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HARD ROCK COAL MINING

Testing and Analysing of Standard Project No: VR002

For Free Moisture, Proximate, Total Sulfur, Calorific Value
and Relative Density analysis

Report No: 21010694

Report To: Mr Craig Astill
Managing Director
Hard Rock Coal Mining
PO Box 3051
Pahran East, 3181
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Report CC: Mr Ken Morrison
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Sampled By: Client

Samples Received: February 2012

Order No: HRCMEX 52

Date Reported: 26 March 2012

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ANALYSIS AND TESTING REPORT

HARD ROCK COAL COMPANY

Sample Details	Sample:HVC042 Mass:0.57 kg	Sample:HVC043 Mass:1.83 kg	Sample:HVC044 Mass:2.24 kg
PROXIMATE ANALYSIS			
Moisture %	5.6	7.0	5.8
Ash %	53.6	77.2	40.5
Volatile Matter %	17.1	11.0	20.9
Fixed Carbon %	23.7	4.8	32.8
Free Moisture % (a.r.)	0.7	1.5	1.4
Total Sulfur %	0.30	0.05	0.33
CALORIFIC VALUE			
Calorific Value MJ/kg	12.22	1.79	17.11
Calorific Value kcal/kg	2918	428	4086
Relative Density	1.84	2.22	1.67

All results reported to air dried basis unless noted
a.r. = as received basis

Sample Details	Sample:HVC045 Mass:1.21 kg	Sample:HVC046 Mass:0.72 kg	Sample:HVC047 Mass:0.93 kg
PROXIMATE ANALYSIS			
Moisture %	6.0	5.9	5.1
Ash %	70.1	28.9	67.6
Volatile Matter %	13.2	23.6	13.9
Fixed Carbon %	10.7	41.6	13.4
Free Moisture % (a.r.)	1.3	1.1	1.7
Total Sulfur %	0.14	0.42	0.11
CALORIFIC VALUE			
Calorific Value MJ/kg	5.40	21.23	5.27
Calorific Value kcal/kg	1290	5070	1260
Relative Density	2.05	1.55	2.09

All results reported to air dried basis unless noted
a.r. = as received basis



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ANALYSIS AND TESTING REPORT

HARD ROCK COAL COMPANY

Sample Details	Sample:HVC048 Mass:0.34 kg	Sample:HVC049 Mass:0.97 kg	Sample:HVC050 Mass:1.04 kg
PROXIMATE ANALYSIS			
Moisture %	5.2	5.0	5.1
Ash %	21.4	45.6	36.9
Volatile Matter %	29.2	19.0	22.2
Fixed Carbon %	44.2	30.4	35.8
Free Moisture % (a.r.)	6.6	1.2	1.3
Total Sulfur %	0.51	0.29	0.28
CALORIFIC VALUE			
Calorific Value MJ/kg	24.39	15.39	17.88
Calorific Value kcal/kg	5824	3674	4270
Relative Density	1.48	1.74	1.65

All results reported to air dried basis unless noted
a.r. = as received basis

Sample Details	Sample:HVC051 Mass:1.49 kg	Sample:HVC052 Mass:0.68 kg	Sample:HVC053 Mass:1.08 kg
PROXIMATE ANALYSIS			
Moisture %	5.4	5.6	6.4
Ash %	34.9	37.3	41.1
Volatile Matter %	23.2	19.5	18.3
Fixed Carbon %	36.5	37.6	34.2
Free Moisture % (a.r.)	1.3	0.8	1.3
Total Sulfur %	0.39	0.24	0.33
CALORIFIC VALUE			
Calorific Value MJ/kg	18.78	17.77	17.22
Calorific Value kcal/kg	4484	4244	4112
Relative Density	1.61	1.67	1.67

All results reported to air dried basis unless noted
a.r. = as received basis



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ANALYSIS AND TESTING REPORT

HARD ROCK COAL COMPANY

Sample Details	Sample:HVC054 Mass:0.74 kg	Sample:HVC055 Mass:2.70 kg	Sample:HVC056 Mass:1.26 kg
PROXIMATE ANALYSIS			
Moisture %	6.8	5.8	5.0
Ash %	27.7	33.4	22.4
Volatile Matter %	23.8	24.0	24.9
Fixed Carbon %	41.7	36.8	47.7
Free Moisture % (a.r.)	1.2	0.4	0.1
Total Sulfur %	0.44	0.43	0.40
CALORIFIC VALUE			
Calorific Value MJ/kg	21.62	19.87	24.38
Calorific Value kcal/kg	5164	4744	5822
Relative Density	1.52	1.57	1.48

All results reported to air dried basis unless noted
a.r. = as received basis

Sample Details	Sample:HVC057 Mass:1.88 kg	Sample:HVC058 Mass:0.73 kg	Sample:HVC059 Mass:1.36 kg
PROXIMATE ANALYSIS			
Moisture %	5.1	4.2	4.4
Ash %	33.1	82.3	34.0
Volatile Matter %	19.5	8.7	24.8
Fixed Carbon %	42.3	4.8	36.8
Free Moisture % (a.r.)	0.2	0.8	0.3
Total Sulfur %	0.37	0.07	0.53
CALORIFIC VALUE			
Calorific Value MJ/kg	19.79	0.33	20.14
Calorific Value kcal/kg	4728	78	4810
Relative Density	1.63	2.29	1.58

All results reported to air dried basis unless noted
a.r. = as received basis



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ANALYSIS AND TESTING REPORT

HARD ROCK COAL COMPANY

Sample Details	Sample:HVC060 Mass:2.20 kg
PROXIMATE ANALYSIS	
Moisture %	4.8
Ash %	22.4
Volatile Matter %	26.4
Fixed Carbon %	46.4
Free Moisture % (a.r.)	0.3
Total Sulfur %	0.49
CALORIFIC VALUE	
Calorific Value MJ/kg	23.96
Calorific Value kcal/kg	5722
Relative Density	1.48

All results reported to air dried basis unless noted
a.r. = as received basis



ACCREDITED TESTS

HARD COAL TEST	ABBREVIATION	STANDARD /REFERENCE
Abrasion Index	AI	AS1038.19
Adiabatic Self Heating		AL035 (In-House)
Ash	A	AS1038.3
Ash Fusibility		AS1038.15
Carbon		AS1038.6.4
Carbonate Carbon	C _m	AS1038.23
Chlorine	Cl	AS1038.8
Crucible Swelling Number	CSN	AS1038.12.1
Dilatometer		AS 1038.12.3
Fixed Carbon	FC	AS1038.3
Float/Sink Analysis	F/S	AS4156.1
Forms of Sulfur	FOS [S _o , S _p , S _s]	AS1038.11
Gieseler		AS1038.12.4.1
Gray King Coke Type	GKCT	AS1038.12.2
Hardgrove Grindability Index	HGI	AS1038.20
Hydrogen	H	AS1038.6.4
Moisture (residual)	M _r	AS1038.3
Moisture Holding Capacity	MHC	AS1038.17
Nitrogen	N	AS1038.6.4
Oxygen	O	AS1038.16
Phosphorus	P	BS1016.14
Relative Density	RD	AS1038.21.1.1
Relative Ignition Temperature	RIT	AL030 (In-House)
Size Analysis		AS3881
Gross Calorific Value	q	AS1038.5
Total Moisture	M	AS1038.1
Total Sulfur	S	AS1038.6.3.3
Volatile Matter	VM	AS1038.3
Ash Analysis		AL044 (In-House) *

COKE TEST	ABBREVIATION	STANDARD /REFERENCE
Proximate Analysis		AS 1038.4

Note(s):

1. Acceptance and reporting of results is in accordance with AS1038.16
2. Sampling by ACIRL is in accordance with the following AS2617 (seams, insitu);
AS4264.1 Sampling Procedures ;
AS4264.4 Determination of Precision and Bias
3. All analyses reported to Air-Dried Basis unless otherwise indicated.
- *4. Ash Analysis performed at ACIRL Maitland laboratory (accreditation held).
Based on AS1038.14.2, variation ICP instead of flame for species excitation.



NON ACCREDITED TEST

The following tests are not covered in by the scope of accreditation relating to the laboratories technical accreditation.

<u>TEST</u>	<u>STANDARD/REFERENCE</u>
Drop Shatter	AS2519
Durham Cone	AS1038.25
Froth Flotation	AS4156.2 and Client Specific Procedures
Mineral Matter	AS1038.22
Pre- Treatment	AS2519
Roadway Dusts	QLD Department of Mines and Energy – Quality of incompatible dust, sampling and analysis of roadway dust in underground coal mine – Coal Mining Safety and Health Act 1999 Recognised Standard – No. 05, July 2003
Roga Index	ISO335
Caking Index	ISO15585
Sapozhnikov	Journal of Mine Metals and Fuels India Oct 1978
Size Adjustment	AS2519

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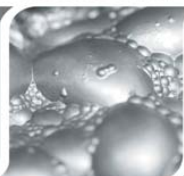
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