

Organic Application Note

Carbon, Hydrogen, and Nitrogen in Hydrocarbons

Instrument

TruSpec[®] CHN

Accessories

502-186 Tin Foil Cup, 501-427 Com-Aid

Calibration

LECO 502-083, 501-439 Hydrocarbon Calibration Samples,
501-053 Acetanilide, or other suitable reference materials.

Analysis Parameters

Sample Mass	0.09 to 0.1 gram
Combustion Furnace Temperature	950°C
Afterburner Temperature	850°C

Element Parameters

	Nitrogen	Carbon	Hydrogen
Analyze	Yes	Yes	Yes
Minimum Analysis Time	30 seconds	NA	NA
Comparator Level	1.00	NA	NA
Endline Time	1 second	NA	NA
Conversion Factor	1.00	1.00	1.00
Significant Digits	5	5	5

IR Analysis Stabilize Comparator	0.00
IR Baseline Delay Time	5 seconds
IR Baseline Time	2 seconds
IR Pressure Stabilization Comparator	0.00
IR Stop Flow Time	5 seconds
TC Baseline Delay Time	5 seconds
TC Baseline Time	2 seconds

Burn Profile

Burn Steps	Time	Furnace Flow
1	40 seconds	High
2	30 seconds	Medium
3	30 seconds	High

Macro Ballast Parameters

Ballast

Equilibrate Time	30 seconds
Not Filled Timeout	300 seconds

Aliquot Loop

Fill Time	20 seconds
Equilibrate Pressure Time	4 seconds



TruSpec[®]

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.
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 does not return the correct result(s).*
5. Weigh 0.09 to 0.10 gram sample into a 502-186 Tin Foil Cup, cover with ~0.3 gram of 501-427 Com-Aid, and seal.
6. Enter mass in Sample Login, place into the appropriate position of the sample carousel, and proceed with analysis.

Typical Results

Sample	Mass g	Carbon %	Hydrogen %	Nitrogen %
LECO	0.0975	86.64	13.67	<0.02
Paraffin Oil	0.1019	86.12	13.60	<0.02
501-439	0.0974	86.34	13.64	<0.02
86.38 % C	0.0977	86.20	13.64	<0.02
13.62 % H	0.0949	86.49	13.65	<0.02
<0.03 % N	0.0956	86.43	13.65	<0.02
	0.1013	86.44	13.63	<0.02
	0.1000	86.39	13.63	<0.02
	0.1018	86.40	13.63	<0.02
	0.0965	86.39	13.62	<0.02
	X =	86.39	13.63	<0.02
	s =	0.145	0.022	—
LECO	0.1023	87.21	11.08	0.20
# 6 Fuel Oil	0.1079	87.29	11.07	0.20
502-083	0.0964	87.25	10.99	0.20
87.37 % C	0.0981	87.16	11.07	0.20
11.04 % H	0.1029	87.53	11.05	0.20
0.20 % N	0.1010	86.94	10.99	0.20
	0.0990	87.74	11.06	0.21
	0.0951	87.36	11.07	0.21
	0.0953	87.55	11.06	0.19
	0.1006	87.47	11.05	0.21
	X =	87.35	11.05	0.20
	s =	0.229	0.033	0.005



LECO Corporation • 3000 Lakeview Ave. • St. Joseph, MI 49085-2396
Phone 800-292-6141 • Fax 269-982-8977
info@leco.com • www.leco.com • ISO-9001:2000 No. FM 24045