

Solutions for Energy & Fuels Analysis



LECO

EMPOWERING RESULTS

Elemental Analysis | GC Mass Spectrometry | Metallography

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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 fuels. 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[®] 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.

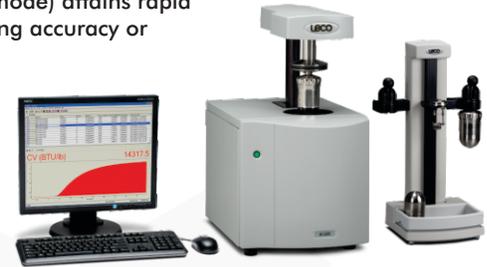
- Obtain multiple analyses such as moisture, ash, and volatile matter from one sample
- Analyze 19 samples simultaneously
- Optimized analysis time using automatic end point recognition based on sample mass constancy



AC600 Semi-Automatic Calorimeter

The AC600 is an Isoperibol 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



QuadJet™ SD, Paradigm™ SD

LECO's portfolio of GCxGC modulators provide solutions for a variety of routine and quantitative petroleum workflows.

- Enhanced chromatographic separation techniques simplify group/type quantitation in complex samples
- Pre-configured GCxGC-FID systems available with LECO's QuadJet thermal or Paradigm flow modulators (Other GC detectors can be accommodated)
- Satisfy requirements for standardized fuels testing methods from regulatory bodies including ASTM, UOP, FCM, and more



PEGASUS® BTX GC-TOFMS

The Pegasus BTX is a Time-of-Flight GC-MS platform that delivers exceptional sensitivity and non-target data acquisition in unison. The improved chemical information transforms workflows from routine to exploratory.

- Single-femtogram sensitivity illuminates a myriad of trace level analytes
- Revolutionary StayClean® Ion Source design eliminates the need for source cleaning, even after sustained matrix exposure
- Advanced deconvolution algorithm yields clean EI spectra with excellent commercial library matching
- Uncover simultaneous targeted and non-targeted information from a single injection without sacrificing sensitivity
- Innovative detector mechanism delivers unparalleled performance, backed by a two-year warranty





PEGASUS BTX 4D GCxGC-TOFMS

The Pegasus BTX 4D pairs the BTX with one of LECO's GCxGC modulators for added detail in hydrocarbon analysis.

- TOFMS adds insight to group-type analyses, heteroatomic species identification, and more petrochemical workflows
- QuadJet Thermal Modulator delivers 5 to 10X sensitivity gain and optimized chromatographic control—available with LN₂ or cryogen-free packages
- Paradigm Flow Modulator delivers affordable, robust, simple GCxGC-MS for any sample
- Shift™ Flow Splitter maintains constant split ratio between MS and FID for optimized quantitative capabilities



PEGASUS GC-HRT⁺ (High Resolution TOFMS)

The Pegasus HRT equips labs for advanced petroleum investigations: High-Resolution Accurate Mass performance, multiple ionization modes, and powerful software tools expose heteroatomic species and identify key biomarkers with ease.

- Folded Flight Path® (FFP®) delivers spectral resolution >50,000 and mass accuracy <1 ppm for accurate elemental formula determination
- Available with Multi-Mode Source™ (MMS™) for EI, CI, and NCI without any hardware changes or MS venting
- Spectral Analysis Toolkit allows advanced data visualization with mass defect, RDBE, Van Krevlen, and other plots and tools
- High Resolution Deconvolution® (HRD®) produces spectra with excellent library matching and elemental composition for any mass spectral peak



PEGASUS GC-HRT⁺ 4D

The Pegasus HRT⁺ 4D pairs LECO's most advanced mass spectrometer with the excellent chromatographic resolution of the QuadJet GCxGC system. The result—more analyte identifications with more confidence.

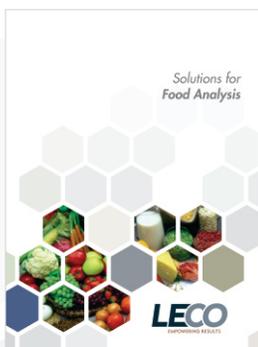
- The best chromatographic resolution paired with high-speed HRMS creates the ultimate discovery tool for advanced petroleum research
- HRT 4D delivers resolution >50,000 and mass accuracy <1 ppm, even at GCxGC-capable acquisition rates up to 200 Hz
- Linked GCxGC contour plots and spectral analytical plots unlock chemical discoveries from many thousands of identified compounds



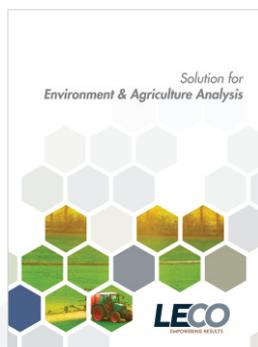
Additional LECO solutions are also featured in the following market-centered brochures.



Metals
209-205-001



Food
209-205-004



Environment & Agriculture
209-205-005



Metabolomics
209-240

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