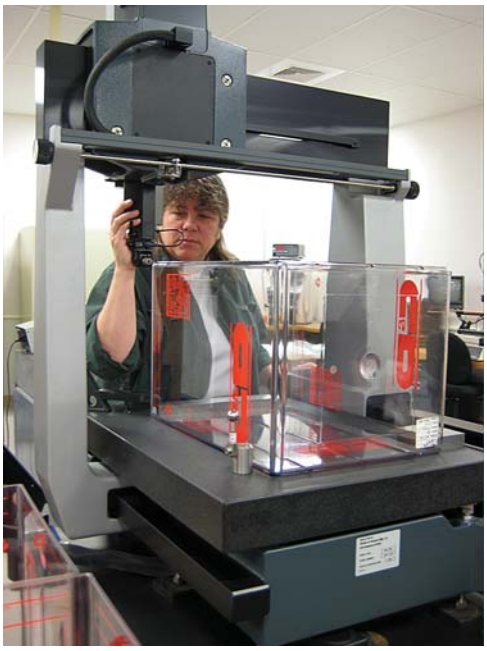
November 2011, Volume XXVIII

LAB NEWS

Dimensional Inspection Helps Prevent Power Plant Failures

Many businesses rely on dimensional inspection to verify the measurement accuracy of product features during product development or as part of their production quality control. Laboratory Testing Inc. (LTI) performs A2LA accredited first-article and third-party dimensional inspection on surface and specialty product features, as well as internal and external fastener threads.



CMM inspection of a battery container to verify critical dimensions

LTI customer, C&D Technologies, manufactures batteries for telecommunication facilities, data centers and electric utilities. The batteries installed at these facilities provide standby power when the primary commercial power is interrupted.

Among the users are nuclear power plants, which require the highest quality batteries to prevent damage to their facility and assure public safety when external power is lost. As we saw earlier this year in Japan's Fukushima power plant, the continued operation of cooling water pumps and other safety systems is vital.

120V C&D lead acid [calcium] rechargeable batteries (LCR) installed in a nuclear plant

To ensure that the batteries are of the highest quality and will perform as required, individual components are tested. This includes some of the plastic components such as the battery containers and covers, which must safely hold electrolyte (sulfuric acid solution) to operate the batteries. C&D Technologies sends their containers and covers to LTI to assure that these molded pieces are sized correctly and will fit together properly without leaking or cracking.

C&D has audited LTI's quality system and their Nuclear Product Manager, Larry Carson, said "we know that we can depend on LTI for accurate, timely and consistent results that help us meet the stringent quality requirements of the nuclear power industry." C&D should know – they have been the leading supplier of safety-related battery systems to the nuclear industry in North America for over 40 years.

LTI inspectors work in an environmentally-controlled laboratory to minimize uncertainty. Inspections are performed using programmable contact and non-contact equipment for speed, accuracy and repeatability.

Open House Was a Huge Success

LTI's Open House, held the evening of September 21st, was an event enjoyed by customers and employees alike. There were great snacks, assorted drinks and a buffet dinner prepared by a local caterer. A dozen tour groups visited the materials testing, nondestructive testing and metrology labs, as well as our machine shop. It was a great time to network and discuss industry trends and challenges with other business leaders and professionals.

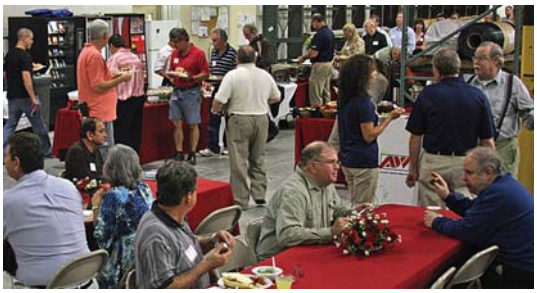
Everyone parted with new connections and insights into the growing range of services at LTI. Thank you to all who came out to join us. We appreciate the positive feedback on our facility, the services that were demonstrated and on the LTI employees that participated in the Open House.

iPad Winner Announced

Congratulations to Brant Shoemaker of H. Shoemaker Welding & Machine, the winner of the Open House iPad drawing.

We'll Do it Again

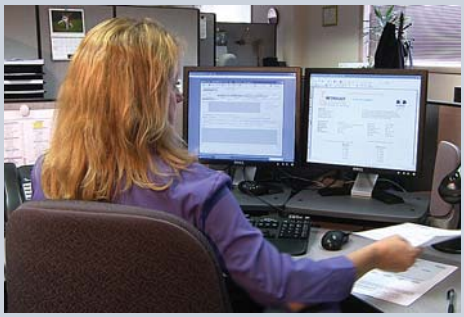
For those customers too far away or with other commitments that evening, please know that you are always welcome to schedule a visit and tour at a more convenient time. Our 2008 and 2011 Open Houses were so successful, we plan to have the next one sooner than three years. We will keep you posted when we begin making plans for the next event.



If you'd like to read past articles or issues of *LabNews*, please visit our online Resources at *www.labtesting.com/resources.php*. You'll also find Guidelines for completing purchase orders, quote requests and much more.

Order Entry/Certifications

Order Entry/Certification Specialists work on a tight schedule to enter orders into our laboratory software shortly after they arrive at LTI. As soon as the work is completed, they quickly document all results in our Certified Test Reports and Calibration Certificates. A few specialists work in our testing and calibration departments where the work is performed. The rest are part of our Q.A. Department, where they enter orders and prepare certifications for jobs that move through more than one department before completion.



Purchase Order Guidelines

When turnaround time is important, you can help us get your order into the queue as quickly as possible by providing all necessary information on your purchase order. The required information can vary by department, but should include the following at a minimum:

- Purchase order number
- Type/quantity of services per item
- Specification requirements
- Number of samples/instruments
- Description of material/instrument including size & identification #
- Quote number/LTI test code
- Standard/expedited turnaround
- Shipping method/destination
- Contact information
- Special instructions

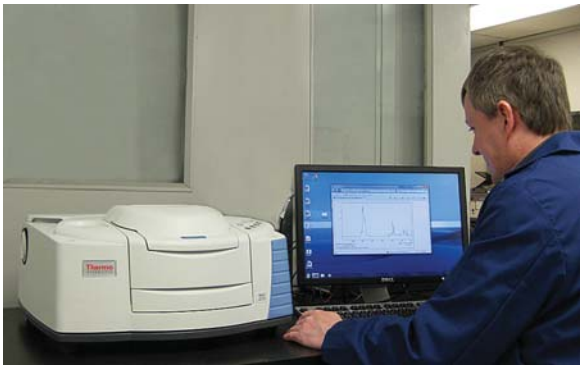
Testing Polymers for Aerospace, Military, Medical & Other Industries

Laboratory Testing Inc. continues to expand its line of materials testing services with the recent addition of Fourier Transform Infrared Spectroscopy (FTIR) and Hardness Testing for polymers, including plastic and rubber. Known for over 25 years as a specialist in metals testing, LTI has seen the increased need for testing of polymeric materials in the aerospace, military, medical and other industries that we have serviced for years. Expansion into polymer testing is a natural progression for our materials testing lab and a convenience for many customers.

FTIR Analysis

FTIR is an analytical technique used to identify organic, and in some cases, inorganic materials. The spectrometer used in FTIR analysis creates an absorption spectra with absorbance peaks that provide information about the chemical bonds and molecular structure of the test material. The data can be used to identify the general type of material under analysis by comparing the analytical spectrum with cataloged reference spectra to identify base polymers and additives.

FTIR analysis compliments the wide-range of instrumental and wet chemistry services performed at LTI for metals, powdered metals, ores, ferroalloys, composites and ceramics.



FTIR analysis performed with a high-tech Thermo Scientific Nicolet iS10 FT-IR spectrometer

Hardness Testing

The hardness of polymers is measured by the Shore Durometer Test at LTI, in accordance with ASTM D2240. This method determines a material's hardness value or resistance to indentation by penetration of an indenter into the test sample. Because the flexibility of polymers varies, LTI is equipped with various indenters to use for testing different types of materials from elastomers to rigid plastics.

Polymer hardness measured by a Shore S1 A Digital Durometer

Scanning Electron Microscopy

Magnification and digital imaging capabilities provided by our scanning electron microscope (SEM) assist in failure analysis and determination of properties for polymers, metals and other materials. The SEM produces high resolution images at magnifications from 5x to 300,000x to aid in fractography, chemical attack, and particulate evaluation.

Fracture Toughness & Fatigue Testing Performed by LTI

LTI is completing installation and startup of equipment for fracture toughness and fatigue testing. These techniques measure information about how cracks grow in a material, an important property in design applications and in determining whether there is an immediate danger of component failure when a crack is discovered in a structure.

In a fracture toughness test, a specimen with a pre-existing crack is incrementally torn by an increasing tensile load. The material's resistance to further crack growth is measured as the crack lengthens. Fatigue testing measures the rate of crack growth under conditions of variable load. Both test methods require a precise specimen that can be prepared to specification in our Machine Shop.

The new equipment can generate 55,000 lbs. of tensile or compressive force. An environmental chamber is available that can control the test temperature between -250° F and +1150° F. Our testing, specimen machining and SEM capabilities enable LTI to offer fast, accurate and complete service.

LAB NEWS

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Add @labtesting.com to Email Safe Senders List

Please add the domain @labtesting.com to your email "Safe Senders or Recipients" list to allow email from LTI employees. This will prevent your quotes, certifications and important announcements from ending up in Junk mail or being blocked by spam filters.

Turnaround time on your orders can be critical, and delays in receiving email or the inconvenience of having it resent can really slow you down. Even if LTI email reaches your Inbox now, companies change spam filters and allow updates that can cause the email to be blocked unexpectedly in the future.

In This Issue

Holiday Closings

LTI will be closed on the following days for end-of-year holidays:

Thursday - November 24
Friday - November 25

Friday - December 23
Monday - December 26
Monday - January 2, 2012

Enjoy the Holidays!

Contact LTI

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