

# 744 Series

*Carbon/Sulfur by Combustion*



**LECO**  
EMPOWERING RESULTS

# 744 Series: Carbon/Sulfur by Combustion

LECO's CS744 Series will redefine the way you determine carbon and sulfur in primary steels, ores, finished metals, and other inorganic materials. Using extensive customer feedback and innovative engineering, our latest instrumentation takes advantage of our Cornerstone® brand software platform, powered by a touch-screen interface to increase usability and lower the cost-per-analysis.

Additional features—such as a high-frequency combustion furnace, improved IR cell design, rugged design, and available automation—make the CS744 Series a valuable resource for any industrial environment needing accurate analysis of carbon and/or sulfur.



# User-Friendly Cornerstone Brand Software

LECO's exclusive Cornerstone brand software with touch-screen interface enables complete access to analysis control, method settings, diagnostics, reporting, and more in a highly organized, intuitive, and immersive environment. Designed through a collaboration of customer feedback and innovative engineering, Cornerstone features all of the routine day-to-day operations within a single Analysis screen designed for speed and ease-of-use. Our innovative grouping of sample data into sets and replicates simplifies the data output and automatically calculates relevant statistics, alleviating the need for additional data processing.



# Software Features & Benefits

Cornerstone brand software is divided into four main sections—Analysis, Diagnostics, Settings, and Instrument—for simplified navigation and organization. Toolbars, sliders, and drop-down menus make it easy to set parameters for calibration and data processing. The software also includes real-time ambient monitors, with fully animated system diagrams. Advanced diagnostic features include a thorough digital on-board manual, maintenance animations, photo illustrations, and screen captures that quickly provide the direction needed without having to refer to multiple manuals. Cornerstone also supports extended data archiving and flexible reporting capabilities.

This screenshot shows the 'DIAGNOSTICS' section of the software. At the top, there are tabs for ANALYSIS, DIAGNOSTICS, SETTINGS, and INSTRUMENT. Below the tabs is a navigation bar with buttons for Start, History, Export, and Print. The main area displays a system diagram with various sensors and components. Below the diagram is a list of diagnostic parameters, each with a status indicator (yellow or red) and a numerical value. The parameters include:

- Instrument Connection
- Network Communications
- Line Voltage
- Incoming Pressure
- Pneumatic Supply Pressure
- Upstream Pressure
- Downstream Pressure
- Oxygen Flow Sensor
- Detector Output
- Detector Temperature
- Back Pressure
- Incoming Purifier Temperature
- Catalyst Temperature
- MFC Temperature
- Plasma Supply Temperature
- Cabinet Temperature
- Furnace Interlocks
- Brush Down Position Sensor
- Brush Up Position Sensor
- Pneumatic Safety Pressure
- Gas Off Pressure
- Loader Motors Homed

At the bottom, there is a 'LECO' logo and a 'Ready To Analyze' status.

This screenshot shows the 'DIAGNOSTICS' section of the software. The top part features a real-time data graph with multiple colored lines (green, purple, orange) representing different sensor readings over time. Below the graph is a summary of system parameters, including:

- Start Time: 11/9/2022 2:36:43 PM
- Duration: 00:01:00
- Upstream Pressure PTD: 2.4666 V
- Downstream Pressure PTD: 12.0 psi
- Plasma Supply Temperature: 45.0 °C
- Catalyst Temperature: 349.8 °C
- Brush Up Position Sensor: 597.8 °C
- Detector Temperature: 27.9 °C
- Back Pressure Control: 73.4 %
- Gas Off Pressure: 29.4 %
- CO<sub>2</sub> Avg Leaker Power: 0.3244 W
- CO<sub>2</sub> Avg Leaker Flow: 3.0 LPM
- CO<sub>2</sub> Temperature: 50.0 °C
- CO<sub>2</sub> Humidity: 791 mmHg
- CO<sub>2</sub> Flow PTD: 0.01 kV
- CO<sub>2</sub> Avg Leaker Power: 0.3244 W

At the bottom, there is a 'LECO' logo and a 'Ready To Analyze' status.

This screenshot shows the 'DIAGNOSTICS' section of the software. It features a system diagram similar to the first screenshot, but with a different set of diagnostic parameters. The parameters include:

- Instrument Connection
- Network Communications
- Line Voltage
- Incoming Pressure
- Pneumatic Supply Pressure
- Upstream Pressure
- Downstream Pressure
- Oxygen Flow Sensor
- Detector Output
- Detector Temperature
- Back Pressure
- Incoming Purifier Temperature
- Catalyst Temperature
- MFC Temperature
- Plasma Supply Temperature
- Cabinet Temperature
- Furnace Interlocks
- Brush Down Position Sensor
- Brush Up Position Sensor
- Pneumatic Safety Pressure
- Gas Off Pressure
- Loader Motors Homed

At the bottom, there is a 'LECO' logo and a 'Ready To Analyze' status.

This screenshot shows the 'DIAGNOSTICS' section of the software. The top part features a real-time data graph with multiple colored lines. Below the graph is a summary of system parameters, including:

- Start Time: 11/9/2022 2:44:50 PM
- Duration: 00:01:00
- Upstream Pressure PTD: 2.4666 V
- Downstream Pressure PTD: 12.0 psi
- Plasma Supply Temperature: 45.0 °C
- Catalyst Temperature: 349.8 °C
- Brush Up Position Sensor: 597.8 °C
- Detector Temperature: 27.9 °C
- Back Pressure Control: 73.4 %
- Gas Off Pressure: 29.4 %
- CO<sub>2</sub> Avg Leaker Power: 0.3244 W
- CO<sub>2</sub> Avg Leaker Flow: 3.0 LPM
- CO<sub>2</sub> Temperature: 50.0 °C
- CO<sub>2</sub> Humidity: 791 mmHg
- CO<sub>2</sub> Flow PTD: 0.01 kV
- CO<sub>2</sub> Avg Leaker Power: 0.3244 W

At the bottom, there is a 'LECO' logo and a 'Not Ready To Analyze' status.

This screenshot shows the 'DIAGNOSTICS' section of the software. It features a system diagram similar to the first screenshot, but with a different set of diagnostic parameters. The parameters include:

- Instrument Connection
- Network Communications
- Line Voltage
- Incoming Pressure
- Pneumatic Supply Pressure
- Upstream Pressure
- Downstream Pressure
- Oxygen Flow Sensor
- Detector Output
- Detector Temperature
- Back Pressure
- Incoming Purifier Temperature
- Catalyst Temperature
- MFC Temperature
- Plasma Supply Temperature
- Cabinet Temperature
- Furnace Interlocks
- Brush Down Position Sensor
- Brush Up Position Sensor
- Pneumatic Safety Pressure
- Gas Off Pressure
- Loader Motors Homed

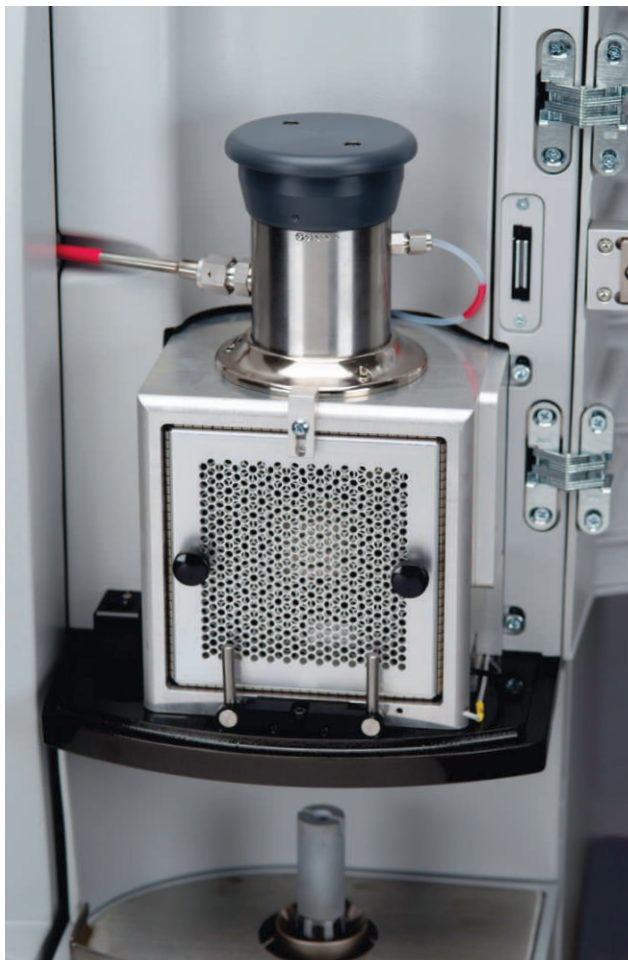
At the bottom, there is a 'LECO' logo and a 'Ready To Analyze' status.

This screenshot shows the 'SETTINGS' section of the software. It features a settings menu for data reporting. The menu includes:

- Selected Fields: Name, Method, Carbon A., Carbon S., Sulfur A., Sulfur S., Description, Num...
- Available Fields: Carbon Average, Carbon Check Standard, Carbon Certified, Carbon Certified (C), Carbon Lower Control Limit, Carbon Upper Control Limit, Carbon S.M. Dev, Carbon WARD, Carbon Composition

At the bottom, there is a 'LECO' logo and a 'Ready To Analyze' status.

## *Instrument Highlights and Features*



### ***High-Frequency Furnace***

- 18 MHz, 2.2 kW induction furnace for rapid and consistent combustion
- Integrated oxygen lance floods crucible with high-purity oxygen to promote complete combustion and improved recovery
- Replace a combustion tube in less than 10 seconds with the modular tube assembly

### ***Improved IR Cell Design***

- Thermostatic construction provides increased protection from ambient temperature fluctuations
- Optimized emitter control and detection circuitry improves the IR cell lifetime and long-term stability, resulting in superior accuracy and precision
- Individual wide-range IR detection for both carbon and sulfur simplifies set-up and calibration



### Features and Benefits

- High-velocity HEPA vacuum system keeps dust and debris contained
- Optional 10- and 60-sample autoloaders available for hours of worry-free operation
- Expanded interactive diagnostics and color-coded plumbing aid in troubleshooting and serviceability



CS744 with optional autoloader

### Optional Packages

**Monitor:** Includes an instrument-mounted touch-screen and six-axis boom mount for improved ergonomics

**Cleaner:** Upgrades the manual cleaner and manual combustion tube removal systems to the automatic versions, reducing downtime and increasing safety

**Performance:** Add the incoming carrier gas purifier and scrubber, and heated flow controller for improved baseline stability and precision

**Performance Sulfur:** Upgrades the standard flow controller with a thermally stabilized flow controller for improved baseline stability and precision



CS744 with high-velocity vacuum system

## Models

CS744 Carbon/Sulfur Determinator

C744 Carbon Determinator

S744 Sulfur Determinator

## Options

Sample Autoloader

Printer

Interfaced Balance Kit

~~SmartLine~~ Remote Diagnostics

NOTE: Multiple configurations of options are available. Please contact your local LECO Sales Engineer for more details.

## LECO—Your source for total analytical solutions

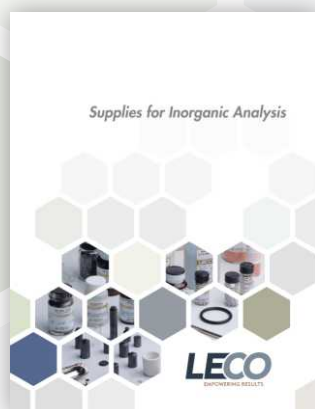


### ONH Series: Oxygen/Nitrogen/Hydrogen by Fusion

- Oxygen, nitrogen, and hydrogen by inert gas fusion
- State-of-the-art infrared and thermal conductivity detectors with no moving parts and no manual adjustments
- Custom software interface designed specifically for touch-screen operation
- User-friendly Cornerstone brand software

### GDS900 Atomic Emission Spectrometers

- Spectral range from 120 to 800 nm
- Continuous profile of concentration/thickness
- Large, dynamic range with concentrations from ppm to 100% by weight
- Short analysis time (minutes)



### Inorganic Consumables

Get the best results from your LECO instrument by using genuine LECO consumables. Visit [www.leco.com](http://www.leco.com) for featured items, specials, and ordering information. (Form number 203-959)

Our global network of sales/support includes over 25 subsidiaries worldwide, and is dedicated to customer service and satisfaction. The one thing all laboratories need to be successful is results they feel confident in. Since 1936, LECO has worked with our customers to find the right solution for the type of sample analysis they are performing, helping them to achieve data that is clear, consistent, and accurate. But our commitment to the customer doesn't end when our instruments are delivered.



**LECO Headquarters**



**Robert J Warren Customer Experience Center**



**Technical Research Center**



**Global Support Center**

LECO is dedicated to enhancing the user experience long after the sale by offering thorough training on our instruments and technology, accessibility to instrument service programs that keep your instruments in top working order, and access to friendly service and support to ensure you are getting the most out of your purchase—support that will empower your laboratory for success.

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