CERTIFICATE OF ANALYSIS

ACIRS-M1-2014

125 g at a nominal top size of -212 µm

A General Coal Reference Material prepared from a high volatile bituminous coal for the validation of analyses on similar coals.

	Certified Values[1]	Standard Deviation[2]	Uncertainty[3]	Number of laboratories
Ash, % d [1a]	18.68	0.065	0.011	38
Volatile Matter, % d [1b]	32.85	0.286	0.045	40
Gross Calorific Value, MJ/kg d	28.356	0.1082	0.0093	135
Relative Density, d [1c]	1.417	0.0108	0.0029	14
Total Sulfur, % d	2.392	0.0924	0.0077	145
Total Carbon, % d	67.40	0.463	0.054	73
Hydrogen, % d	4.732	0.0961	0.0114	71
Nitrogen, % d	1.335	0.0490	0.0059	69
Phosphorus, % d	0.0980	0.0042	0.0010	17
Carbonate Carbon, % d [1d]	0.037	0.0017	0.0008	5
Mercury, mg/kg d	0.120	0.0108	0.0016	46
Indicative Values [4]				
Chlorine, % d	0.014	0.0036	0.0005	57
Pyritic Sulfur, % d	0.071	0.0093	0.0021	19
Sulfate Sulfur, % d	0.209	0.0186	0.0043	19

This reference coal should be thoroughly mixed by end-over-end rotation before sub-sampling. To minimise the risk of compositional changes due to oxidation store in a cool, dark place in original containers with the lid tightly sealed.

The full technical report and Safety Data Sheet for this product are available at www.acirs.com.au/products/general-coal-reference-material/

Date of Issue: November, 2014
Valid to: November, 2014[5]

NOTES

1 Certified values are the best estimate of the true value for the measurand and are based on the robust mean of participant results (outliers excluded). Unless otherwise specified, parameters have been certified from results from multiple analysis methods from proficiency test programs results. Biases between methods were not observed.

1a Ash certified by ISO 1171 and equivalent methods
1b Volatile Matter certified by ISO 562 and equivalent methods
1c Relative Density certified by AS1038.21.1.1/1038.21.1.2
1d Carbonate carbon certified by AS 1038.23.

2 Standard deviation (sd) is used to derive the likely range of results - the value for a measurand from a randomly chosen laboratory would be expected to lie within 2 sd of the certified value with 95% probability.

3 The uncertainty of this value has been calculated from sd/√n where n= number of laboratories.

4 Indicative values have been provided for chlorine, pyritic and sulfate sulfur where the relative uncertainty of the robust mean, or distribution of data, was considered unacceptably high from the results of proficiency testing. These values are best estimates and shall not to be used as certified values.

5 The shelf-life of ACIRS-M1-2014, until the stated period of validity (November, 2016), is provided for oxidation sensitive parameters, primarily calorific value. The calorific value will be subject to change should this reference material deteriorate due to the normal oxidation processes for coals. This will be monitored by stability test programs conducted by ACIRS. It is the responsibility of the user to use the most recent Technical Report and Certificate of Analysis for this reference material available at www.acirs.com.au/products/general-coal-reference-material/

To the extent permitted by law, ACIRS disclaims all warranties whether expressed or implied with regard to merchantability, non-infringement, or fitness for a particular purpose. In no event will ACIRS be liable for incidental damage or consequential loss arising from the use of this product.

Where the product does not conform to the certified values, giving due consideration to the stated uncertainties and accepted tolerances, the total liability of ACIRS shall be limited at ACIRS' absolute discretion to either replacement of the product or refund of the purchase price.

Approved by: Mark Bennetts

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