

Oxygen in Biomass and Biofuel

LECO Corporation; Saint Joseph, Michigan USA

Instrument: TruSpec® Oxygen Module

Sampling and Sample Preparation

It is essential that a representative and uniform sample be analyzed.

Accessories

601-963 Tin Capsule

Calibration Samples

NIST 39J Benzoic Acid, LECO 502-204 Dinitrobenzoic Acid, LECO 501-053 Acetanilide, or other suitable standard.

Analysis Parameters

Combustion Furnace Temperature	950°C
Afterburner Temperature	850°C
Oxygen Furnace Temperature (manually set)	1300°C

Element Parameters

Analyze	Oxygen
Baseline Delay Time	Yes
Minimum Analysis Time	15 seconds
Comparator Level	60 seconds
Endline Time	1.00
Conversion Factor	1 second
Significant Digits	1.00
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Burn Profile

Burn Steps	Time	Furnace Flow
1	10 seconds	None

Procedure

1. Prepare instrument for operation as outlined in the operator's instruction manual.
2. Determine and calibrate systems blank as outlined in the operator's instruction manual. (NOTE: Must use sealed 601-963 Tin Caps; refer to step #5 below).
3. Instrument must be calibrated as outlined in the operator's instruction manual.
4. Perform Drift Correction as outlined in the operator's instruction manual.
Note: Drift should be performed at the start of every day or when the check standard doesn't return the correct result(s).
5. Weigh ~1-2 milligram sample into a 601-963 Tin Capsule, carefully seal to ensure sample is not lost, enter sample mass in Sample Login, place into the appropriate position of the sample carousel, and proceed with analysis.

Typical Results

Sample	Mass mg	% Oxygen
Wood Chips #1	0.99	47.50
	1.009	48.03
	0.999	48.61
	1.034	48.58
	1.058	48.51
	X =	48.25
	s =	0.48
Wood Chips #2	1.056	44.28
	1.065	44.75
	1.008	43.02
	1.002	43.95
	1.05	43.62
	X =	43.92
	s =	0.66
Biofuel	1.008	44.26
	1.034	46.55
	1.013	44.13
	1.081	45.59
	X =	45.13
	s =	1.1



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