Thermo Scientific Customer Testimonial

QMS Puts Quality on the Line with Thermo Scientific Niton Analyzer

"QMS evaluated five different XRF suppliers. Niton surpassed all others in ease of use, application diversity, customer support, and cost effectiveness."

– Philip P. Thurman, Quality Assurance Director, QMS

Circuit card assembly testing

Team QMS

Small component analysis

Thermo Scientific Niton XL3t Benefits

- Fast, comprehensive testing
- Cost efficient, minimizes downtime
- Locked and encrypted data
- Easy to use
- Portable source inspection tool

Quality Manufacturing Services, Inc.

Founded in 1995, employee-owned Quality Manufacturing Services (QMS) provides electronic manufacturing services for military, medical training, and industrial/commercial applications. With a mission to "provide our customers with the highest quality assemblies, on time, every time, and at the best price," this Longwood, Florida-based company specializes in consignment and turnkey circuit card assembly manufacturing and quick-turn prototyping.

The Challenge

QMS customers represent diverse market sectors and require both leaded and lead-free manufacturing support. Also, the company's vendors employ various methodologies to differentiate lead versus lead-free product. In addition, some components have end-of-life availability or can only be obtained through a broker. While the material received may have distributor certification, it does not supply the critical objective evidence actually verifying material composition, nor does it account for potential human error. QMS realized a need to ensure that assemblies met their customers' quality level and material verification requirements.

Results

Once QMS started using the Thermo Scientific Niton XL3t 700 Series handheld x-ray fluorescence (XRF) analyzer, they could test incoming materials to prevent any non-conforming materials from finding their way into production or stock.

QMS – Building on a Solid Foundation

Commitment to the highest quality standards and long-term customer relationships define Quality Manufacturing Services, Inc. of Longwood, Florida, and employee ownership is the solid foundation on which it is built. With zero turnover, 100 percent ownership of all capital equipment, and constant investment in the latest electronics manufacturing technologies, QMS knows that it would only take one oversight involving material identification to affect its hard-won reputation for excellence. And that's a chance they were not willing to take.

"QMS has the most sophisticated processes available in the industry to manufacture our product. But even if you have the best processes, the highest skilled and trained employees, and utilize the latest technical manufacturing innovations available, objective evidence remains the most critically important quality gauge," says Philip Thurman, Quality Assurance Director for QMS. "There's no subjectivity to a detailed, percentage breakdown of actual elemental composition, and that's what we get with XRF technology and the Thermo Scientific Niton analyzer."

Quality Across the Board with XRF

As an electronic contract manufacturer, a typical month for QMS can involve processing hundreds of assembly part numbers for more than 50 different customers requiring a mix of solder technologies. QMS must therefore focus extraordinary attention to correct alloy identification prior to each production run and material going into stock.

Thurman says, "To mitigate tin whisker migration, leaded solder and leaded component terminations are the only chemistry that military customers want. Meanwhile, for our many domestic and international customers, the circuit card assemblies must conform to the European Union's RoHS directive, requiring lead-free solder and components."

The next step? QMS needed to find the tool providing objective data that proved every assembly satisfied the varied alloy specifications of their customers. "QMS evaluated five different XRF suppliers. The Niton analyzer surpassed all others in ease of use, application diversity, customer support, and cost effectiveness," notes Thurman. "The unit can be operated with minimal training and expertise. Actually, the fact that it's easy to use was one of the selling points. There's no real specialized training involved. I wrote a simple one-page procedure. If there are any issues such as changing libraries or uploading or downloading data, any of the three people who were specifically trained can do it. The actual operation…anyone can do it."

Small Spot. Big Gain.

QMS chose the Niton® XL3t 700 Series analyzer with the variable-spot feature, allowing them to focus the x-ray beam on individual areas as small as 3 millimeters. Further, an integrated, color CCD camera and sample imaging system lets them visually identify, locate, specify, and save the image of the analysis area together with elemental analysis results for easy reference, data management, and data integrity. Together, they are ideal for positioning, analyzing, and documenting the analytical results of small components.

According to Thurman, "Right now, we're benchmarking the analyzer for receiving inspection. We deal with components no larger than a grain of sand and we use the small spot every time. With the camera, it's complementary support to have an actual analysis photograph on the certificate accompanying the component. Once assembly is complete, we can provide both a standard Certificate of Conformance in addition to copies of the actual alloy composition breakdown, again demonstrating empirical objective evidence to our customers."

Early Detection Saves Time, Money, and Aggravation

Clearly, the earlier in the process that testing occurs, the easier it is to prevent expensive and time-consuming errors. XRF analysis with their Niton instrument helps QMS achieve effective control over what materials make it to the line. Thurman elaborates, "If you're going to have a problem, the earliest detectable point in a process is always the most cost effective. With the Niton analyzer, we can identify an occurrence or systemic thread early on, saving significant labor, money, time, or negative downstream impacts. One of the reasons that our quality levels are so high is because such an emphasis is concentrated on early potential problem cycle identification. We invest such a considerable amount of preliminary groundwork that we have very little or no rework at the end."

He continues, "It's been exciting. I'd say that once a week we have a major customer or potential customer do a walk through, and typically the analyzer is one of the highlights. For example, a chief quality officer from one of the top defense companies in the country, if not the world, recently toured our facilities. He had heard of XRF technology, but had never seen an application. They have multiple major defense contracts going at any given time and have encountered labeling and marking problems with some of their vendors. The systems these components comprise are life-critical applications, so they've had to submit inordinate material amounts to their metrology labs. This causes huge delays, and obviously, geometrically progressing costs. When he saw the handheld analyzer, he said, 'I want to get two of those for every program."

More than the Sum of Its Components

With an ongoing commitment to, and investment in, people, skills, training, and the most contemporary manufacturing environment, QMS offers some of the best experienced and highly trained electronics manufacturing work forces and state-of-the-art equipment necessary to provide its customers a first-class product second to none. "The Niton XRF analyzer demonstrates that Quality Manufacturing Services is committed to necessary resource investment that earns and keeps customer confidence.

For more information about how Niton analyzers can help your organization, contact your local representative or visit our website at www.thermo.com/niton.