

COAL BANK SAMPLE

COAL:CYNHEIDRE

GRADE:SPECIAL

SEAM:PUMPQUART

BCC COAL RANK CODE:101

ECE / ISO CLASSIFICATION:100A

PROXIMATE ANALYSIS

(% a.d.)	
Moisture	1.6
Ash	1.8
Volatile matter	4.6
Fixed carbon	92.0
Volatile matter (dmmf)	4.8

ULTIMATE ANALYSIS (%)

Carbon (dmmf)	95.2
Hydrogen (dmmf)	2.9
Oxygen (dmmf)	0.3
Nitrogen (dmmf)	1.0

ASH ANALYSIS

(% on ash)	
Na ₂ O	3.7
K ₂ O	0.3
CaO	3.6
MgO	2.0
Fe ₂ O ₃	15.1
Al ₂ O ₃	31.0
SiO ₂	39.1
SO ₃	3.4
TiO ₂	0.4
Mn ₃ O ₄	0.2
P ₂ O ₅	0.2

CAKING PROPERTIES

Swelling Index	0
Gray-King Coke Type	A

Organic sulphur (db)	0.59
Sulphate as S (db)	0.02
Pyritic sulphur as S (db)	0.02

Chlorine (db)	0.03
Carbon dioxide (db)	0.22
Mineral matter (db)	2.11

CALORIFIC VALUE

kJ / kg (daf)	35640
---------------	-------

MACERAL ANALYSIS

(% by volume , mmf)	
Vitrinite	96
Exinite	0
Inertinite	4

ASH FUSION RANGE (°C) *

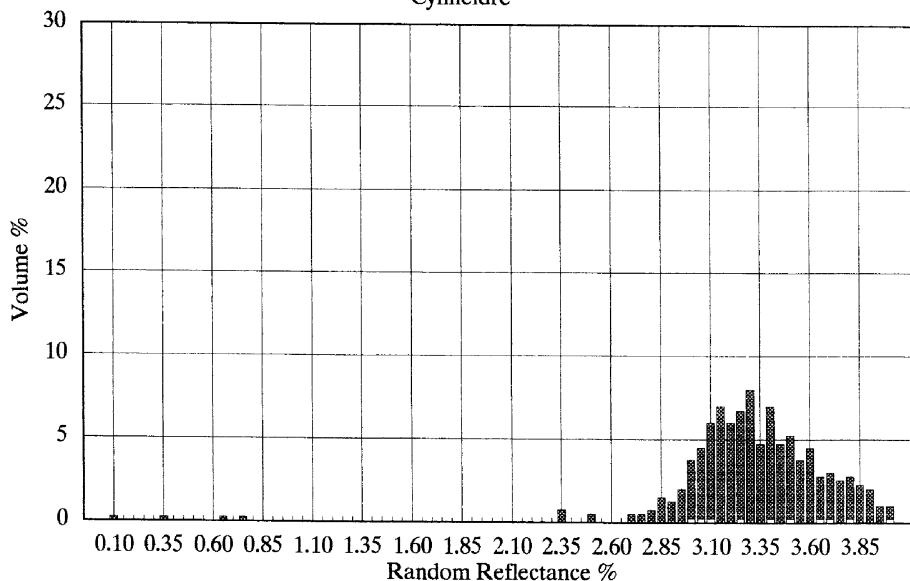
Deformation temp.	1210
Hemisphere temp.	1230
Flow temp.	1330

*Test atmosphere: reducing (50% CO₂ / 50% H₂)

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
 Cynheidre



□ Inertinite ■ Liptinite ▨ Vitrinite

Mean random vitrinite reflectance 3.29
 Vitrinite Standard Deviation 0.42

COAL BANK SAMPLE

COAL:TAFF MERTHYR

GRADE:SPECIAL

SEAM:SEVERN FEET

BCC COAL RANK CODE:201B

ECE / ISO CLASSIFICATION:211

PROXIMATE ANALYSIS

(% a.d.)	
Moisture	0.8
Ash	4.0
Volatile matter	12.7
Fixed carbon	82.5
Volatile matter (dmmf)	13.4

ULTIMATE ANALYSIS (%)

Carbon (dmmf)	92.4
Hydrogen (dmmf)	4.2
Oxygen (dmmf)	1.2
Nitrogen (dmmf)	1.5
Organic sulphur (db)	0.67
Sulphate as S (db)	0.02
Pyritic sulphur as S (db)	0.03
Chlorine (db)	0.05
Carbon dioxide (db)	0.17
Mineral matter (db)	4.55

ASH ANALYSIS
(% on ash)

Na ₂ O	2.9
K ₂ O	0.4
CaO	3.9
MgO	1.0
Fe ₂ O ₃	3.7
Al ₂ O ₃	39.5
SiO ₂	39.2
SO ₃	2.6
TiO ₂	0.6
Mn ₃ O ₄	<0.1
P ₂ O ₅	5.2

CAKING PROPERTIES

Swelling Index	1
Gray-King Coke Type	B

CALORIFIC VALUE

kJ / kg (daf)	36500
---------------	-------

MACERAL ANALYSIS
(% by volume , mmf)

Vitrinite	88
Exinite	1
Inertinite	11

ASH FUSION RANGE (°C) *

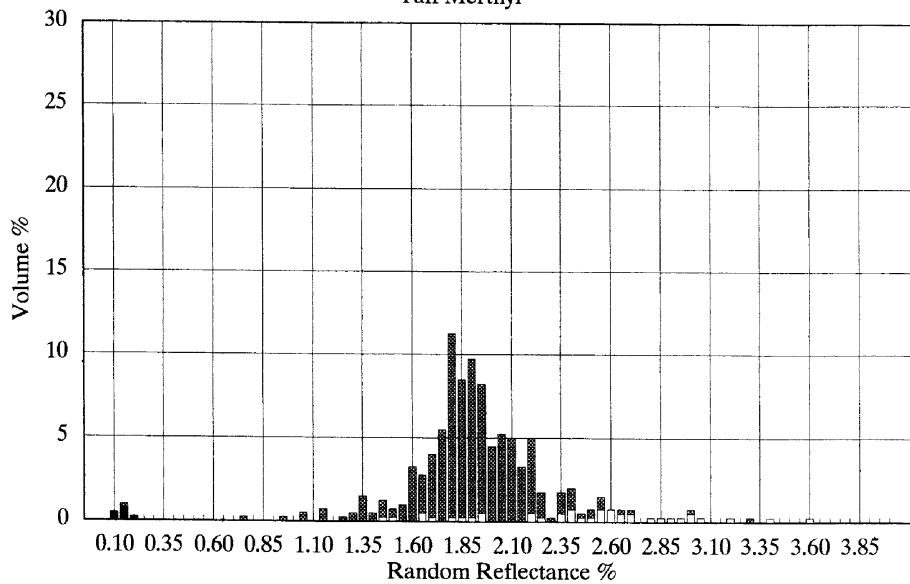
Deformation temp.	1330
Hemisphere temp.	1350
Flow temp.	>1500

*Test atmosphere: reducing (50% CO₂ / 50% H₂)

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.

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

INTERACTIVE REFLECTANCE HISTOGRAM
Taff Merthyr



Mean random vitrinite reflectance 1.87
Vitrinite Standard Deviation 0.30

COAL BANK SAMPLE

COAL:DEEP NAVIGATION

GRADE:PEAS

SEAM:

BCC COAL RANK CODE:201a

ECE / ISO CLASSIFICATION:200

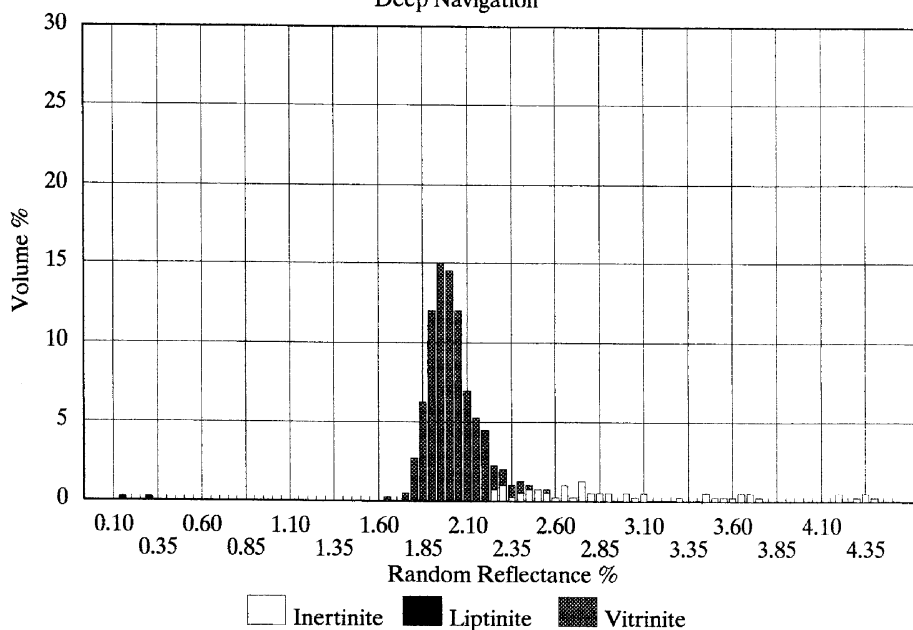
PROXIMATE ANALYSIS (% a.d.)		ULTIMATE ANALYSIS (%)		ASH ANALYSIS (% on ash)	
Moisture	0.8	Carbon (dmmf)	92.2	Na ₂ O	1.1
Ash	8.5	Hydrogen (dmmf)	4.1	K ₂ O	1.8
Volatile matter	11.4	Oxygen (dmmf)	1.5	CaO	2.6
Fixed carbon	79.3	Nitrogen (dmmf)	1.43	MgO	1.2
Volatile matter (dmmf)	12.7			Fe ₂ O ₃	6.5
				Al ₂ O ₃	33.0
HARDGROVE INDEX	70	Organic sulphur (db)	0.71	SiO ₂	48.2
		Sulphate as S (db)	<0.01	SO ₃	2.3
CAKING PROPERTIES		Pyritic sulphur as S (db)	0.25	TiO ₂	1.1
Swelling Index	0.5			Mn ₃ O ₄	<0.1
Gray-King Coke Type	A	Chlorine (db)	0.03	P ₂ O ₅	1.4
		Carbon dioxide (db)	0.27		
		Mineral matter (db)	9.70		
CALORIFIC VALUE		MACERAL ANALYSIS			
kJ / kg (daf)	36005	(% by volume , mmf)			
		Vitrinite	84		
		Exinite	1		
		Inertinite	15		
ASH FUSION RANGE (°C) *					
Deformation temp.	1360				
Hemisphere temp.	>1500				
Flow temp.	>1500				

*Test atmosphere: reducing (50% CO₂ / 50% H₂)

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.

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

INTERACTIVE REFLECTANCE HISTOGRAM
 Deep Navigation



Mean random vitrinite reflectance 1.98
 Vitrinite Standard Deviation 0.13

COAL BANK SAMPLE

COAL:CWM

GRADE:TREBLES

SEAM:

BCC COAL RANK CODE:301A

ECE / ISO CLASSIFICATION:434

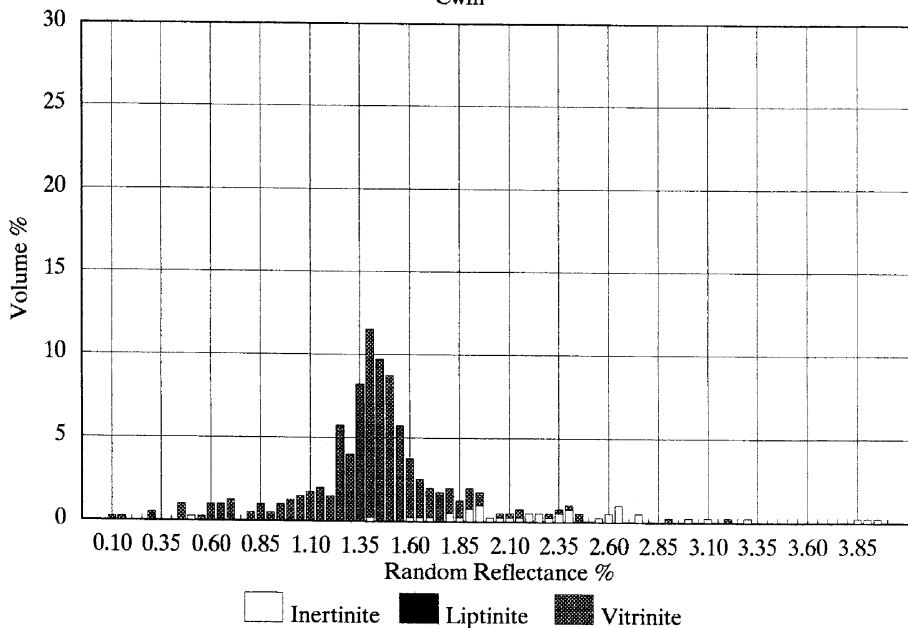
PROXIMATE ANALYSIS (% a.d.)		ULTIMATE ANALYSIS (%)		ASH ANALYSIS (% on ash)	
Moisture	0.7	Carbon (dmmf)	90.3	Na ₂ O	0.3
Ash	5.9	Hydrogen (dmmf)	4.4	K ₂ O	0.2
Volatile matter	20.9	Oxygen (dmmf)	3.0	CaO	2.7
Fixed carbon	72.5	Nitrogen (dmmf)	1.51	MgO	0.9
Volatile matter (dmmf)	22.6			Fe ₂ O ₃	4.0
		Organic sulphur (db)	0.74	Al ₂ O ₃	38.3
		Sulphate as S (db)	0.02	SiO ₂	46.1
		Pyritic sulphur as S (db)	0.08	SO ₃	1.9
				TiO ₂	1.7
				Mn ₃ O ₄	0.1
				P ₂ O ₅	3.0
		Chlorine (db)	0.02		
		Carbon dioxide (db)	0.26		
		Mineral matter (db)	6.80		
CAKING PROPERTIES		MACERAL ANALYSIS (% by volume , mmmf)			
Swelling Index	9	Vitrinite	86		
Gray-King Coke Type	G6	Exinite	0		
		Inertinite	14		
CALORIFIC VALUE					
kJ / kg (daf)	36400				
ASH FUSION RANGE (°C) *					
Deformation temp.	>1500				
Hemisphere temp.	>1500				
Flow temp.	>1500				

*Test atmosphere: reducing (50% CO₂ / 50% H₂)

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.

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

INTERACTIVE REFLECTANCE HISTOGRAM
 Cwm



Mean random vitrinite reflectance 1.37
 Vitrinite Standard Deviation 0.36