

**COAL BANK SAMPLE**

**COAL:LA JAGUA**

GRADE:SINGLES

SEAM:

BCC COAL RANK CODE:802

ECE / ISO CLASSIFICATION:711

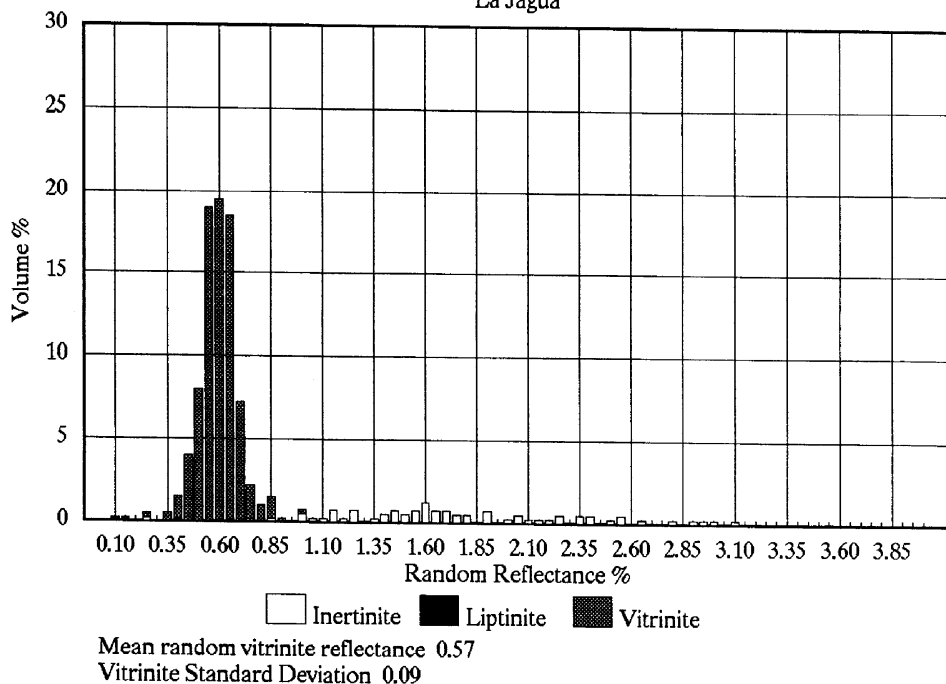
PROXIMATE ANALYSIS (% a.d.)		ULTIMATE ANALYSIS (%)		ASH ANALYSIS (% on ash)	
Moisture	4.4	Carbon (dmmf)	82.6	Na <sub>2</sub> O	0.7
Ash	2.1	Hydrogen (dmmf)	4.9	K <sub>2</sub> O	<0.5
Volatile matter	38.7	Oxygen (dmmf)	10.0	CaO	1.4
Fixed carbon	54.8	Nitrogen (dmmf)	1.57	MgO	0.3
Volatile matter (dmmf)	41.5			Fe <sub>2</sub> O <sub>3</sub>	7.4
				Al <sub>2</sub> O <sub>3</sub>	29.0
		Organic sulphur (db)	0.41	SiO <sub>2</sub>	55.4
		Sulphate as S (db)	<0.01	SO <sub>3</sub>	0.3
		Pyritic sulphur as S (db)	0.08	TiO <sub>2</sub>	1.5
				Mn <sub>3</sub> O <sub>4</sub>	<0.1
				P <sub>2</sub> O <sub>5</sub>	1.1
		Chlorine (db)	0.14		
		Carbon dioxide (db)	0.06		
		Mineral matter (db)	2.35		
<b>CAKING PROPERTIES</b>		<b>MACERAL ANALYSIS</b> (% by volume, mmf)			
Swelling Index	1.5	Vitrinite	83		
Gray-King Coke Type	C	Exinite	1		
		Inertinite	16		
<b>CALORIFIC VALUE</b>					
kJ / kg (daf)	33800				
<b>ASH FUSION RANGE (°C) *</b>					
Deformation temp.	1340				
Hemisphere temp.	>1500				
Flow temp.	>1500				

\*Test atmosphere: reducing (50% CO<sub>2</sub> / 50% H<sub>2</sub>)

ad: as analysed  
 db: dry basis  
 daf: dry, ash free  
 dmmf: dry, mineral matter free  
 mmf: mineral matter free

This analysis is typical of this specially selected sample, but there may be slight variations between the data given above and that of the actual sample supplied.

**INTERACTIVE REFLECTANCE HISTOGRAM**  
 La Jagua



COAL BANK SAMPLE

COAL:LITTLETON

GRADE:SINGLES

SEAM:

BCC COAL RANK CODE:802

ECE / ISO CLASSIFICATION:711

PROXIMATE ANALYSIS

(% a.d.)	
Moisture	5.5
Ash	3.8
Volatile matter	34.5
Fixed carbon	56.2
Volatile matter (dmmf)	38.4

ULTIMATE ANALYSIS (%)

Carbon (dmmf)	82.5
Hydrogen (dmmf)	5.7
Oxygen (dmmf)	8.9
Nitrogen (dmmf)	1.68

ASH ANALYSIS  
(% on ash)

Na <sub>2</sub> O	4.4
K <sub>2</sub> O	1.5
CaO	9.5
MgO	3.0
Fe <sub>2</sub> O <sub>3</sub>	13.3
Al <sub>2</sub> O <sub>3</sub>	21.7
SiO <sub>2</sub>	32.4
SO <sub>3</sub>	10.7
TiO <sub>2</sub>	0.8
Mn <sub>3</sub> O <sub>4</sub>	0.2
P <sub>2</sub> O <sub>5</sub>	0.7

CAKING PROPERTIES

Swelling Index	1
Gray-King Coke Type	D

Organic sulphur (db)	0.76
Sulphate as S (db)	<0.01
Pyritic sulphur as S (db)	0.16

Chlorine (db)	0.70
Carbon dioxide (db)	0.36
Mineral matter (db)	4.81

CALORIFIC VALUE

kJ / kg (daf)	34100
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MACERAL ANALYSIS  
(% by volume, mmf)

Vitrinite	73
Exinite	9
Inertinite	18

ASH FUSION RANGE (°C) \*

Deformation temp.	1090
Hemisphere temp.	1120
Flow temp.	1160

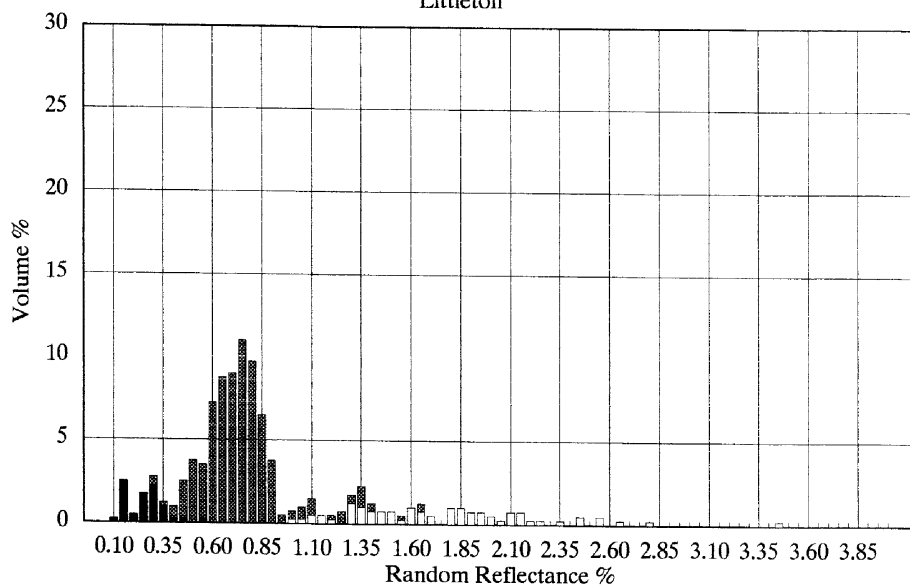
\*Test atmosphere: reducing (50% CO<sub>2</sub> / 50% H<sub>2</sub>)

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ad: as analysed  
db: dry basis  
daf: dry, ash free  
dmmf: dry, mineral matter free  
mmf: mineral matter free

APPENDIX 27B

INTERACTIVE REFLECTANCE HISTOGRAM  
Littleton



□ Inertinite    ■ Liptinite    ▨ Vitrinite

Mean random vitrinite reflectance 0.72  
Vitrinite Standard Deviation 0.21

COAL BANK SAMPLE

COAL:ASFORDBY

GRADE:SMALLS

SEAM:

BCC COAL RANK CODE:902

ECE / ISO CLASSIFICATION:801

PROXIMATE ANALYSIS

(% a.d.)	
Moisture	5.5
Ash	9.8
Volatile matter	36.1
Fixed carbon	48.6
Volatile matter (dmmf)	43.3

ULTIMATE ANALYSIS (%)

Carbon (dmmf)	82.5
Hydrogen (dmmf)	5.47
Oxygen (dmmf)	9.6
Nitrogen (dmmf)	1.53

ASH ANALYSIS  
(% on ash)

Na <sub>2</sub> O	1.0
K <sub>2</sub> O	1.7
CaO	5.0
MgO	1.5
Fe <sub>2</sub> O <sub>3</sub>	8.8
Al <sub>2</sub> O <sub>3</sub>	27.1
SiO <sub>2</sub>	49.1
SO <sub>3</sub>	3.1
TiO <sub>2</sub>	1.6
Mn <sub>3</sub> O <sub>4</sub>	0.1
P <sub>2</sub> O <sub>5</sub>	0.8

CAKING PROPERTIES

Swelling Index	0.5
Gray-King Coke Type	B

Organic sulphur (db)	0.52
Sulphate as S (db)	0.01
Pyritic sulphur as S (db)	0.37

Chlorine (db)	0.02
Carbon dioxide (db)	0.33
Mineral matter (db)	11.75

CALORIFIC VALUE

kJ / kg (daf)	33080
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MACERAL ANALYSIS  
(% by volume, mmf)

Vitrinite	74
Exinite	13
Inertinite	13

ASH FUSION RANGE (°C) \*

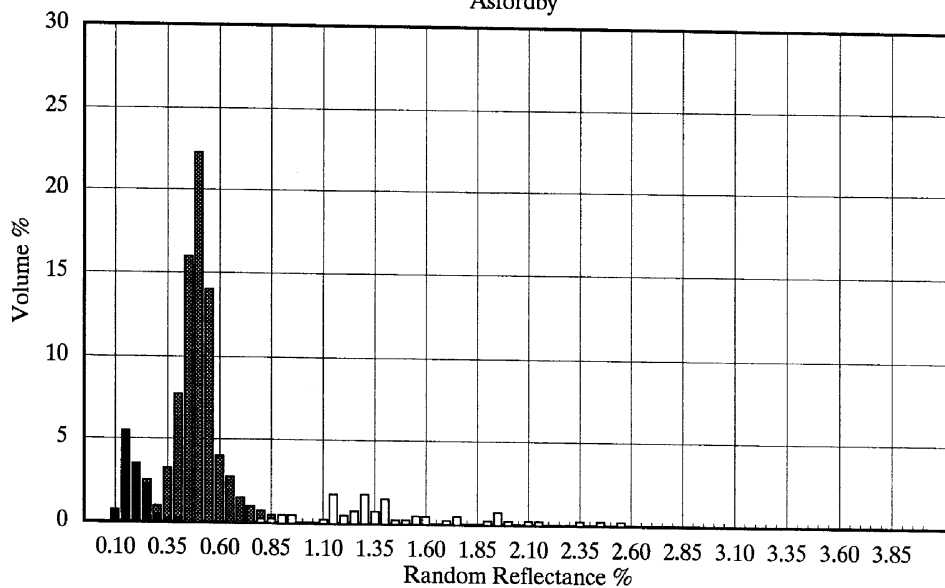
Deformation temp.	1210
Hemisphere temp.	1340
Flow temp.	1440

\*Test atmosphere: reducing (50% CO<sub>2</sub> / 50% H<sub>2</sub>)

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ad: as analysed  
db: dry basis  
daf: dry, ash free  
dmmf: dry, mineral matter free  
mmf: mineral matter free

INTERACTIVE REFLECTANCE HISTOGRAM  
Asfordby



□ Inertinite    ■ Liptinite    ▨ Vitrinite

Mean random vitrinite reflectance 0.48  
Vitrinite Standard Deviation 0.09

COAL BANK SAMPLE

COAL:MARKHAM MAIN

GRADE:SINGLES

SEAM:BARNSELEY

BCC COAL RANK CODE:802

ECE / ISO CLASSIFICATION:711

PROXIMATE ANALYSIS

(% a.d.)	
Moisture	8.4
Ash	3.4
Volatile matter	33.1
Fixed carbon	55.1
Volatile matter (dmmf)	37.9

CAKING PROPERTIES

Swelling Index	1
Gray-King Coke Type	C

CALORIFIC VALUE

kJ / kg (daf)	33600
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ASH FUSION RANGE (°C) \*

Deformation temp.	1070
Hemisphere temp.	1080
Flow temp.	1150

ULTIMATE ANALYSIS (%)

Carbon (dmmf)	82.4
Hydrogen (dmmf)	5.20
Oxygen (dmmf)	9.3
Nitrogen (dmmf)	1.81
Organic sulphur (db)	0.97
Sulphate as S (db)	0.03
Pyritic sulphur as S (db)	0.46
Chlorine (db)	0.66
Carbon dioxide (db)	0.37
Mineral matter (db)	4.73

MACERAL ANALYSIS

(% by volume, mmf)	
Vitrinite	80
Exinite	7
Inertinite	13

ASH ANALYSIS

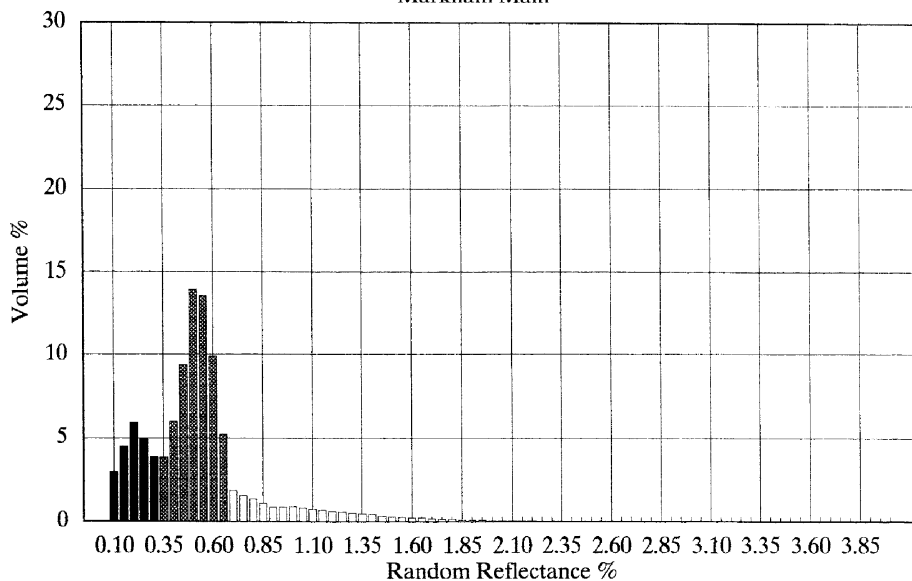
(% on ash)	
Na <sub>2</sub> O	7.1
K <sub>2</sub> O	0.9
CaO	7.5
MgO	0.9
Fe <sub>2</sub> O <sub>3</sub>	22.4
Al <sub>2</sub> O <sub>3</sub>	23.9
SiO <sub>2</sub>	30.1
SO <sub>3</sub>	4.6
TiO <sub>2</sub>	1.1
Mn <sub>3</sub> O <sub>4</sub>	<0.1
P <sub>2</sub> O <sub>5</sub>	2.2

\*Test atmosphere: reducing (50% CO<sub>2</sub> / 50% H<sub>2</sub>)

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ad: as analysed  
 db: dry basis  
 daf: dry, ash free  
 dmmf: dry, mineral matter free  
 mmf: mineral matter free

REFLECTANCE HISTOGRAM  
 Markham Main



Legend:   
 □ Inertinite    ■ Liptinite    ▨ Vitrinite  
 Mean random vitrinite reflectance 0.50  
 Vitrinite Standard Deviation 0.08

**COAL BANK SAMPLE**

**COAL:GEDLING**

**GRADE:SPECIALS**

**SEAM:HIGH HAZEL**

**BCC COAL RANK CODE:802**

**ECE / ISO CLASSIFICATION:811**

PROXIMATE ANALYSIS (% a.d.)		ULTIMATE ANALYSIS (%)		ASH ANALYSIS (% on ash)	
Moisture	10.0	Carbon (dmmf)	81.6	Na <sub>2</sub> O	10.0
Ash	2.0	Hydrogen (dmmf)	5.2	K <sub>2</sub> O	0.4
Volatile matter	34.5	Oxygen (dmmf)	10.3	CaO	13.3
Fixed carbon	53.5	Nitrogen (dmmf)	1.7	MgO	3.8
Volatile matter (dmmf)	39.4			Fe <sub>2</sub> O <sub>3</sub>	10.0
		Organic sulphur (db)	0.89	Al <sub>2</sub> O <sub>3</sub>	19.3
		Sulphate as S (db)	0.02	SiO <sub>2</sub>	23.4
		Pyritic sulphur as S (db)	0.07	SO <sub>3</sub>	17.4
				TiO <sub>2</sub>	0.6
				Mn <sub>3</sub> O <sub>4</sub>	0.3
				P <sub>2</sub> O <sub>5</sub>	0.1
		Chlorine (db)	0.46		
		Carbon dioxide (db)	0.28		
		Mineral matter (db)	2.76		
CAKING PROPERTIES		MACERAL ANALYSIS (% by volume, mmf)			
Swelling Index	1	Vitrinite	65		
Gray-King Coke Type	C	Exinite	15		
		Inertinite	20		
CALORIFIC VALUE					
kJ / kg (daf)	33580				
ASH FUSION RANGE (°C) *					
Deformation temp.	1050				
Hemisphere temp.	1130				
Flow temp.	1180				

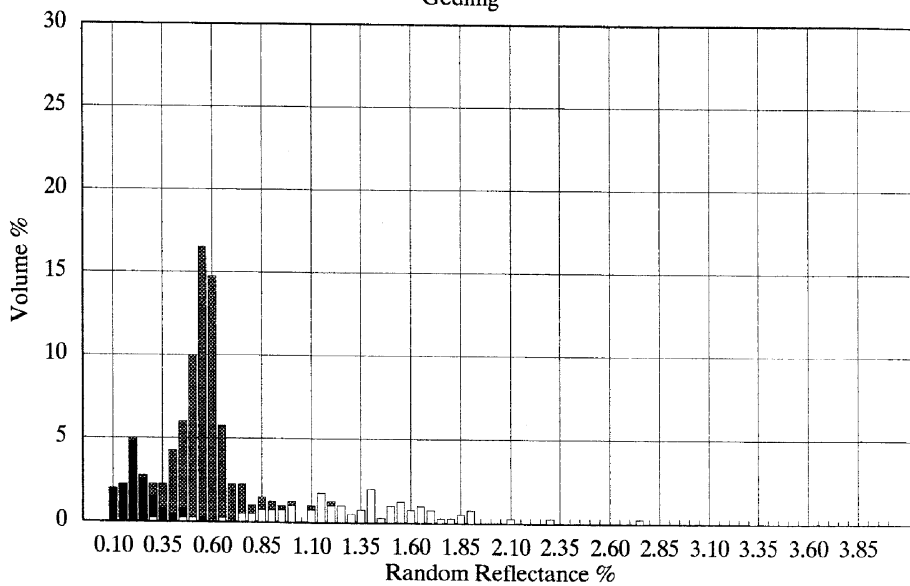
\*Test atmosphere: reducing (50% CO<sub>2</sub> / 50% H<sub>2</sub>)

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db: dry basis  
daf: dry, ash free  
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mmf: mineral matter free

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APPENDIX 30B

**INTERACTIVE REFLECTANCE HISTOGRAM**  
Gedling



Inertinite
  Liptinite
  Vitrinite

Mean random vitrinite reflectance 0.54  
Vitrinite Standard Deviation 0.12