



## Thermo Scientific Niton XRF Analyzers

*Accurate and precise elemental analysis  
anywhere – in seconds*

# Thermo Scientific Niton XRF Analyzers

## Applications include:

95% of the world's largest metals recyclers<sup>1</sup> 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 all RCRA metals and target analytes. Used by regulators such as the U.S. EPA.

<sup>1</sup>Based on publicly reported annual sales data as of July 2009

### • Metal & alloy testing

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

### • Toys & consumer goods

- Toys
- Apparel
- Jewelry
- Furniture
- RoHS compliance

### • Mining exploration & production

- Geochemical analysis
- Drill core and cuttings
- Grade control

### • Environmental analysis

- Lead paint testing
- Dust
- Soil and sediment
- Air filters

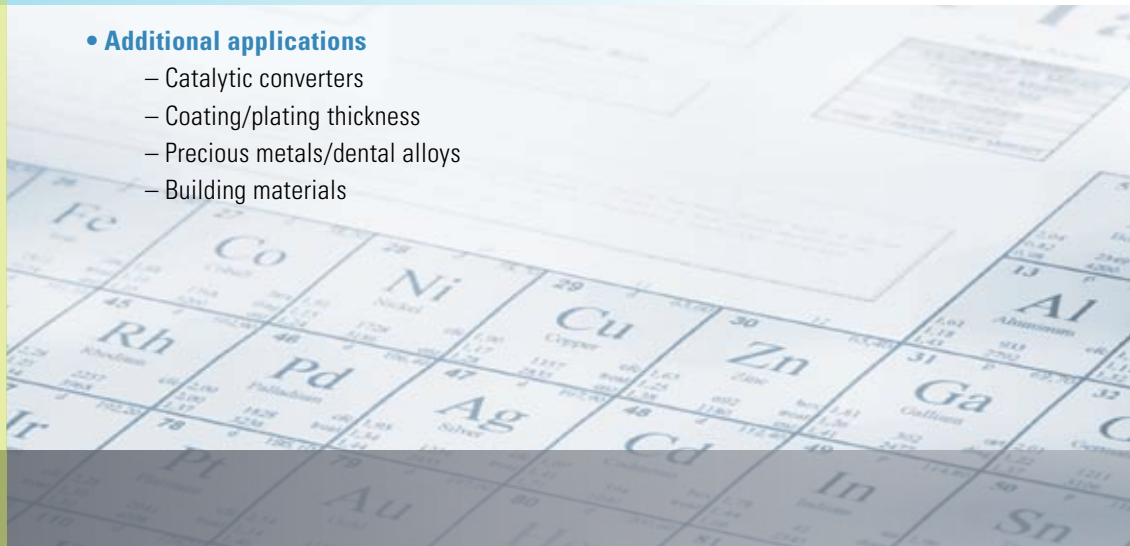
### • Additional applications

- Catalytic converters
- Coating/plating thickness
- Precious metals/dental alloys
- Building materials



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

Contact us at:  
[niton@thermofisher.com](mailto:niton@thermofisher.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, Niton XRF analyzers are purpose-built for taking measurements anywhere, anytime – with accurate results 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.

# Thermo Scientific Niton XL2

*"The cost benefit of utilizing a 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 a Niton instrument invaluable. A Niton analyzer will typically pay for itself in 2 to 6 months."*

**Iain Groves, mining and exploration consultant**

## BUILT FOR THE WAY YOU WORK:

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

Handheld Niton XL2 and XL3 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.

- **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.

- **Flexible communications**

Units provide integral storage of all test results, which are encrypted and tamper-proof. Bluetooth™ wireless, USB port, and serial communications are included.

Set user permissions, print certificates of analysis to document results, or operate the analyzer right from your PC.

- **Award-winning**

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



# and Niton XL3 Analyzers



VALUE LEADER  
Niton XL2

FEATURE LEADER  
Niton XL3

PERFORMANCE LEADER  
Niton XL3 GOLDD

- **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 waterproof for worry-free use in virtually any environment or climate condition. Advanced batteries support up to 10 hours of continuous operation on a single charge.

- **Application-optimized**

High-performance x-ray detector options are available that are matched to your application and industry, for proven results you can trust with confidence.

# BUILT FOR THE WAY YOU WORK:

## Which Thermo Scientific Niton analyzer is best for you?

With the **Niton XL2, the value choice**, you don't have to sacrifice performance to get a lightweight, rugged handheld analyzer perfectly matched for most testing applications. The Niton XL2 provides customized menus for ease of use, plus multi-language support and a standard analysis range of more than 25 elements. It's the cost/performance choice for tighter test equipment budgets.

The **Niton XL3 offers enhanced features** including a choice of higher-performance x-ray detection options designed for specific industry applications. A flip-up color touch-screen display allows easy viewing of sample results under any condition. With the optional integrated camera, users can store the image of an analysis area along with the test results for later reference. The Niton XL3 is GOLDD-upgradeable.

The **Niton XL3 with Geometrically Optimized Large Area Drift Detector (GOLDD™)** technology **delivers up to 10X faster measurement times** than conventional technologies. It also provides the highest sensitivity and measurement accuracy, plus the capability of measuring light elements without helium or vacuum purge. Its advanced level of detection places it on par with the results achieved from most laboratory-grade systems.



Features	Niton XL2	Niton XL3	Niton XL3 GOLDD
<b>Functional range</b>	<ul style="list-style-type: none"> <li>Value/price/performance choice</li> <li>Ruggedized</li> </ul>	<ul style="list-style-type: none"> <li>High-performance/full-featured</li> <li>Optional color CCD camera and small spot</li> </ul>	<ul style="list-style-type: none"> <li>Superior performance, advanced features</li> <li>Color CCD camera standard, and small spot optional</li> <li>Up to 10X faster performance for more samples per hour, up to 3X more precise than conventional Si-PIN</li> </ul>
<b>Element range</b>	<ul style="list-style-type: none"> <li>&gt; 25 elements, S to U</li> </ul>	<ul style="list-style-type: none"> <li>&gt; 25 elements, S to U</li> <li>Enhanced performance for Mo to Ba, S to Ti</li> <li>Upgradeable to GOLDD for light element analysis</li> </ul>	<ul style="list-style-type: none"> <li>&gt; 29 elements, Mg to S</li> <li>Enhanced performance for Mo to Ba, S to Ti</li> <li>Light elements (Mg, Al, Si, P, S) without helium or vacuum purge</li> </ul>
<b>Modes</b>	<ul style="list-style-type: none"> <li>TestAll, metals, plastics, consumer products, mining, soils, custom</li> </ul>		
<b>Touchpad/display</b>	<ul style="list-style-type: none"> <li>Color/fixed position</li> </ul>	<ul style="list-style-type: none"> <li>Color/flip-up adjustable</li> </ul>	<ul style="list-style-type: none"> <li>Color/flip-up adjustable</li> </ul>
<b>Communications</b>	<ul style="list-style-type: none"> <li>USB, Bluetooth wireless, serial RS-232</li> <li>Thermo Scientific Niton Data Transfer (NDT®) software allows you to set user permissions on the analyzer, print certificates of analysis, or remotely monitor and operate the unit hands-free from a PC</li> </ul>		

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



### Niton XL2 Series:

- Tough, lightweight LEXAN® plastic body
- Angled LCD display with easy-to-read icons
- Highly visible on site in field applications

### Niton XL3 Series:

- Variable position display for clear viewing under any measurement condition
- Enhanced feature set including optional integrated camera and small-spot measurement area
- Upgradeable to Niton XL3 GOLDD Series

Niton XL3 analyzer's optional camera lets you capture and store sample data from components and tiny sample areas



### Niton XL3 GOLDD Series:

- Light element detection (Mg, Al, Si, P, S) without helium or vacuum purge
- Highest count rates for lower detection limits, with faster analysis
- Fast enough to display live video while instantaneously processing more than 200,000 detector events



All Niton analyzers  
feature an easy-to-read  
icon-driven display

# Applications

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

Not all handheld XRF analyzers are the same.

**Over 20,000 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® CE-based operating systems with their limitations and vulnerabilities.

With 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 Niton XRF analyzers have revolutionized the scrap metal recycling industry. In fact, nearly every major recycler in the world<sup>2</sup> currently uses Niton 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 – 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
- Customized grade libraries with alloy-specific data that provide superior accuracy for grade identification
- With Niton XL3 GOLDD technology, you can quickly sort alloys with light elements (Mg, Al, Si, P, and S) without using helium or vacuum purge

## 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 materials, 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 Niton analyzers for their own screening needs. Niton XRF analyzers make the screening of packaging and complete product inventories easy and cost-effective:

- Test results for lead and 7 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

<sup>2</sup>Based on publicly reported annual sales data of companies using analytical equipment to sort alloys

“...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 Floway, Inc.**

### 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. 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



### 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, Niton XRF analyzers provide:

- Near-instantaneous, in-situ analysis of soil, lead dust wipes, and air filter samples
- Accurate testing of all eight RCRA metals, 12 priority pollutants, and 19 U.S. EPA target analytes
- Near real-time delineation of contamination boundaries, with legally-defensible data

### 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 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

### 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. 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
- Hot-surface testing to 1,000°F (538°C)
- Rugged product design, engineered for use in harsh production environments
- Thermo Scientific WeldSpot™ small-spot focus allows precise sampling and image archiving with optional CamShot™ CCD camera





## Available Options and Accessories

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

- **Holster** – Each 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 (standard, Niton XL3 GOLDD; optional, Niton XL3).
- **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 1,000°F (up to 538°C).
- **Sample preparation kits** – These kits assist users in preparing bulk 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 Niton models; specifications may change without notice.*



*"The Niton 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. Niton surpassed all others in ease of use, application diversity, customer support, and cost effectiveness."*

**– Phillip 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 Niton XRF 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**



**Holster**



**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 offer comprehensive services including application consulting and training anywhere you need them.

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