

Certificate of Analysis Part No. B2321 Ultimate Coal Standard

Certificate Number 776216
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Dried Basis Values

Proximate Analysis ASTM

% Ash	D3174/D7582	7.23 +/-0.11
% Volatile Matter	D3174/D7582	31.33 +/-0.63
% Fixed Carbon (calculated)	D3172	(61.44)
% Sulphur	D4239	0.93 +/-0.02
BTU	D5865	14392 +/-79

Ultimate Analysis

% Carbon	D5373	80.96 +/-0.52
% Hydrogen	D5373	4.99 +/-0.08
% Nitrogen	D5373	1.62 +/-0.06
% Oxygen (calculated)	D3176	(4.27)
MAF/DAF BTU	D3180	15513 +/-88

%Mineral Analysis ASTM D4326/D6349

Silica	49.97 +/-1.86
Alumina	27.78 +/-1.23
Titania	1.46 +/-0.12
Ferric Oxide	10.13 +/-1.09
Calcium Oxide	2.52 +/-0.27
Magnesium Oxide	1.14 +/-0.09
Potassium Oxide	2.41 +/-0.39
Sodium Oxide	0.50 +/- 0.10
Sulphur Trioxide	2.29 +/-0.26
Phosphorus Pentoxide	0.23 +/-0.04
Strontium Oxide	0.13 +/-0.02
Barium Oxide	0.15 +/-0.03
Manganese Oxide	(0.04)
Undetermined (calculated)	(1.25)

Sulphur Forms

% Pyritic	D2492	0.21 +/-0.02
% Organic (calculated)		(0.01)
% Sulphate		0.71 +/-0.06

Ash Fusion Temperature

	Degrees F Reducing	Degrees F Oxidising
Initial Deformation	D1857	2522
Softening-		2592
Hemispherical		2643
Fluid/Final		2699

% Chlorine D4208/D6721 (0.06)

REFERENCES USED: Sulphur - NIST SRM 2692c, NCS FC28004b, BTU - Benzoic Acid.
Brackets () indicates reference-only value.

Notes:

The material used in production of this standard was prepared and sampled in accordance with ARI 041 and ISO Guide 34. The uncertainty values represent the expanded uncertainty ($k=2$, two sigma, 95% confidence) obtained through analytical testing by the mentioned ASTM methods, and may not reflect your testing capabilities. Normal test procedures should be employed when using this standard; this includes using the reproducibility and repeatability factors of the method for establishing method expanded analytical uncertainty.

The samples for round robin testing were selected in accordance with ARI 031. The above values relate only to the material used to produce this standard. The analytical samples were dried or corrected for moisture as per the test method you are using. This bottle contains 50g, fine coal powder (-60 mesh). Kept sealed this product has an indefinite shelf life. Once opened, this certificate is valid for two years. Keep sealed tight and store under normal laboratory conditions.

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.

This is a Certified Reference Material (Working Standard), and is traceable (Sulphur) to the above mentioned NMI references. For good laboratory practice it is recommended that all standards be verified prior to use.

This CRM is valid for two years from the date of opening.

Certified September 13, 2016

Elemental Microanalysis Limited