

ACIRS-M1-2014

PRODUCT INFORMATION LEAFLET

General Coal Reference Material intended to be used for quality control purposes

Higher rank bituminous coal, 125 g at a nominal top size of -212 µm

| | Property Values ¹ | Standard Deviation ⁴ | Uncertainty ⁵ | Number of laboratories |
|---------------------------------------|------------------------------|---------------------------------|--------------------------|------------------------|
| Ash, % d ^{1a} | 18.68 | 0.065 | 0.013 | 38 |
| Volatile Matter, % d ^{1b} | 32.85 | 0.286 | 0.057 | 40 |
| Gross Calorific Value, MJ/kg d | 28.356 | 0.1082 | 0.0116 | 135 |
| Relative Density, d ^{1c} | 1.417 | 0.0108 | 0.0036 | 14 |
| Total Sulfur, % d | 2.39 | 0.092 | 0.010 | 145 |
| Total Carbon, % d | 67.40 | 0.463 | 0.068 | 73 |
| Hydrogen, % d | 4.73 | 0.096 | 0.014 | 71 |
| Nitrogen, % d | 1.34 | 0.049 | 0.007 | 69 |
| Phosphorus, % d | 0.098 | 0.0042 | 0.0013 | 17 |
| Carbonate Carbon, % d ^{1d} | 0.037 | 0.0017 | 0.0010 | 5 |
| Mercury, mg/kg d | 0.120 | 0.0108 | 0.0020 | 46 |
| Fluorine, mg/kg d ² | 149 | 4.0 | 1.5 | 12 |
| <i>Indicative Values</i> ³ | | | | |
| Chlorine, % d | 0.014 | 0.0036 | 0.0006 | 57 |
| Pyritic Sulfur, % d | 0.07 | 0.009 | 0.003 | 19 |
| Sulfate Sulfur, % d | 0.21 | 0.019 | 0.005 | 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/

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 Valid to: November, 2017⁶
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NOTES

- 1 *Property values are the best estimate of the true value for the measurand and are based on the robust mean of participant results (outliers excluded) from proficiency test programs conducted by CANSPEX and Proficiency Testing Australia. Unless otherwise specified, parameters have been assigned from results of multiple analysis methods. Biases between methods were not observed. Further information can be obtained from the full technical report available at www.acirs.com.au/products/general-coal-reference-material/*
 - 1a *Ash – property value assigned by ISO 1171 and equivalent methods*
 - 1b *Volatile Matter - property value assigned by ISO 562 and equivalent methods*
 - 1c *Relative Density – property value assigned by AS1038.21.1.1/1038.21.1.2*
 - 1d *Carbonate carbon – property value assigned by AS 1038.23*
- 2 *Fluorine - assigned in accordance with ISO 11724 by 2 independent laboratories who tested 6 replicates on duplicate samples over 2 days (n=12). Fluorine results have been verified by, and are traceable to, IRRM BCR-460.*
- 3 *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 are not considered to be property values.*
- 4 *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 property values with 95% probability.*
- 5 *The uncertainty of this value has been calculated from sd/\sqrt{n} where n= number of laboratories.*
- 6 *The shelf-life of ACIRS-M1-2014, until the stated period of validity (November 2017), is provided for oxidation sensitive parameters. Property values will be subject to change should this sample deteriorate due to the normal oxidation processes for coals. The stability of this sample will be monitored by ACIRS. It is the responsibility of the user to obtain the most recent Technical Report and Product Information Leaflet 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 assigned property 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.

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