Report on Preparation and Certification of Australian Coal Industry Reference Samples

Medium High Sulfur Content Reference Sample (ACIRS – S1C-2011).

Report No: AD – S1C-2011

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ANALYSIS AND TESTING REPORT

Medium High Sulfur Content Reference Sample (ACIRS – S1C-2011).

1. Introduction

This report describes the preparation and analysis of ACIRS – S1C-2011, which comprises a sealed jar of coal with a known medium high sulfur content used in the determination of coal samples.

The end use of these samples is as a quality control tool and to calibrate analytical elemental instruments.

2. Previous ACIRS- S series Preparation

This is the first in the series.

3. Sample preparation

Approximately a 100 kg sample of bulk material from a colliery in the Hunter Valley, New South Wales, and of −50 mm size was obtained.

The material was crushed, air-dried and pulverised in a swing hammer mill to a nominal top size of 4 mm. The pulverised coal was repeatedly mixed by rotary sample division (RSD).

The coal was then milled to a nominal top size of 212μm and the product placed in plastic bags in plastic jars each containing approximately 250g.

11% of the jars were randomly selected and contents tested for homogeneity by determining and recording the sulfur and moisture content of each.

4. Test program

Jars of the product were used in a test program organized by ALS Coal Gladstone with 12 accredited laboratories for total sulfur analysis and moisture in the analysis sample in accordance with relevant Australian Standards. The results of these tests are given in Section 5. A reference sample was included in the test program for calibration purposes (NIST SRM 2684b 1.49% sulfur).

5. Statistical analysis of results

Table 1
Outcome of statistical processing

Lab No.	TS % db	Lab No.	TS % db
1	1.48	10	1.47
2	1.45	11	1.45
3	1.46	12	1.48
4	1.45		
5	1.43		
6	1.49		
7	1.48		
8	1.44		
9	1.43		
Minimum	1.43		
Maximum	1.49		
Mean	1.46		
Standard Deviation (σ)	0.020		

All laboratories referenced AS1038.6.3.3 as the analysis method.

6. Certified Values

Table 2
ACIRS – S1C – 2011 Certified Values

Determinations	Mean	(σ)
Total sulfur	1.46 percent (dry basis)	0.020