50g	RM		267-1731	%	45.02	5.5	17.09	37.89	11602b	50g	RM										
267-1710	%	4.75	50g	RM		267-1732	%	44.64	6.48	18.51	36.85	11140b	50g	RM										
267-1711	%	5.53	50g	RM		267-1933	%	43.07	1.25	12.52		Cal Val 10020	50g	RM	Lignite									
267-1712	%	6.5	50g	RM																				
267-1713	%	1.25	VM 44.41	50g	RM	Lignite	331-2682B	%	0.4917	6.32	25.66c	Mg 0.1088a	50g	CRM	Subbituminous									
							331-2683B	%	1.955	6.85	31.9c		50g	CRM	Bituminous									
268-012A	%	0.33	/Y	125g	CRM		331-2684A	%	3.05	11.09	28.5c		50g	CRM	Bituminous									
268-012B-2	%	0.66	/Y	125g	CRM		331-2685B	%	4.73	15.94	26.94c	Mg 0.1462a	50g	CRM	Bituminous									
268-012C-2	%	1.11	/Y	125g	CRM		331-2692B	%	1.17	7.9	32.81c	Mg 0.1333a	50g	CRM	Bituminous									
268-012D-2	%	5.21	/Y	125g	CRM																			
CHN	Al	C	C(CO3)	Fe	H	Mg	Mn	N	Na	Ni	Pb	S	S(py)	S(SO4)	V	Zn	Ash	GCV	VM	Cal Val	Others/Set Only	Size	Type	Origin
202-FC28001	%	74.4			4.61			1.4				0.48					9.29	30.06c	33.08		SG 1.41	50g	CRM	
202-FC28002	%	46.93			3.15			0.86				1.39					40.74	18.84c	23.39		SG 1.72	50g	CRM	
202-FC28003	%	74.59			2.38			0.83				0.34					17.6	27.44c	10.81		SG 1.7	50g	CRM	
202-FC28004	%	68.14			0.91			0.21				1					26.33	22.18c	5.99		SG 2.1	50g	CRM	
202-FC28005	%	76.41			3.38			1.17				1.66					13.96	28.22c	11.84		SG 1.49	50g	CRM	
267-1905	%	71.24			5.1			1.56														25g	RM	
267-1906	%	72.6			4.83			1.49														25g	RM	
267-1907	%	67.95			5.06			1.49														25g	RM	
267-1908	%	70.8			5.16			1.06														25g	RM	
268-013-8	%	79.4	0.145		4.09			1.81				0.628	0.06	<0.01			4.32	31.97	16.97		P 0.057 Cl 0.042	250g	CRM	



COAL/COKE/PITCH				COAL				TRACE ELEMENTS										POWDER							
MINERAL		Al2O3	BaO	CaO	Fe2O3	K2O	MgO	MnO	N	Na2O	Ni	P2O5	SO3	SiO2	SrO	TiO2	V	Ash	Others/Set Only			Size	Type	Origin	
191-065	%												0.83n					3.91				50g	CRM		
267-2751	%	16.94a	0.54a	21.82a	4.91a	0.31a	4.53a	10a				0.97a	14.41a	32.41a	0.28a	1.29a		7.13a				50g	RM		
267-2752A	%	14.68	0.08	4.48	45.77	1.03	0.56	0.03		0.56		0.25	2.82	29.22	0.02	0.5		13.08				50g	RM		
267-2753	%	29.93	0.11	2.15	9.85	1.89	0.72	0		0.63		0.17	2.56	50.15	0.15	1.69		7.56				50g	RM		
267-2754	%	28.61	0.08	1.79	10.31	2.71	0.89	0		0.48		1	0.95	51.41	0.16	1.32		8.1				50g	RM		
267-2755	%	14.29	0	0.54	46.55	1.43	0.53	0.29		0.17		0	0.53	33.92	0.01	0.73		8.21				50g	RM		
267-2756	%	32.11	0.25	2.19	4.78	2.02	1.04	0		0.84		0.68	1.77	51.38	0.19	2.09		10.74				50g	RM		
267-2760	%	27.36	0	1.07	15.16	2.47	0.77	0.11		0.16		0	0.39	49.48	0.07	1.33		15				50g	RM		
		Al	Ba	Ca	Fe	K	Mg	Mn	N	Na	Ni	Pb	S	Si	Sr	Ti	V	Ash	GCV	VM	Density	Others/Set Only	Size	Type	Origin
094-C302	%	390a		180a	560a					450a	100a	17a	1.8	120a			115a						50g	RM	Anode coal
094-C303	%	390a		420a	600a					580a	190a	13a	1.4	200a			75a						50g	RM	Anode coal
094-C304	%	710a		250a	800a					760a	90a	17a	1.6	190a			100a						50g	RM	Anode coal
094-C305	%	820a		300a	770a					960a	90a	15a	1.5	210a			85a						50g	RM	Anode coal
094-C306	%	30a		460a	950a					1160a	160a	16a	1.3	380a			70a						50g	RM	Anode coal
094-C307	%	120a		110a	500a					260a	80a	17a	2.1	90a			95a						50g	RM	Anode coal
094-C308	%	120a		110a	500a					260a	80a	17a	2.1	90a			95a						50g	RM	Anode coal
094-C309	%	120a		60a	300a					130a	100a	10a	1.1	50a			35a						50g	RM	Anode coal
094-C310	%	130a		220a	500a					210a	80a	5a	0.4	220a			40a						50g	RM	Anode coal
094-C311	%	380a		80a	200a					160a	100a	5a	1.2	20a			40a						50g	RM	Anode coal
094-C312	%	3540a		180a	2300a					310a	440a	2a	0.9	320a			25a						50g	RM	Anode coal
094-C313	%	270a		520a	125a					410a	70a	20a	1	630a			35a						50g	RM	Anode coal
240-AU(A)	%			0.083	0.32						-0.004		0.57	1.8			-0.004	7.8			1.76		100g	RM	Anthracite
240-DM(A)	%			0.17	0.32						-0.003		0.4	1.9			-0.004	8.6			1.85		100g	RM	Anthracite
COAL				PHYSICAL TESTING																					
GRINDABILITY	HGI	Others/Set Only			Size	Type	Origin			GRINDABILITY			HGI	Others/Set Only			Size	Type	Origin						
233-HGI/1	40	/Y			4Kg	CRM				268-011-6/1			36	/Y			4Kg	CRM							
233-HGI/2	60	/Y			4Kg	CRM				268-011-6/2			48	/Y			4Kg	CRM							
233-HGI/3	80	/Y			4Kg	CRM				268-011-6/3			68	/Y			4Kg	CRM							
233-HGI/4	100	/Y			4Kg	CRM				268-011-6/4			96	/Y			4Kg	CRM							
COKE																									
CHN	Al	C	Ca	Fe	H	Mg	Mn	N	Na	Ni	Pb	S	Si	Ti	V	Zn	Ash	GCV	VM	Others/Set Only		Size	Type	Origin	
202-FC28013	%											0.58					13.05	(28.47)c	-1	P 0.034		90g	CRM		
202-FC28006	%		78.62		4.57			1.41				0.89					8.43	31.93c	29.18	SG 1.38		50g	CRM		
202-FC28007	%		72.42		4.65			1.32				1.94					11.15	29.74c	33.78	SG 1.41		50g	CRM		
202-FC28008	%		68.85		4.54			1.17				3.06					13.92	28.44c	34.37	SG 1.44		50g	CRM		
202-FC28009	%		59.32		2.66			0.93				4.7					29.98	23.46c	10.47	SG 1.71		50g	CRM		
202-FC28010	%		78.82		4.58			1.4				1.38					10.06	32.29c	25.58	SG 1.38		50g	CRM		
202-FC28011	%		69.18		3.08			1.04				2.21					21.32	27.01c	11.82	SG 1.58		50g	CRM		
S	Al	C	Ca	Fe	H	Mg	Mn	N	Na2O	Ni	Pb	S	Si	Ti	V	Zn	Ash	GCV	VM	Others/Set Only		Size	Type	Origin	
054-P18	%								0.088			0.99					13.27			K2O 0.124 P 0.037		50g	CRM		
267-719	%											0.71										50g	RM		
267-720	%											0.88										50g	RM		
267-723	%											0.45										50g	RM		
267-732	%		91.77									0.47					7.52	12216b	0.71			50g	RM		
267-733	%		88.72									0.72					9.26	12573b	2.02			50g	RM		
267-734	%		87.82									0.89					9.22	12236b	1.48			50g	RM		
331-2775	%											0.5816					5.77		1.31			50g	CRM		
331-2776	%											0.825					8.06		0.98			50g	CRM		

COAL/COKE/PITCH				COKE				METALLURGICAL											POWDER					
	AI	C	Ca	Fe	H	Mg	Mn	N	Na	Ni	Pb	S	Si	Ti	V	Zn	Ash	GCV	VM	Others/Set Only	Size	Type	Origin	
051-C07	%	1.2	0.16	0.62		0.085			0.065	0.006	0.011	0.8	1.6	0.056	0.005	0.0065	8.5				100g	RM	Metallurgica	
051-C33	%	0.37	0.1	0.2		0.013			0.39	0.008	0.008	1.35	0.16	0.0027	0.008	0.0083	2.9				100g	RM	Metallurgica	
051-C35	%	0.28	0.057	0.12		0.008			0.31	0.008	0.01	1.35	0.07	0.0024	0.008	0.011	2.2				100g	RM	Metallurgica	
051-C36	%	4.1	0.72	3.3		0.24			0.72	0.011	0.017	0.8	5.9	0.16	0.013	0.01	29.5				100g	RM	Metallurgica	
051-C37	%	0.19	0.047	0.09		0.008			0.19	0.008	0.004	1.34	0.14	0.0019	0.008	0.0048	1.6				100g	RM	Metallurgica	
051-C43-1	%	0.78	0.09	0.3		0.034			0.048	0.003	0.002	0.58	0.78	0.021	0.003	0.0008	4.7				100g	RM	Metallurgica	
				COKE				PETROLEUM																
	AI	C	Ca	Fe	H	Mg	Mn	N	Na	Ni	Pb	S	Si	Ti	V	Zn	Ash	GCV	VM	Others/Set Only	Size	Type	Origin	
051-C01	%	0.008	0.024	0.046		0.003			0.02	0.01	0.0016	1.73	0.022	0.0011	0.012	0.0015	0.35				100g	RM	Petroleum	
051-C04	%	0.013	0.038	0.04		0.003			0.006	0.019	0.002	1.47	0.021	0.0008	0.01	0.0041	0.38				100g	RM	Petroleum	
051-C05	%	0.005	0.045	0.027		0.002			0.006	0.024	0.0013	1.68	0.009	0.0004	0.012	0.0003	0.3				100g	RM	Petroleum	
051-C22	%	0.009	0.011	0.022		0.0023			0.014	0.012	0.0013	2.2	0.017	0.0004	0.015	0.0011	0.23				100g	RM	Petroleum	
051-C24	%	0.006	0.0057	0.009		0.002			0.004	0.0048	0.0013	1.48	0.017	0.0002	0.0078	0.0003	0.13				100g	RM	Petroleum	
051-C26	%	0.004	0.0044	0.008		0.0012			0.004	0.0069	0.0013	1.45	0.01	0.0002	0.007	0.0003	0.09				100g	RM	Petroleum	
051-C27	%	0.004	0.0035	0.006		0.0023			0.015	0.01	0.0013	1.55	0.002	0.0001	0.0097	0.0002	0.14				100g	RM	Petroleum	
051-C28	%	0.003	0.0036	0.007		0.001			0.004	0.0066	0.0013	1.44	0.007	0.0001	0.0072	0.0003	0.08				100g	RM	Petroleum	
051-C29	%	0.005	0.0086	0.015		0.0013			0.014	0.0134	0.0013	2.62	0.007	0.0002	0.019	0.0008	0.18				100g	RM	Petroleum	
051-C30	%	0.003	0.0027	0.0036		0.0014			0.007	0.009	0.0013	1.13	0.001	0.0001	0.0043	0.0003	0.08				100g	RM	Petroleum	
051-C41	%	0.003	0.001	0.003		0.002			0.001	0.013	0.0013	2.58	0.002	0.0002	0.026	0.0002	0.13				100g	RM	Petroleum	
051-C42	%	0.013	0.014	0.035		0.003			0.012	0.011	0.0013	1.69	0.02	0.0005	0.012	0.0005	0.24				100g	RM	Petroleum	
071-PC1	%											6.96					6.63	12940b		H2O <2	75g	CRM	Petroleum	
071-PC2	%											6.04					2.57	14737b		H2O <2	75g	CRM	Petroleum	
267-742B	%		93.81	0.0037	0.0129	1.37		3.76		0.0068		1.15	0.0081		0.0022		0.09		9.67		75g	RM	Green	
267-744	%		96.28	0.0169	0.186	0.2		1.17		0.0145		1.85	0.0255		0.0187		0.5		0.45		50g	RM	Calcined	
267-745	%		93.59	0.004	0.0157	3.1		0.19		0.0039		0.46	0.0437		0.0021		0.16		5.69		50g	RM	Green	
267-747	%		89.02	0.0045	0.0101	3.83		1.32		0.0192		4.54	0.0147		0.0473		0.2		13.13		50g	RM	Green	
267-748	%			0.012	0.0332					0.0122		2.75	0.0315		0.031		0.33		0.51		50g	RM	Calcined	
267-756	%		87.63	0.004	0.0623	1.19		1.78		0.026		6.23	0.0856		0.1214		0.81		5.97		50g	RM	Green	
CALCINED	AI	C	Ca	Fe	H	Mg	Mn	N	Na	Ni	Pb	S	Si	Ti	V	Zn	Ash	GCV	VM	Bulk Density	Others/Set Only	Size	Type	Origin
240-BR(CPC)	%											2.06	0.011		-0.027							100g	RM	
240-BS(CPC)	%			0.014	0.038						0.018	2.1	0.033		0.024							100g	RM	
240-CAB(CPC)	%			0.11	0.025						0.011	2.49	0.019		0.021							100g	RM	
331-2719	%	0.0058	-0.12		-97.1	0.0057	-32.9	0.0018	0.0201	-0.17	-1.17	0.0015	0.0204	0.887	-0.0138	0.0058	-0.54				50g	CRM		
GREEN	AI	C	Ca	Fe	H	Mg	Mn	N	Na	Ni	Pb	S	Si	Ti	V	Zn	Ash	Cal Val	Vol	Others/Set Only	Size	Type	Origin	
240-DG(GPC)	%			0.013	0.023		0.0002				0.038	1.59	0.014		0.035	0.0011						100g	RM	
240-DH(GPC)	%			0.004	0.019		0.0001				0.021	2.4	0.006		0.034	0.0008						100g	RM	
240-DI(GPC)	%			0.007	0.017		0.0001				0.004	1.02	0.013		0.004	0.0008						100g	RM	
240-DJ(GPC)	%			0.015	0.027		0.0005				0.003	0.64	0.12		0.003	0.0004						100g	RM	
331-2718	%	0.0016	-89	0.0174	0.029	-3.47	5.7a		-1.23	0.0088	0.0139	4.703	-0.063		0.0302		-0.18	-35.76	-10.6		50g	CRM		
S	AI	C	Ca	Fe	H	Mg	Mn	N	Na	Ni	Pb	S	Si	Ti	V	Zn	Ash	GCV	VM	Others/Set Only	Size	Type	Origin	
267-2712	%											0.45										50g	RM	Calcined
267-2713	%											0.4										50g	RM	Green
267-2714	%											0.9										50g	RM	Green
267-2715	%											1.63										50g	RM	Green
267-2716	%											2.01										50g	RM	Green
267-2717	%											2.35										50g	RM	Green
267-2719	%											1.85										50g	RM	Calcined
267-2720	%											5.25										50g	RM	Green
267-2722	%											2.85										50g	RM	Calcined

