

COMPANY NAME:	BENS CREEK OPERATIONS	GALLAGHER COAL RESEARCH CENTER, INC.
LAB NUMBER:	322207	P.O. BOX 1227
DATE RECEIVED:	1/11/22	CRAB ORCHARD, WV 25827
SAMPLED BY:	BENS CREEK	304-683-2060 Office/ 304-683-2063 FAX
SAMPLE DESCRIPTION:	SOLID COAL BULK SAMPLE 1.60 FLOAT COMPOSITE	

PROXIMATE ANALYSIS:	AS REC'D	DRY BASIS	MAF	FUSION TEMPERATURE OF ASH:
Moisture %				REDUCING
Volatile Matter %		36.19		Initial (F)
Ash %		5.23		Softening (F)
Fixed Carbon %		58.58		Hemispherical (F)
BTU/lb		14,433	15,230	Fluid (F)
Sulfur %		0.71		

FREE SWELLING INDEX:	7.5	MINERAL ANALYSIS:	DRY BASIS
OXIDATION: %T	96.6	Silicon Dioxide, SiO ₂	59.18
		Aluminum Oxide, Al ₂ O ₃	28.45
		Iron Oxide, Fe ₂ O ₃	4.01

SULFUR FORMS: RAW	DRY BASIS	Calcium Oxide, CaO	1.65
Pyritic %	0.06	Magnesium Oxide, MgO	0.81
Sulfate %	0.01	Sodium Oxide, Na ₂ O	0.51
Organic %	0.64	Potassium Oxide, K ₂ O	1.72
TOTAL %	0.71	Titanium Dioxide, TiO ₂	1.46
		Phos. Pentoxide, P ₂ O ₅	0.13
		Sulfur Trioxide, SO ₃	1.39

GIESELER FLUIDITY:	
Max. Fluidity (ddpm)	27,657
Max. Fluid Temp.	435
Initial Softening Temp.	389
Solidification Temp.	484
Temperature Range	95

PETROGRAPHIC DATA (MACERAL ANALYSIS):	
VITRINITE TYPE	% REACTIVES
V-8	16.40
V-9	42.30
V-10	4.40

ARNU DILATATION:		Vitrinite	63.10
% Maximum Contraction	20	Exinite	6.80
% Maximum Dilatation	176 *	Resinite	1.50
Initial Softening Temp.	373	Semifusinite	2.30
Initial Dilatation Temp.	429	TOTAL REACTIVES	73.70
Final Dilatation Temp.	474		

ULTIMATE ANALYSIS:		% INERTS	
Carbon %	80.60	Semifusinite	4.80
Hydrogen %	4.83	Micrinite	10.00
Nitrogen %	1.63	Fusinite	8.50
Oxygen %	7.00	Mineral Matter	3.00
Ash %	5.23	TOTAL INERTS	26.30
Sulfur %	0.71		
TOTAL %	100.00	Composition Balance Index	0.91

Rank Index	3.57
Mean-Max Reflectance	0.93
Calculated Stability Factor	47.5

Respectfully Submitted:

*Corrected to 2.5 G Air Dried Coal and 4.00 MM Tube Radius