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HARD ROCK COAL MINING

Testing and Analysing of Standard Project No: VR004B

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

Report No: 21010728

Report To: Mr Craig Astill
Managing Director
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Report CC: Mr Ken Morrison
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Sampled By: Client

Samples Received: March 2012

Order No: HRCMEX 53

Date Reported: 11 April 2012

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ANALYSIS AND TESTING REPORT

HARD ROCK COAL COMPANY

Sample Details	VR004B Project Sample:HVC066 Mass:5.74 kg	VR004B Project Sample:HVC067 Mass:2.44 kg	VR004B Project Sample:HVC068 Mass:2.37 kg
PROXIMATE ANALYSIS			
Moisture %	4.7	3.7	3.4
Ash %	24.2	72.6	34.5
Volatile Matter %	21.6	15.0	26.2
Fixed Carbon %	49.5	8.7	35.9
Free Moisture % (a.r.)	1.2	0.8	0.8
Total Sulfur %	0.31	0.09	0.40
CALORIFIC VALUE			
Calorific Value MJ/kg	23.24	5.13	20.14
Calorific Value kcal/kg	5552	1224	4810
Relative Density	1.54	2.12	1.59

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

Sample Details	VR004B Project Sample:HVC069 Mass:2.31 kg	VR004B Project Sample:HVC070 Mass:0.81 kg	VR004B Project Sample:HVC071 Mass:1.12 kg
PROXIMATE ANALYSIS			
Moisture %	4.1	4.2	4.6
Ash %	33.1	20.8	52.6
Volatile Matter %	22.2	27.3	17.2
Fixed Carbon %	40.6	47.7	25.6
Free Moisture % (a.r.)	1.1	0.7	1.3
Total Sulfur %	0.31	0.61	0.27
CALORIFIC VALUE			
Calorific Value MJ/kg	19.95	25.11	12.84
Calorific Value kcal/kg	4766	5998	3066
Relative Density	1.63	1.47	1.82

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	VR004B Project Sample:HVC072 Mass:1.43 kg	VR004B Project Sample:HVC073 Mass:1.42 kg
PROXIMATE ANALYSIS		
Moisture %	4.6	4.2
Ash %	43.8	54.0
Volatile Matter %	18.9	15.6
Fixed Carbon %	32.7	26.2
Free Moisture % (a.r.)	0.9	1.2
Total Sulfur %	0.29	0.22
CALORIFIC VALUE		
Calorific Value MJ/kg	15.47	12.10
Calorific Value kcal/kg	3696	2890
Relative Density	1.74	1.88

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.



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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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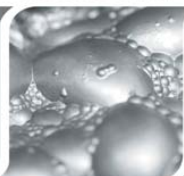
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