

Inorganic Application Note

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Oxygen and Nitrogen in Carbon Black, Graphite, and Calcined Coke

Sample Preparation

Solid samples should be crushed with a clean mortar pestle to uniform consistency. Sample may be dried at 125°C for one hour to remove residual moisture.

Accessories

782-720 Graphite Crucible, 782-721 Electrode Tip (used with the 782-720 Crucible), 502-183 Nickel Capsules



Calibration Standard

NIST, LECO steel calibration pin, or other suitable standard

Method Parameters

Analysis Time: Oxygen: 30 seconds (minimum); Nitrogen: 45 seconds (minimum)

Furnace Current: *Outgas 6000 watts; Analyze 5000 watts

Analysis Mode: Automatic mode

Procedure

1. Prepare the instrument as outlined in the operator's instruction manual.
2. Calibrate the instrument as outlined in the operator's instruction manual.
3. Determine the blank.
 - a. Enter a 1.000 gram weight into the weight stack.
 - b. Press the LOADER CONTROL switch and place a clean 502-183 Nickel Capsule into the sample load mechanism.**
 - c. Press the LOADER CONTROL switch, place a graphite crucible on the lower electrode, press the LOADER CONTROL switch again, and the analysis will begin and end automatically.
 - d. Repeat steps 3a thru 3c a minimum of three times.
 - e. Enter a blank into the instrument by utilizing the auto blank procedure; refer to the operator's instruction manual.
4. To analyze samples.
 - a. Weigh ~0.05 to 0.1 gram of sample into a tared 502-183 Nickel Capsule and enter weight into the weight stack.
 - b. Press the LOADER CONTROL switch and place the 502-183 Nickel Capsule into the sample load mechanism.**
 - c. Press the LOADER CONTROL switch, place a graphite crucible on the lower electrode, press the LOADER CONTROL switch again, and the analysis will begin and end automatically.

NOTE: *This method is written for coke samples that are fully calcined and contain minimal volatile matter.*

*Double outgas option selected.

**Leave capsule open, place capsule upright in the loading mechanism.

TC-436

Typical Results

Sample	Weight (grams)	% Oxygen	% Nitrogen
Graphite	0.0919	0.0146	0.0059
	0.0963	0.0156	0.0075
	0.0946	0.0157	0.0074



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