

*Solutions for  
Energy & Fuels Analysis*



**LECO**  
EMPOWERING RESULTS

# Solutions for Energy & Fuels Analysis

## Ensuring Existing Sources, Analyzing Fuel of the Future



Expanding, conserving, and stretching our limited energy resources means that companies will need to be able to analyze new sources as well as validate the quality of existing supplies. LECO instruments enable energy companies to comply with increasingly stronger EPA regulations.

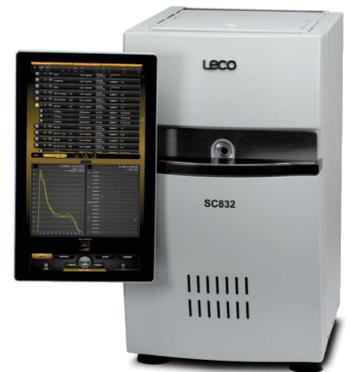
While LECO has continued to be a leader in carbon/sulfur testing of coal and coke, it has since expanded into biofuels, additives, diesel and petroleum products, and jet fuel. As these resources become more valuable, LECO technology is here to validate their potential and quality, while helping you meet government regulations.



### SC832 Sulfur/Carbon

LECO's 832 Series of Elemental Determinators are specifically designed to perform carbon and sulfur analysis of coal, coke, lubricants, fuel oils, and many other organic and some inorganic materials. The 832 Series is a valuable resource for any laboratory needing fast and accurate analysis in solid fuels.

- Improved solid-state IR cell design delivers superior analytical performance and stability
- High-efficiency furnace with intelligent control lowers operating costs and optimizes furnace reliability
- Ergonomic design powered by LECO's exclusive Cornerstone<sup>®</sup> brand software with touch-screen interface increases usability and operational control reducing bench space requirements
- Large, reusable ceramic boats with open surface area facilitate ease of sample handling and efficient sample combustion



### CHN828 Carbon/Hydrogen/Nitrogen Elemental Analysis

The CHN828 makes it possible to achieve fast results in organic matrices from food to fuels. The dual-stage furnace system operates at temperatures up to 1050 °C with an exclusive oxygen environment ensuring the complete combustion of all organic samples, without requiring additional metal oxidizing reagents or other carrier gases. Macro sample mass capability paired with cycle times of 4 minutes make the CHN828 ideal for a diverse application base, while delivering unparalleled throughput.

- Extended reagent lifetimes, including a reduction reagent tube lifetime of over 4,000 samples
- Thermal conductivity detector supports flexibility of using either helium or argon carrier gas
- Dual-loop aliquot doser provides flexibility to optimize methods based upon element concentration or analysis cost and uptime
- Optional S832 add-on provides independent sulfur determination





### TGA801 Moisture/Ash/Volatile Matter

The TGA801 is your total solution for fast and robust macro thermogravimetric constituent analysis. Determine weight loss as total moisture, ash, volatile content, or LOI in various organic, inorganic, and synthetic materials. The TGA801 is perfect for a variety of industries and applications— including feeds, milling products, foods, catalysts, coal/coke, and cement.

- Obtain multiple analyses such as moisture, ash, and volatile matter from one sample
- Analyze 19 samples simultaneously
- Optimized analysis time using automatic end point recognition based on sample mass constancy



### AC600 Semi-Automatic Calorimeter

The AC600 is an Iso-peribol Calorimeter that provides fast and accurate calorific results for various organic materials such as coal, coke, fuel oils, and waste materials. Its unique design combines state-of-the-art hardware and software technology with automation and ergonomic features for improved instrument performance and throughput.

- Advanced thermodynamic model (TruSpeed® mode) attains rapid 5.5 minute analysis times without compromising accuracy or precision
- Ergonomically designed, lightweight vessel secures in just 1.5 rotations, improving ease of handling
- A number of automated features add productivity to the laboratory



### PEGASUS® BT GC-TOFMS

The tried-and-tested reliability and durability of our Pegasus brand in a convenient benchtop unit gives you more uptime, improved chemical data, and an increase in overall productivity and efficiency.

- GC-MS solution compliant with ASTM D5769
- Industry-leading sensitivity helps you quantify at SIM levels while attaining full scan mass spectra
- A complete historical record of components for each sample is retained for future data mining
- StayClean® ion source virtually eliminates the need for source cleaning



### PEGASUS BT 4D GCxGC-TOFMS

The Pegasus BT 4D provides enhanced sensitivity by coupling our benchtop Pegasus BT with our high performance GCxGC thermal modulation system.

- Ability to interrogate challenging samples where the best sensitivity is needed, making it a perfect fit for petroleum samples
- StayClean ion source virtually eliminates the need for source cleaning
- Flux™ flow modulator option does not require cryogenics and is easy to setup, saving the user time and resources in their lab





### QuadJet™ SD

LECO comprehensive two-dimensional gas chromatography (GCxGC) with FID or single channel detector is ideal for solving analytical methods which require superior chromatographic power over traditional GC. When you need to speciate sulfur-containing compounds in petroleum, LECO's GCxGC options deliver unparalleled separating power and up to an order-of-magnitude increase in peak detectability.

- More affordable, non-mass spectrometer option
- Consumable-free thermal modulator packages also available, eliminating the need for refrigerants
- Integrated ChromaTOF® brand software with total automated system control for maximum productivity



### PEGASUS GC-HRT<sup>+</sup> (High Resolution TOFMS)

High Resolution TOFMS technology provides high-performance MS capabilities, including acquisition speed, mass accuracy, accurate relative isotopic abundance, mass resolution, and dynamic range, all available simultaneously. Designed for the R&D lab to dive deep into petrochemical samples and solve complex matrices.

- Folded Flight Path® (FFP®) technology enables resolution of up to 50,000 and mass accuracies less than 1 ppm, clearly identifying chemical species
- The Multi-Mode Source™ (MMS™) allows users to easily produce and compare aligned data from multiple modes of ionization (EI, PCI, and ECNI)
- Spectral Analysis Tool allows scientists to fully diagnose S, O, and N species
- Encoded Frequent Pushing® (EFP®) contributes to increased sensitivity and expanded dynamic



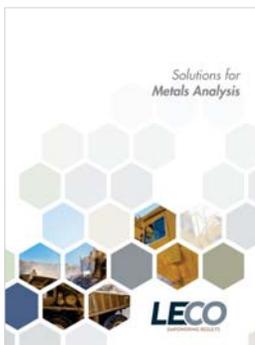
### PEGASUS GC-HRT<sup>+</sup> 4D

LECO's Pegasus GC-HRT<sup>+</sup> 4D provides users with the unprecedented ability to investigate the most complex petroleum samples and identify unknown analytes. Find more analytes than ever before using High Resolution Deconvolution® (HRD®) and comprehensive GCxGC chromatography.

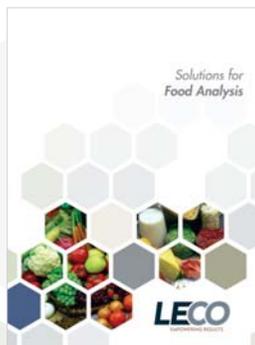
- Mass accuracies of 1 ppm and chromatographic potential at least two times greater than any mass spectrometer currently available on the market
- The Multi-Mode Source (MMS) allows users to easily produce and compare aligned data from multiple modes of ionization (EI, PCI, and ECNI)
- The industry's most established GCxGC systems; thermal modulation with liquid nitrogen or cryogen-free versions



Additional LECO solutions are also featured in the following market-centered brochures.



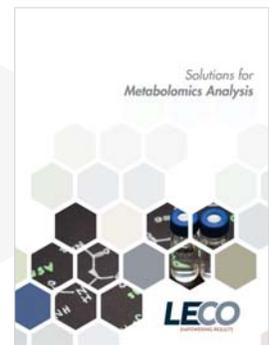
Metals  
209-205-001



Food  
209-205-004



Environment & Agriculture  
209-205-005



Metabolomics  
209-240

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