



Thermo Scientific Niton XRF Analyzers

*Accurate and precise elemental analysis
anywhere – in seconds*

Thermo Scientific Niton XRF Analyzers

95% of the world's largest metals recyclers¹ using analytical equipment to sort alloys depend on Niton XRF analyzers.

The U.S. Consumer Product Safety Commission (CPSC) and Europe's PROSAFE use Niton analyzers for screening toys and other consumer goods.

More than 2,000 Niton XRF analyzers are deployed in the global mining industry.

Complies with EPA Method 6200, measuring RCRA metals and target analytes. Used by regulators such as the U.S. EPA.

¹Based on publicly reported annual sales data as of July 2009

How can Thermo Scientific Niton analyzers make you more productive in your application?

Contact us at:
niton@thermofisher.com

Applications include:

• Metal & alloy testing

- Scrap metal recycling
- Positive material identification (PMI)
- Manufacturing QA/QC
- Flow accelerated corrosion (FAC)
- Precious metals analysis

• Toys & consumer goods

- Toys
- Apparel
- Jewelry
- Furniture
- RoHS compliance
- Packaging

• Mining exploration & production

- Geochemical analysis
- Drill core and cuttings
- Grade control

• Environmental analysis

- Lead paint testing
- Dust wipe analysis
- Soil and sediment
- Air filters
- Gypsum testing for Chinese drywall; sulfur corrosion on copper pipes

• Additional applications

- Catalytic converters
- Coating/plating thickness
- Dental alloys
- Building materials
- Forensic analysis



Photo courtesy of iStockphoto.com



Point, Shoot, *Analyze* – with confidence: Lab-quality results in the palm of your hand.

Thermo Scientific Niton handheld x-ray fluorescence (XRF) analyzers will revolutionize your materials analysis, from screening consumer products for lead (Pb) to testing applications across manufacturing QC, mining exploration and production, scrap metal recycling, lead paint analysis, and many more uses.

Lightweight and rugged, Thermo Scientific Niton XRF analyzers are purpose-built to provide elemental analysis in a nondestructive, point-and-shoot operation. Now you can take measurements anytime, anywhere – for accurate elemental concentrations available in seconds rather than the hours or days it can take for a traditional testing laboratory.

You save significant expense while achieving a greater level of productivity than you ever imagined, giving you a real competitive advantage.

BUILT FOR THE WAY YOU WORK:

That's why Thermo Scientific Niton analyzers are the most popular handheld XRF instruments in use today

"The cost benefit of utilizing a [Thermo Scientific] Niton analyzer for exploration, particularly base metal exploration, can be enormous, not only in saved assaying costs, but most importantly in months of saved time. The ability to follow up on anomalous geochemical results the same day, or to decide to extend or infill drill on the spot, makes it invaluable. This analyzer will typically pay for itself in 2 to 6 months."

Iain Groves, mining and exploration consultant

Handheld Niton® XL2 and XL3t Series XRF analyzers are designed to meet any testing challenge in any location: office, retail store, production line, mining operation – virtually any field environment or weather condition.

- **Easy to use**

No special skill or training is required: just point and shoot. You see the results in seconds on a bright, color, touch-screen display designed for easy viewing. Multiple languages are supported.

- **Purpose-built**

One-step system check requires no external accessories. Advanced batteries support up to 10 hours of continuous operation on a single charge.

- **Lightweight**

Analyzers are built with tough LEXAN® plastic and each weighs approximately three pounds (1.36 kg). A totally sealed design makes them dust- and water resistant for worry-free use in virtually any environment or climate condition.

- **Nondestructive**

Unlike destructive testing methods, samples remain intact and undamaged.

- **Exceptionally fast**

Get results in seconds for quick decision-making with confidence. No more sample shipping costs and waiting days for lab reports.

- **Award-winning**

Thermo Scientific Niton instruments have received three R&D 100 Awards for technical excellence – the only handheld XRF analyzers to win even a single R&D 100 Award.



reddot design award
winner 2006



Niton XL2 Series

Niton XL3t Series



Niton XL2 GOLDD
PERFORMANCE
LEADER



Niton XL3t GOLDD+
ULTIMATE PERFORMANCE
AND FEATURES



Niton XL3t
FEATURE LEADER



Niton XL2
VALUE LEADER

PERFORMANCE ▲▲▲

FEATURES ▶▶▶

BUILT FOR THE WAY YOU WORK:

Which Thermo Scientific Niton analyzer is best for you?

The **Niton XL2 is the clear value choice** – a lightweight, rugged handheld analyzer perfectly matched for most testing applications. It provides customized menus for ease of use, plus multi-language support and a standard analysis range of more than 25 elements. The Niton XL2 is ideal for tighter test equipment budgets and is upgradeable to the Niton XL2 GOLDD™.

The **Niton XL2 with Geometrically Optimized Large Area Drift Detector (GOLDD) technology delivers high performance in a value package.** It brings exceptional accuracy, precision, and ease of use with its fast analysis, high throughput, and the added ability to measure light elements (Mg-S) without helium or vacuum assistance.

The **Niton XL3t offers enhanced features** designed for specific industry applications. A tilting, color, touch-screen display allows easy viewing of sample results under any condition. With the optional integrated camera, users can locate, view, and store the image of an analysis area along with the test results for later reference. The Niton XL3t is upgradeable to the Niton XL3t GOLDD+.

The **Niton XL3t GOLDD+ delivers the ultimate performance in a feature-rich package.** Its enhanced GOLDD technology offers superior performance for light element (Mg-S) analysis with the lowest limits of detection and fastest measurement times. A helium purge option is also available for further enhancing light elements.



Each Thermo Scientific Niton analyzer features an easy-to-read icon-driven display



Take the Thermo Scientific Niton analyzer anywhere. It's your personal field laboratory for dependable elemental analysis that delivers a real competitive edge.



All Thermo Scientific Niton XRF analyzers share a superior set of features unmatched in the industry. Constructed with tough Lexan® plastic, each analyzer comes with an intuitive graphical user interface and our Thermo Scientific Niton Data Transfer (NDT©) software that allows you to customize your instrument – set user permissions, modify alloy grade libraries (if applicable), print certificates of analysis, or remotely monitor and operate the unit hands-free from a PC. You also have the flexibility to transfer data via USB or Bluetooth™ wireless communications.

It's easy to select the best Thermo Scientific Niton analyzer to meet the performance and feature requirements for your application.

	Niton XL2	Niton XL2 GOLDD	Niton XL3t	Niton XL3t GOLDD+
Performance				
High-performance Si PIN Diode Detector for analysis of >25 elements between S-U	●		●	
Enhanced heavy element performance (Mo to Ba) utilizing 45kV x-ray tube	●	●		
Geometrically Optimized Large Area Drift Detector (GOLDD) for highest performance and shortest possible testing times		●		●
Superior heavy element performance (Mo to Ba) utilizing 50kV x-ray tube			●	●
Tramp/trace element detection		●		●
Superior tramp/trace element detection				●
Light element detection (Mg-S) without He or vacuum		●		●
Superior light element (Mg-S) performance				●
He purge for enhanced performance of Mg-S				○
Features				
Small-spot capability for analyzing small samples			○	○
CCD camera for locating, viewing, and storing images			○	●
Upgradeable to Niton XL2 GOLDD	●			
Upgradeable to Niton XL3t GOLDD+			●	
Angled, color, touch-screen display	●	●		
Tilting, color, touch-screen display			●	●

- Standard
- Optional



The Niton XL3t analyzer's optional camera with small spot lets you capture and store sample data from components and tiny sample areas

Applications

Handheld Thermo Scientific Niton XRF analyzers deliver fast, accurate elemental analysis to a growing list of applications

Not all handheld XRF analyzers are the same.

More than 25,000 Thermo Scientific Niton XRF analyzers can be found in more than 75 countries on six continents

When it comes to XRF-based analysis, Thermo Scientific Niton analyzers have set the worldwide standard for responding directly to customer needs.

Our culture of innovation, vast application expertise, and breakthrough technology have continually enhanced our handheld XRF instruments since they were first introduced two decades ago.

Unlike other offerings, **our analyzers are purpose-built for portable XRF applications** using:

- Multiple dedicated processors that optimize speed and performance
- Robust, proven operating system developed exclusively for XRF analysis
- Industry-specific sample processing routines to provide the most valuable measurement data for each application

Whether screening for lead in a child's toy or verifying the alloy content of a weld at a petrochemical plant, our rugged, dependable analyzers outperform Windows® Mobile-based operating systems with their limitations and vulnerabilities.

With Thermo Scientific Niton analyzers, you're assured of getting the best performance, features, and upgradeability dedicated to your specific testing needs – all backed by the global support of an industry leader.



Scrap Metal Recycling

Handheld Thermo Scientific Niton XRF analyzers have revolutionized the scrap metal recycling industry. In fact, nearly every major recycler in the world² currently uses our instruments. With today's volatile commodity prices, fast and accurate alloy sorting and analysis can directly correlate to profitability. Field-hardened, lightweight, water- and dustproof – Thermo Scientific Niton XRF analyzers offer:

- Test results often in one second or less, for samples ranging from 1 mm wire to massive structures such as reaction vessels
- Unique grade library of 400+ alloy grades, providing alloy chemistry for up to 30 common elements in tens of thousands of alloy grades for superior grade identification accuracy
- With Thermo Scientific GOLDD technology, you can quickly sort alloys with light elements (Mg-S) without using helium purge or vacuum

Precious Metals and Jewelry Analysis

With the ever-increasing price of precious metals and gems, you cannot afford to incorrectly determine the value of items being bought, sold, or recycled based on "traditional" methods. In just a few seconds, you can determine the exact precious metal content in jewelry, coins, and other valuable products with assay-comparable accuracy. Thermo Scientific Niton analyzers allow you to:

- Simultaneously measure the content of all precious metals, including Au, Ag, Pt, and Pd
- Determine the presence and concentration of dangerous heavy elements such as Pb and Cd
- Immediately determine the presence of replica or altered gemstones such as cubic zirconium and glass-filled rubies

Toys and Consumer Goods Testing

In response to regulations, including the Consumer Product Safety Improvement Act (CPSIA) of 2008, manufacturers, importers, and retailers all must comply with regulations that limit permissible levels of lead and other toxic metals in products ranging from toys and jewelry to clothing, furniture, and packaging. The CPSC and the European Union's Product Safety Enforcement Forum of Europe (PROSAFE) – as well as major manufacturers and retailers – have chosen and trust Thermo Scientific Niton analyzers for their own screening needs. These XRF analyzers make the screening of packaging and complete product inventories easy and cost-effective:

- Test results for lead, cadmium, and other toxic elements are available almost instantly – in the factory, in the warehouse, on the dock, or even on retail store shelves
- Screening is nondestructive, so finished products are not damaged in the process
- TestAll™ technology automatically determines the correct analytical test mode for each item, simplifying the screening process for non-technical users
- RoHS compliance testing of electrical and electronic equipment rapidly quantifies restricted substances

"...When we do verification in house, we have it categorized so we know what ASTM category it is, and the report prints out that we have the right material for this project...For us, that's a one-shot benefit. There's no more going back and forth with outside testing facilities."

– Bill Ellis, technical director, Weir Minerals Floway® Pumps

Manufacturing QA/QC

Metal alloy verification for quality assurance and control is critical to product safety. From primary metals production to component fabrication and final product assembly – the potential for material mix-ups and the need for traceability is a constant concern. Thermo Scientific Niton analyzers give you peace of mind that comes from:

- Instant recovery of lost traceability
- Superior detection limits for tramp/trace elements
- Excellent light element performance for sorting Al, Ti, and bronze alloys
- Lower detection limits for Cr, Cu, Ni, and Mo in carbon steel
- Unrivaled library of 400+ alloy grades for accurate grade identification every time

Mining/Petroleum Exploration and Production

Gathering geochemical data from mining operations is a major challenge to productivity and expense containment. On-site testing labs are often impractical due to environmental factors, weather, and logistics, including the high cost of transporting heavy samples for lab testing. Handheld Thermo Scientific Niton analyzers offer:

- Fast, easy analysis of drill cores to detect ore boundaries
- In-depth analysis of metal concentrations needed for precise mapping and grade control
- Efficient monitoring of waste elements at mining sites, ensuring proper containment to meet local regulations
- TestAll Geo technology automatically determines the correct analytical test mode for rapid analysis of major and minor elements in geological samples



Positive Material Identification (PMI)

PMI using handheld XRF analyzers has become essential for verifying all process components, including incoming materials inspection, in-process verification, and final product inspection. Thermo Scientific Niton analyzers are the industry standard for fast, accurate alloy analysis to verify the composition and proper dilution rate of welded joints.

- Simultaneous testing for up to 30 elements in seconds, with positive grade identification based on calculated composition from our superior alloy grade library
- Hot-surface testing to 850°F (454°C)
- Rugged product design, engineered for use in harsh production environments
- Thermo Scientific WeldSpot optional small-spot allows precise sampling and image archiving with CamShot™ CCD camera

Environmental Analysis

The demand worldwide for clean air, water, and soil is placing ever-increasing focus on contamination prevention and remediation. Whether your challenge is site modeling, risk assessment, on-site clearance screening, or remediation QC, Thermo Scientific Niton XRF analyzers provide:

- Near-instantaneous, in-situ analysis of soil, lead dust wipes, and air filter samples
- Accurate testing of RCRA metals, priority pollutants, and U.S. EPA target analytes; easy-to-use tool for RRP compliance
- Real-time delineation of contamination boundaries, with legally-defensible data
- Elemental analysis for Chinese drywall; sulfur corrosion on copper pipes





Available Options and Accessories

The complete Thermo Scientific Niton product line includes key accessories that simplify the task of sample analysis

- **Holster** – Each Thermo Scientific Niton analyzer comes with a heavy-duty holster that keeps the unit handy and well-protected in any test environment.
- **CCD color camera** – An integrated color CCD camera and sampling imaging system helps users to visually identify, locate, specify, and save the image of the analysis area together with elemental analysis results (optional, Niton XL3t; standard, Niton XL3t GOLDD+)
- **Portable test stands** – Multiple options for test stands, some collapsible for easy transport, provide a safe platform for analyzing small and irregularly shaped samples, as well as bagged and cupped samples. Onboard RFID technology automatically adjusts the analyzer's parameters for test stand use.
- **Extend-a-Pole™** – Telescoping extension pole with instrument cradle clamps to the analyzer and provides remote trigger activation; also features folding bi-pod supports to facilitate in-situ soil testing while standing upright.
- **Heat shield** – Form-fitting shield protects the instrument and user's hand from high temperatures in certain positive material identification testing routines; extends testing capabilities up to 850°F (up to 454°C)
- **Sample preparation kits** – These kits assist users in preparing soil sample for analysis; includes mortar and pestle, stainless steel sieves, sample cups, and other items necessary for sample preparation.

Note: Some accessories and options are available only on specific Thermo Scientific Niton models; specifications may change without notice.



“The [Thermo Scientific] Niton [analyzer] is an essential piece of equipment for us. It enables us to give our customers the best possible price, since we know exactly what grade of alloy we are dealing with.”

– **James Varley,**
director, Morecambe Metals, (“Alloy Analyzer Provides Instant Results for Scrap Metal Company”), Process and Control Today, May 8, 2008; Steel Guru

“QMS evaluated five different XRF suppliers. [The Thermo Scientific] Niton [analyzer] surpassed all others in ease of use, application diversity, customer support, and cost effectiveness.”

– **Philip P. Thurman,**
quality assurance director, QMS

“We bought the Niton XL3t for the speed it can sort and grade material. Man hours are precious to us, and this new instrument effectively gives us more.”

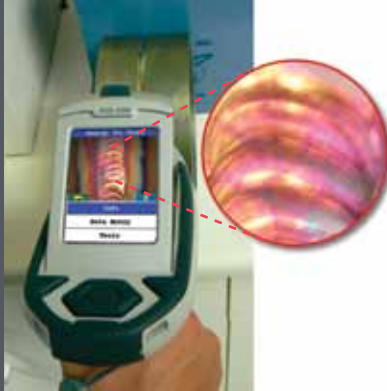
– **Mark Westwood,**
director, Cronimet GB

“Knowledge is the key, and [the Thermo Scientific] Niton XRF [analyzer] gives us on-the-spot knowledge. This facilitates decision-making, resulting in time and cost savings.”

– **Andrew Gillies,**
managing director, Metallica Minerals Limited



Extend-a-Pole



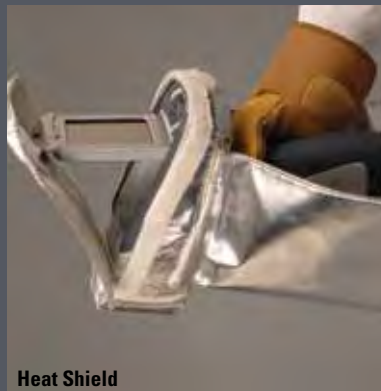
Thermo Scientific WeldSpot



Portable Test Stand



Field Mate



Heat Shield



**Thermo Scientific Niton
Analyzer Worldwide
Service Centers**



Superior XRF analysis solutions, backed by our worldwide sales and service

We are recognized as the leader in XRF analysis technology, serving companies in more than 75 countries on six continents. We serve our customers through corporate resources and a dedicated network of more than 70 distributors and 30 factory trained service centers around the world to provide the most effective customer service possible. Our global reach and resources not only ensure worry-free product support, we also offer comprehensive services including application consulting and training anywhere you need them.



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