

**GALLAGHER COAL RESEARCH CENTER, INC.**

P.O. Box 1227, Crab Orchard, West Virginia 25827  
304-683-2060 (office) 304-683-2063 (fax)

**LAB NO.:** 324095                      **COMPANY:** BENS CREEK OPERATIONS  
**DATE SAMPLED:** 3/31/22  
**DATE RECEIVED:** 3/31/22              **ADDRESS:** 109 CAPITOL STREET, STE 1000  
**SAMPLED BY:** CUSTOMER              CHARLESTON, WV 25301

**IDENTIFICATION SUPPLIED BY SAMPLER:**              **CLEAN COAL**

	<b>AS RECEIVED</b>	<b>DRY</b>
%Moisture	3.98	
%Volatile Matter	34.74	36.18
%Ash	5.28	5.50
%Fixed Carbon	56.00	58.32
	100.00	100.00

%Sulfur                      0.68                      0.71

Free Swelling Index

<b>GIESELER:</b>		<b>ARNU:</b>	
Max. Fluidity, DDPM	+30,000	% Contraction	25
Max. Fluidity, C	432	% Dilatation	143 *
Soft Temp. C	387	T1C Soft Temp.	363
Solid Temp. C	484	T2C Max. Contraction Temp.	410
Range C	97	T3C Max. Dilatation Temp.	449

OXIDATION: % T                      96.4

Respectfully Submitted:

\* Corrected to 2.5 G air dried coal and 4.00MM tube radius

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**LAB NO.:** 324186                      **COMPANY:** BENS CREEK OPERATIONS  
**DATE SAMPLED:** 4/4/22  
**DATE RECEIVED:** 4/4/22              **ADDRESS:** 109 CAPITOL STREET, STE 1000  
**SAMPLED BY:** CUSTOMER              CHARLESTON, WV 25301

**IDENTIFICATION SUPPLIED BY SAMPLER:**              **CLEAN COAL  
SAMPLE 2**

	<b>AS RECEIVED</b>	<b>DRY</b>
%Moisture	2.96	
%Volatile Matter	35.75	36.84
%Ash	4.64	4.78
%Fixed Carbon	56.65	58.38
	<hr/>	<hr/>
	100.00	100.00
%Sulfur	0.77	0.79
Free Swelling Index	7.0	

<b>GIESELER:</b>		<b>ARNU:</b>	
Max. Fluidity, DDPM	+30,000	% Contraction	18
Max. Fluidity, C	435	% Dilatation	133 *
Soft Temp. C	384	T1C Soft Temp.	367
Solid Temp. C	482	T2C Max. Contraction Temp.	412
Range C	98	T3C Max. Dilatation Temp.	448
Oxidation: % T	97.4		

Respectfully Submitted:

\* Corrected to 2.5 G air dried coal and 4.00MM tube radius

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P.O. Box 1227, Crab Orchard, West Virginia 25827  
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**LAB NO.:** 324228                      **COMPANY:** BENS CREEK OPERATIONS  
**DATE SAMPLED:** 4/6/22  
**DATE RECEIVED:** 4/6/22              **ADDRESS:** 109 CAPITOL STREET, STE 1000  
**SAMPLED BY:** CUSTOMER              CHARLESTON, WV 25301

**IDENTIFICATION SUPPLIED BY SAMPLER:              CLEAN COAL**

	<b>AS RECEIVED</b>	<b>DRY</b>
%Moisture	5.92	
%Volatile Matter	33.72	35.84
%Ash	6.95	7.39
%Fixed Carbon	53.41	56.77
	<hr/>	<hr/>
	100.00	100.00
%Sulfur	0.72	0.76
FSI	7.5	

<b>GIESELER:</b>		<b>ARNU:</b>	
Max. Fluidity, DDPM	+30,000	% Contraction	22
Max. Fluidity, C	435	% Dilatation	135 *
Soft Temp. C	389	T1C Soft Temp.	359
Solid Temp. C	483	T2C Max. Contraction Temp.	413
Range C	94	T3C Max. Dilatation Temp.	443

Oxidation: % T                      96.4

Respectfully Submitted:

\* Corrected to 2.5 G air dried coal and 4.00MM tube radius

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P.O. Box 1227, Crab Orchard, West Virginia 25827  
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<b>LAB NO.:</b>	324229	<b>COMPANY:</b>	BENS CREEK OPERATIONS
<b>DATE SAMPLED:</b>	4/6/22		
<b>DATE RECEIVED:</b>	4/6/22	<b>ADDRESS:</b>	109 CAPITOL STREET, STE 1000
<b>SAMPLED BY:</b>	CUSTOMER		CHARLESTON, WV 25301

**IDENTIFICATION SUPPLIED BY SAMPLER:                      CLEAN COAL**  
**4:30pm**

	<b>AS RECEIVED</b>	<b>DRY</b>
%Moisture	6.14	
%Volatile Matter	33.14	35.31
%Ash	7.30	7.78
%Fixed Carbon	53.42	56.91
	<hr/> 100.00	<hr/> 100.00
%Sulfur	0.70	0.75
FSI	7.5	

<b>GIESELER:</b>		<b>ARNU:</b>	
Max. Fluidity, DDPM	28,600	% Contraction	20
Max. Fluidity, C	443	% Dilatation	128 *
Soft Temp. C	395	T1C Soft Temp.	355
Solid Temp. C	481	T2C Max. Contraction Temp.	414
Range C	86	T3C Max. Dilatation Temp.	446

Oxidation: % T                      96.0

Respectfully Submitted:

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<b>LAB NO.:</b>	324331	<b>COMPANY:</b>	BENS CREEK OPERATIONS
<b>DATE SAMPLED:</b>	4/8/22		
<b>DATE RECEIVED:</b>	4/8/22	<b>ADDRESS:</b>	109 CAPITOL STREET, STE 1000
<b>SAMPLED BY:</b>	CUSTOMER		CHARLESTON, WV 25301

<b>IDENTIFICATION SUPPLIED BY SAMPLER:</b>	<b>PLANT CLEAN COAL</b>
	<b>4/8/22</b>

	<b>AS RECEIVED</b>	<b>DRY</b>
%Moisture	7.63	
%Volatile Matter	32.62	35.31
%Ash	6.84	7.41
%Fixed Carbon	52.91	57.28
	<hr/>	<hr/>
	100.00	100.00
%Sulfur	0.70	0.76
Free Swelling Index	7.5	

<b>GIESELER:</b>		<b>ARNU:</b>	
Max. Fluidity, DDPM	+30,000	% Contraction	22
Max. Fluidity, C	440	% Dilatation	129 *
Soft Temp. C	394	T1C Soft Temp.	358
Solid Temp. C	484	T2C Max. Contraction Temp.	411
Range C	90	T3C Max. Dilatation Temp.	443
Oxidation: % T	96.0		

Respectfully Submitted:

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P.O. Box 1227, Crab Orchard, West Virginia 25827  
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**LAB NO.:** 324419 **COMPANY:** BENS CREEK OPERATIONS  
**DATE SAMPLED:** 4/9/22  
**DATE RECEIVED:** 4/12/22 **ADDRESS:** 109 CAPITOL STREET, STE 1000  
**SAMPLED BY:** CUSTOMER CHARLESTON, WV 25301

**IDENTIFICATION SUPPLIED BY SAMPLER:** **PLANT CLEAN COAL**  
 4/9/22

	<b>AS RECEIVED</b>	<b>DRY</b>
%Moisture	6.35	
%Volatile Matter	33.63	35.91
%Ash	5.72	6.11
%Fixed Carbon	54.30	57.98
	<hr/>	<hr/>
	100.00	100.00
%Sulfur	0.73	0.78
Free Swelling Index	7.5	

**GIESELER:**

Max. Fluidity, DDPM +30,000  
 Max. Fluidity, C 434  
 Soft Temp. C 389  
 Solid Temp. C 486  
 Range C 97

**ARNU:**

% Contraction 24  
 % Dilatation 148 \*  
 T1C Soft Temp. 360  
 T2C Max. Contraction Temp. 410  
 T3C Max. Dilatation Temp. 445

Oxidation: % T 96.6

Respectfully Submitted:

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**GALLAGHER COAL RESEARCH CENTER, INC.**

P.O. Box 1227, Crab Orchard, West Virginia 25827  
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**LAB NO.:** 324387                      **COMPANY:** BENS CREEK OPERATIONS  
**DATE SAMPLED:** 4/11/22  
**DATE RECEIVED:** 4/11/22              **ADDRESS:** 109 CAPITOL STREET, STE 1000  
**SAMPLED BY:** CUSTOMER              CHARLESTON, WV 25301

**IDENTIFICATION SUPPLIED BY SAMPLER:**              **PLANT CLEAN COAL**

	<b>AS RECEIVED</b>	<b>DRY</b>
%Moisture	6.07	
%Volatile Matter	33.79	35.97
%Ash	4.90	5.22
%Fixed Carbon	55.24	58.81
	<hr/>	<hr/>
	100.00	100.00
%Sulfur	0.70	0.75
FSI	8	

<b>GIESELER:</b>		<b>ARNU:</b>	
Max. Fluidity, DDPM	+30,000	% Contraction	16
Max. Fluidity, C	433	% Dilatation	163 *
Soft Temp. C	387	T1C Soft Temp.	359
Solid Temp. C	488	T2C Max. Contraction Temp.	411
Range C	101	T3C Max. Dilatation Temp.	444

Oxidation: % T                      96.4

Respectfully Submitted:

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P.O. Box 1227, Crab Orchard, West Virginia 25827  
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**LAB NO.:** 324459                      **COMPANY:** BENS CREEK OPERATIONS  
**DATE SAMPLED:** 4/13/22  
**DATE RECEIVED:** 4/13/22              **ADDRESS:** 109 CAPITOL STREET, STE 1000  
**SAMPLED BY:** CUSTOMER              CHARLESTON, WV 25301

**IDENTIFICATION SUPPLIED BY SAMPLER:**              **PLANT CLEAN COAL**

	<b>AS RECEIVED</b>	<b>DRY</b>
%Moisture	5.79	
%Volatile Matter	33.64	35.71
%Ash	6.73	7.14
%Fixed Carbon	53.84	57.15
	<hr/>	<hr/>
	100.00	100.00
%Sulfur	0.70	0.74
Free Swelling Index	7.5	

**GIESELER:**

Max. Fluidity, DDPM              +30,000  
Max. Fluidity, C                      440  
Soft Temp. C                          392  
Solid Temp. C                        487  
Range C                                95

**ARNU:**

% Contraction                        23  
% Dilatation                          124 \*  
T1C Soft Temp.                        356  
T2C Max. Contraction Temp.        412  
T3C Max. Dilatation Temp.        444

Oxidation: % T                      96.6

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**LAB NO.:** 324853                      **COMPANY:** BENS CREEK OPERATIONS  
**DATE SAMPLED:** 4/21/22  
**DATE RECEIVED:** 4/21/22              **ADDRESS:** 109 CAPITOL STREET, STE 1000  
**SAMPLED BY:** CUSTOMER              CHARLESTON, WV 25301

**IDENTIFICATION SUPPLIED BY SAMPLER:**              **PLANT CLEAN COAL**

	<b>AS RECEIVED</b>	<b>DRY</b>
%Moisture	6.14	
%Volatile Matter	33.44	35.63
%Ash	5.39	5.74
%Fixed Carbon	55.03	58.63
	<hr/>	<hr/>
	100.00	100.00
%Sulfur	0.71	0.76
Free Swelling Index	7.5	

<b>GIESELER:</b>		<b>ARNU:</b>	
Max. Fluidity, DDPM	+30,000	% Contraction	20
Max. Fluidity, C	436	% Dilatation	151 *
Soft Temp. C	394	T1C Soft Temp.	375
Solid Temp. C	483	T2C Max. Contraction Temp.	412
Range C	89	T3C Max. Dilatation Temp.	444
Oxidation: % T	96.4		

Respectfully Submitted:

\* Corrected to 2.5 G air dried coal and 4.00MM tube radius