

# Organic Application Note

## Sulfur and Carbon in Coal, Coke, and Graphite

**Accessories** 529-204 Crucibles

**Calibration Standard** NIST or BCR or other suitable material

**Sample Weight** 0.1 to 0.3 g

**Analysis Time**

60 to 300 seconds (sulfur and carbon simultaneously)

**Furnace Temperature** 1350°C

**Comparator Level**

Sulfur: 1%

Carbon: 1%

**Preparation**

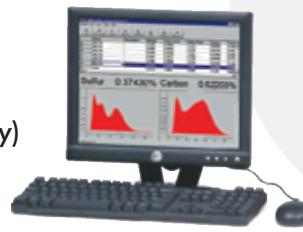
Samples should be -60 mesh and prepared according to ASTM D-2013 "Preparing Coal Samples for Analysis."

**Procedure**

1. Prepare instrument as outlined in the operator manual.
2. Condition the instrument by analyzing a few coal samples, until the readings are stable.
3. Calibrate the system by analyzing at least three replicates of the standard used, using the following procedure.
  - a. Weigh 0.1 to 0.3 g of sample into a 529-204 Crucible.
  - b. Click the mouse on Analyze. When the "load furnace" message appears on screen, slide the sample into the combustion tube.
4. Analyze unknown samples following steps 3a and 3b.

**Typical Results**

Sample	Weight	% S	% C	Sample	Weight	% S	% C
Coal #1	0.2614	0.840	85.63	Graphite	0.1092	0.153	99.22
	0.2666	0.837	85.74		0.1018	0.146	98.01
	0.2607	0.836	85.27		0.1045	0.161	97.73
	0.2953	0.838	85.54		0.1059	0.152	98.43
	<b>Mean</b>	<b>0.838</b>	<b>85.55</b>		0.1049	0.162	97.65
	<b>Std. Dev.</b>	<b>= 0.001</b>	<b>0.20</b>			<b>Mean</b>	<b>= 0.155</b>
							<b>98.21</b>
						<b>Std. Dev.</b>	<b>= 0.007</b>
							<b>0.60</b>
Pet Coke	0.2556	0.874	93.38				
	0.2574	0.873	93.47				
	0.2556	0.874	93.22				
	<b>Mean</b>	<b>= 0.873</b>	<b>93.36</b>				
	<b>Std. Dev.</b>	<b>= 0.0007</b>	<b>0.13</b>				



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