Coal Newsletter February 2016

State of the Art Rapid determination of Fluorine, Chlorine and Mercury in Thermal and Metallurgical Coal

International buyers are becoming increasingly aware of the need for more detailed knowledge of the coals that they are purchasing.
Many countries have implemented new legislation with set limits for trace elements. Failure to meet these regulations will result in rejection of the coal shipment.
ALS Coal (ACTEST Mackay) has recently commissioned an automated pyrohydrolysis – ion chromatograph (APH-IC) system for the rapid and precise determination of fluorine and chlorine in coal (refer to figure 1).

This system is comprised of a Mitsubishi automated pyrohydrolysis furnace, a solid sample changer and a gas absorption unit. Coupled to the automated APH furnace is a Thermofisher-Dionex ISC-2100 Ion-chromatograph.
In addition to the APH-IC system, our Mackay laboratory has recently attained NATA accreditation for the analysis of Mercury in coal and coke using a Teledyne Hydra IIc Mercury analyzer (figure 2). The system employs the technique of thermal decomposition, concentration via gold amalgamation and detection by cold vapor atomic absorption.

Figure 1. Fully Assembled APH-IC System.

Figure 2. Hydra IIc Automated Mercury Analyser.

Table 1 – Summary of Method Information for Fluorine, Chlorine and Mercury.

Fluorine	
Standard Reporting Limit	10 mg/Kg
Daily Sample Capacity	84
Standard Method Reference	ISO00724, AS1038.10.4
Chlorine	
Standard Reporting Limit	0.01%
Daily Sample Capacity	84
Standard Method Reference	ISO18806, AS1038.10.4
Mercury	
Standard Reporting Limit	1ug/Kg
Daily Sample Capacity	120
Standard Method Reference	ASTMD67220.0

Investment in this new state of the art technology further compliments the laboratories trace analytical capabilities and offers rapid sample turnaround. ALS Coal is NATA accredited for a comprehensive range of major and minor elements in coal and coke ash including:

Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, germanium, lead, lithium, manganese, mercury, molybdenum, nickel, selenium, tin, thorium, thallium, uranium, vanadium, and zinc.

Please contact ALS Coal for further information on our scope of services.

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