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Certificate of Analysis
Part No. B2322
Ultimate Coal Standard

RM Doc Number: 240322

Analytical Results (Dried Basis)

Proximate Analysis						
	ASTM Method	**Mean**	**St Dev**	**Expanded Uncertainty**	**n**	**k**
% Ash	D3174/D7582	8.17	0.11	0.23	21	2.09
% Volatile Matter	D3175/D7582	36.69	0.73	1.52	21	2.09
% Fixed Carbon (calc)	D3172	(54.79)	--	--	--	--
% Sulfur	D4239	2.40	0.04	0.09	40	2.02
BTU/lb	D5865	13022	31	74	8	2.36
Ultimate Analysis						
	ASTM Method	**Mean**	**St Dev**	**Expanded Uncertainty**	**n**	**k**
% Carbon	D5373	73.07	0.42	0.98	8	2.36
% Hydrogen	D5373	4.77	0.21	0.49	8	2.36
% Nitrogen	D5373	1.50	0.12	0.28	8	2.36
% Oxygen (calc)	D3176	(10.18)	--	--	--	--
MAF/DAF BTU (calc)	D3180	(14152)	--	--	--	--
Mineral Analysis						
	ASTM Method	**Mean**	**St Dev**	**Expanded Uncertainty**	**n**	**k**
% Silica	D4326/D6349	43.25	0.61	1.56	6	2.57
% Alumina	D4326/D6349	21.90	0.15	0.39	6	2.57
% Titania	D4326/D6349	1.03	0.05	0.12	6	2.57
% Ferric Oxide	D4326/D6349	25.42	0.32	0.81	6	2.57
% Calcium Oxide	D4326/D6349	2.14	0.11	0.28	6	2.57
% Magnesium Oxide	D4326/D6349	0.71	0.04	0.10	6	2.57
% Potassium Oxide	D4326/D6349	1.53	0.03	0.08	6	2.57
% Sodium Oxide	D4326/D6349	(0.47)	--	--	6	2.57
% Sulfur Trioxide	D4326/D6349	(2.37)	--	--	6	2.57
% Phosphorus Pentoxide	D4326/D6349	(0.41)	--	--	6	2.57
% Strontium Oxide	D4326/D6349	(0.08)	--	--	6	2.57
% Barium Oxide	D4326/D6349	(0.08)	--	--	6	2.57
% Manganese Oxide	D4326/D6349	(0.04)	--	--	6	2.57

Additional Values			
Forms of Sulfur			
	ASTM Method	**Value**	
%Pyritic	D2492/D8214	(0.47)	
% Organic (calc)	D2492/D8214	(1.02)	
% Sulfate	D2492/D8214	(0.91)	
Ash Fusion Temperature			
	ASTM Method	**Degrees F Reducing**	**Degrees F Oxidizing**
Initial deformation	D1857	(2017)	(2499)
Softening	D1857	(2107)	(2529)
Hemispherical	D1857	(2236)	(2539)
Fluid/Final	D1857	(2378)	(2571)
Halogens			
	ASTM Method	**Value**	
% Chlorine	D4208/D6721	(0.0791)	
% Fluorine	D3761/D8247	(0.0025)	

Note: Parentheses () indicate an information-only value.

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Primary (NMI) Reference Standards Employed:

Test	Primary Reference Standards
% Ash	LQSI 200045
% Sulfur	LQSI 8H0158, QAR CRM-9a, NIST 2683C, NIST 2684c
% C/H/N	Phenylalanine, EDTA
Mineral Analysis	NIST 2691, USGS AGV-2, NIST 634a, NIST 1635a
BTU/lb	Benzoic acid
Volatile Matter	LQSI 200045
Forms of Sulfur	LQSI 200047, QAR CRM-6a
Ash Fusion	LQSI 200049
Halogens	CANSPEX 2006-4, QAR CRM-3a, NIST 2682c, NIST 2684c, NIST 8499

**The analytical results above are provided by an accredited reference material manufacturer with a current certification in ISO 17025 and 17034.*

The intended use of this Reference Material (RM) is for the verification of various tests using the above-mentioned test methods.

The minimum sample size and typical sample size to perform the intended use(s) is dependent upon the test method and instrumentation used.

The Period of Validity for this RM is not able to be determined and should be reviewed every 20 years after the date below. Once packaging is opened this certificate is valid for two years.

This bottle contains 50g of fine coal powder (-60 mesh) to be used per the test method you follow. Keep sealed tightly and store under normal laboratory conditions. This material is intended to be dried or corrected for moisture as per the test methods used.

Refer to your test methods and or manufacturer manual for expanded uncertainties, repeatability/reproducibility factors.

For good laboratory practice, we recommend that all reference materials be verified as fit for purpose prior to use. Remedies for any claimed defect in this product will be limited to product replacement or refund of the purchase price. In no event shall Elemental Microanalysis Ltd. be liable for incidental or consequential damages.

Certified on the 14th of May 2024

Elemental Microanalysis Ltd