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The science of today is the technology of tomorrow.
— Edward Teller

LECO Corporation—70 Years of Excellence!

Seventy years ago, the Laboratory Equipment Company introduced the first rapid carbon determinator to the American iron and steel industry. Other products quickly followed and soon the company's carbon determinators, resistance furnaces, and sulfur determinators were seen in industrial laboratories across the country, along with the acronym trademark they carried. LECO soon became synonymous with accurate, dependable instrumentation for the determination of carbon, sulfur, oxygen, nitrogen, and hydrogen in both ferrous and nonferrous industries.

As the world's steel industry grew in the 1970's, LECO's business continued to grow as well, providing a complete line of steel-oriented analytical instrumentation utilizing what were the latest revolutionary techniques. Solid-state electronics replaced vacuum tubes, and greater precision and instrument automation became increasingly important to customers as the field became more competitive. The company utilized new technology that had become available to develop instruments that were easier to operate and required less operator attention, while and still delivering precise results. Also in 1970, LECO expanded its analytical products to include the fast growing energy industries of coal, coke, and oil. By 1976 the company expanded into the organic food markets with its first protein determinator, the NP-28. A few years later, the first automated sulfur analyzer, the SC-32 was introduced by LECO, replacing the tedious ESCHA wet chemistry method. LECO also began to venture into the metallographic field and quickly became a major supplier of equipment and supplies—including sample preparation equipment, a complete range of microscopes and metallographs, and both microhardness and macrohardness testers.

In the mid-1980's LECO was busy combining the microprocessor with improved performance through self-calibration, self-diagnostics, automatic sample manipulation, and other advances. In the late 1980's, they took another giant step forward by expanding into the exciting field of spectroscopy. Also at this time, the next generation of analytical instrumentation was introduced, incorporating a self-contained 16-bit computer using icon-driven, touch-screen software developed by LECO software engineers. These easy-to-operate instruments brought even more versatility and automation into the laboratory. Instruments no longer needed to be operated by top-skilled scientists, as step-by-step software functions allowed less experienced laboratory employees to load samples and operate the instruments. The reports generated from the instruments, combined with the fastest result times and more versatile instrument operation, enabled sample throughput to be increased significantly.

The company began to research and develop products to prepare laboratory scientists with the tools needed to look beyond the limitations of past analytical techniques in the 1990's. It expanded its product lines once again, and the separation science line was created. ChromaTOF®, a Windows®-based software system, was also developed during this time, creating what has become a platform for all of LECO's Separation Science instrumentation.

LECO's success over the last 70 years has not been by accident. Whether it is a diverse array of analytical instrumentation, a new way to look at gas and liquid chromatography, rugged metallography products, or dedicated service support after the sale, this privately-held, family-owned company stands by a commitment of helping you achieve the right results. ■

New Product Information

RC612

The RC612 Multiphase Carbon/Hydrogen/Moisture determinator directly determines surface carbon, free/crystalline moisture, differentiates between organic and inorganic carbon, and can determine various forms of inorganic carbon. Features include a state-of-the-art furnace control system, allowing the temperature of the furnace to be programmed from near-ambient to 1100°C; lower detection limits for an expanded detection range; and either oxidizing or inert atmospheres. Windows®-based software and an ergonomic design improve instrument functionality and serviceability.

RHEN600/602

Featuring state-of-the-art solid-state thermal conductivity (TC) technology with Windows®-based software, the new RHEN600/602 Hydrogen is designed to provide you with even greater stability, accuracy, and convenience for a nominal sample size of up to 6 grams. Improved furnace operating parameters for the RHEN600/602 optimize sample size, accuracy, and precision for a wide range of metals, refractories, and other inorganic materials, especially at low levels (<2 ppm).

TCEN600/TCHEN600

Part of LECO's TCH600-Series, the TCEN600 Nitrogen/Oxygen and TCHEN600 Nitrogen/Oxygen/Hydrogen combine state-of-the-art solid-state infrared (IR) with thermal conductivity (TC) for optimal accuracy and precision. A large sample/crucible capacity along with oxygen scrubber are unique to the -EN models. Two types of autoloaders are also available for the TCH600-Series for expanded laboratory productivity—the Cassette autoloader uses three 19-position stacked carousels to process between 19 and 57 pre-weighed samples. The Process autoloader holds up to 95 samples using 5 stacked 19-position carousels and is designed for complete automation.

Who's Who in Inorganic Products: Aaron Walczewski, Inorganic Product Manager

LECO's new Inorganic Product Manager, Aaron Walczewski, has found the best part of his job is that no two days are ever the same.

"'Monotonous' is not a term I would use to describe this position," he says, adding that he loves the variety.

"Monday I'll be working with R&D defining product release requirements; Tuesday you might find me conducting new product sales training to either our domestic or international sales engineers." Other days, Aaron is doing everything from visiting customers to giving presentations at conferences and trade shows, while setting up pricing strategies in between.

As Product Manager, Aaron carries a number of responsibilities. His main responsibility is to manage the product line life cycles for the Inorganic products from strategic planning to tactical activities. Other responsibilities include developing a company-wide go-to-market plan, assisting with the development of product pricing strategies, and increasing profitability of existing products while proposing new product concepts. While he finds these responsibilities to be a new challenge, his unique blend of business and analytical experience give him the skills he needs to succeed.

Prior to coming to LECO, Aaron worked for CTS Corporation, a manufacturer of electronic sensors and control products for the automotive, telecommunications, and computer industries. He began his career at CTS as an Analytical Chemist, where he planned, conducted, and coordinated quality control, failure analysis, and research and development testing. Most recently at CTS, Aaron held the role of Production Engineer. "I planned and supervised engineering projects and managed the technical aspects of manufacturing electromechanical, electronic control, and sensor product elements for the automotive industry," he says.

"My first experience with LECO equipment was at CTS," he says. "The use of LECO metallographic equipment—saws, polishers, grinders, and consumables—was part of my daily routine. These tools were used to prep electronic components for cross-sectional failure analysis and research projects."

He was also exposed to LECO combustion instrumentation as part of a research project, when it was necessary to determine the carbon content of steel accelerator pedal bars. Samples were submitted to a contract lab which utilized a CS444 Carbon/Sulfur as a means of determining if the correct material was being used.

He's looking forward to working with LECO products much more often, and to his new role as Product Manager. "I enjoy spending time with the customer, listening to their needs and delivering market and product information to R&D. I help position our technological breakthroughs into marketable solutions to our customer's problems."

Aaron holds a Bachelor of Science in Biochemistry, with a minor in Biology, from Indiana University. He obtained an MBA from Indiana University earlier this year. Aaron hopes to help LECO extend its market dominance by stressing a customer-centric approach to product management. ■

Aaron Walczewski, Inorganic Product Manager

Did You Know?
Fun Chemistry Facts

- It is energy-efficient to turn off a fluorescent light only if it will not be used again within an hour or more. This is because of the high voltage needed to turn it on, and the shortened life this high voltage causes.
- The United States consumes 25% of all the world's energy.
- Every year in the US, 625 people are struck by lightning.
- Hydrogen is the most abundant element in the Universe (75%).
- Super Glue was invented by accident. The researcher was trying to make optical coating materials, and would test their properties by putting them between two prisms and shining light through them. When he tried the cyano-acrylate, he couldn't get the prisms apart.
- No matter its size or thickness, no piece of paper can be folded in half more than 7 times.
- The microwave was invented after a r esearcher walked by a radar tube and a chocolate bar melted in his pocket.
- Hydrofluoric acid will dissolve glass.
- October 10 is National Metric Day.
- Hawaii is moving toward Japan 4 inches every year.
- Flea's can jump 130 times higher than their own height. In human terms this is equal to a 6 ft. person jumping 780 ft. into the air.
- The embryos of tiger sharks fight each other while in their mother's womb, the survivor being the baby shark that is born.
- The common goldfish is the only animal that can see both infrared and ultra-violet light.

Source: http://www.hightechscience.org/funfacts.htm

Kits and Updates

Do you own a LECO instrument and want to get the most up-to-date information for your instrument, including product update bulletins covering recent design improvements and available software updates? These latest product updates are available on CD. Visit www.leco.com, and click "Kits and Updates" under the support tab. Complete the form listed on the page and we'll mail you a free CD!

What's New in Inorganic

A selection of new application notes were recently released for some of LECO's newest instruments. Topics include Hydrogen in Aluminum and Aluminum Alloys (form no. 203-821-300) for the RHEN602; and Hydrogen in Copper and Copper Alloys (form no. 203-821-305) for the RHEN600/602. These and other application notes can be downloaded from our website. Visit www.leco.com, and look for the Applications Library under Resources at the top of the page. You may also request application notes by completing the fax-back form on the back page of this newsletter.

Application Highlight

Hydrogen Determination in Aluminum and Aluminum Alloys Using the RHEN602

Aluminum is an ideal manufacturing material for many industries because of its low density, high strength, and high conductivity. Unfortunately, aluminum also has a relatively high cost and unfavorable hydrogen solubility characteristics.

Because hydrogen gas has a high solubility in molten aluminum, it is readily introduced during processing. Once solidification begins, the solubility decreases and hydrogen is forced out of the aluminum. Although a majority of the hydrogen is diffused, a small percentage may get trapped, creating hydrogen-filled voids and leading to numerous failure mechanisms in aluminum products such as voids in casting and blisters in sheets. Thus, an accurate hydrogen determinator is a necessary quality control device for all aluminum producers.

The LECO RHEN602 has a larger sample capacity than standard hydrogen determinators, and utilizes an electrode furnace, an argon carrier gas, and thermal conductivity detection to detect the quality of aluminum. The instrument's software performs a stepped furnace analysis enabling both separation of surface and bulk hydrogen to be performed and corresponding results reported.

Using the RHEN602, an analysis of solid aluminum samples was performed. Aluminum samples were sectioned and machined on a lathe to achieve a uniform dimension of 10.5 x 24 mm. The samples were then washed in acetone and dried with warm air prior to analysis. After calibration of the instrument was completed, ~3.0 to 6.5 g of the prepared aluminum sample was weighed and the mass entered into the sample login. Analysis was performed for each prepared sample.

For complete results of this application, refer to Application Note 203-821-300.

New Global Support Center Up and Running

LECO's new Global Support Center at its headquarters in St. Joseph, Michigan is a multi-use facility developed to better serve the needs of its domestic and international customers. The new building houses the service, customer training, and consumables departments, as well as three mobile laboratories. A separate customer entrance, auditorium and training room, cafeteria, and restrooms have been designed exclusively for customers attending training classes at the new building. Up-to-date technology has also been installed; ensuring service and training needs for all customers are met quickly and efficiently.

"Modern technology has been incorporated with ample space to give our service technicians the room and equipment they need to properly address the service concerns of our customers," said Craig Peacock, Service Manager. "With analytical, metallographic, and spectroscopy service professionals all located in one central area, we are much more accessible to each other and our customers."

The new Global Support Centers enables LECO to continue offering the best in service, support, and training to its customers from one convenient location—something they've been committed to since 1936.

SmartLine—Your Connection to Quicker Solutions

Our convenient online service program is now web-based and modem-free! The only company in the industry to offer you high-speed internet-based service support for your LECO instruments, our new SmartLine® Remote Diagnostics allows solutions to be diagnosed up to four times faster than modem-based products. By providing you with an on-line support connection between your instrument and LECO's Global Support Center, service specialists are able to quickly perform diagnostic tests on your instrument, putting them on the same page as you and achieving quicker, targeted solutions.

SmartLine®

To check out the new website visit www.leco.com

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More information on articles or information featured in this issue of *The Analyzer* can be obtained by selecting one or more of the following categories.
Please fax this entire page to 269-982-8977.

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❑ TCEN600/TCHEN600

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