Positive Material Identification (PMI)

Photo courtesy of Photos.com

Thermo Scientific Niton XRF Analyzers

Positive material identification in seconds to ensure the safety of process manufacturing and power generation facilities

To verify the integrity of your process systems, take matters into your own hands.

For petroleum and petrochemical facilities, the emphasis on safety and accident prevention has never been greater – and with good reason: According to one study, nearly half of the 170 largest losses in the hydrocarbon process industry resulted from failures in the piping systems[1].

The requirement for positive material identification (PMI) in alloys used throughout the physical plant is more critical than ever. Simply relying on spot testing of parts and subassemblies is too risky and unacceptable; in fact, best practices today include 100% PMI testing of all critical materials.

While that may seem like a formidable challenge, it's now a surprisingly easy task thanks to technology that can literally fit in the palm of your hand.

Thermo Scientific Niton XRF analyzers: The tools your process safety engineers have waited for.

Thermo Scientific Niton XRF analyzers are the leading handheld analyzers available today for rapid and accurate positive material identification. Lightweight and ruggedly built for virtually any environment or weather condition, they deliver exceptionally accurate elemental analysis and alloy grade identification in seconds.

Thousands of companies in oil and gas refining, petro-chemicals, pharmaceutical production, and power generation industries rely on our analyzers every day to ensure operational safety and maintain regulatory compliance.

Lab-quality results are available almost instantly on the unit's bright, color, touch-screen display, allowing quick decision-making with total confidence. You can set user permissions on the analyzer, print certificates of analysis, and even remotely monitor and operate the unit hands-free from your PC.

- ***Rapidly verify alloys***
- ***Recover lost material traceability***
- ***Isolate finished welds to validate filler material and dilution***
- ***Confirm the integrity of process piping, valves, and reaction vessels***

Achieve all this and more with handheld XRF – the nondestructive testing method that leaves samples undamaged in any way.

[1] Second International Symposium on the Mechanical Integrity of Process Piping, Houston, Texas; January 1996.

Thermo Scientific Niton XRF Analyzers

Thermo Scientific Niton handheld x-ray fluorescence (XRF) analyzers are revolutionizing elemental analysis with the simple pull of the trigger.

- ***Rapid results, easy to use***
  Just point and shoot. See elemental analyses in seconds on a bright, color, touch-screen display.
- ***Purpose-built***
  Ruggedized with sealed construction, our analyzers are built with tough LEXAN® plastic and weigh approximately three pounds (1.36 kg) each; dust- and waterproof for worry-free use virtually anywhere. One-step system check requires no external accessories while advanced batteries support up to 10 hours of continuous operation on a single charge.
- ***Nondestructive analysis***
  Unlike destructive testing methods, samples remain intact and undamaged.
- ***Application-optimized***
  High-performance x-ray system design with features matched specifically for PMI applications.
- ***Flexible communications***
  Bluetooth™ wireless and USB communications interfaces are included in every analyzer. Advanced Thermo Scientific Niton Data Transfer (NDT©) PC software lets you set user permissions, print certificates of analysis to document results, or operate the analyzer right from your PC.

Niton XL2
VALUE LEADER

Niton XL2 GOLDD
PERFORMANCE LEADER

Niton XL3t
FEATURE LEADER

Niton XL3t GOLDD+
ULTIMATE PERFORMANCE AND FEATURES

Choose the Thermo Scientific Niton analyzer that meets your application needs:
A family of instruments that helps you comply with a variety of industry standards, such as API RP-578, API RP-571, and API RP-939-C

Niton XL2 Series	Niton XL2 GOLDD Series	Niton XL3t Series	Niton XL3t GOLDD+ Series
Value choice for incoming, in-stock, or in-service material verification – QA & QC	Niton XL2 rugged construction plus high performance and light element analysis (Mg-S) without helium purge or vacuum	Fully-featured, perfect for weld analysis and comprehensive component inspection	Highest performance and sensitivity for the most demanding applications
Ruggedized for harsh production environments	Rapid results for confident decision-making	Higher performance and sensitivity for challenging applications	Light element detection (Mg-S)
Standard analysis range of up to 25 elements	Angled color display with easy-to-read icons	Optional CamShot™ CCD camera for accurate sample positioning and image capture for traceability Optional WeldSpot™ small-spot focus feature	Integrated CamShot CCD camera is standard for accurate sample positioning and image capture; optional WeldSpot small-spot isolates welds
Ideal for asset recovery and trace-ability, providing rapid inspection anywhere data is needed		Upgradeable to Niton XL3t GOLDD+ Series	Detect and measure trace elements for FAC modeling (Cr, Cu, Mo)
Upgradeable to the Niton® XL2 GOLDD™ Series		Tilting, color, touch-screen display	Excels at analyzing components for residual elements in HF alkylation (API RP-571) and low Si sulfidation (API RP-939-C) systems

Petroleum/Petrochemical Production

For Safety

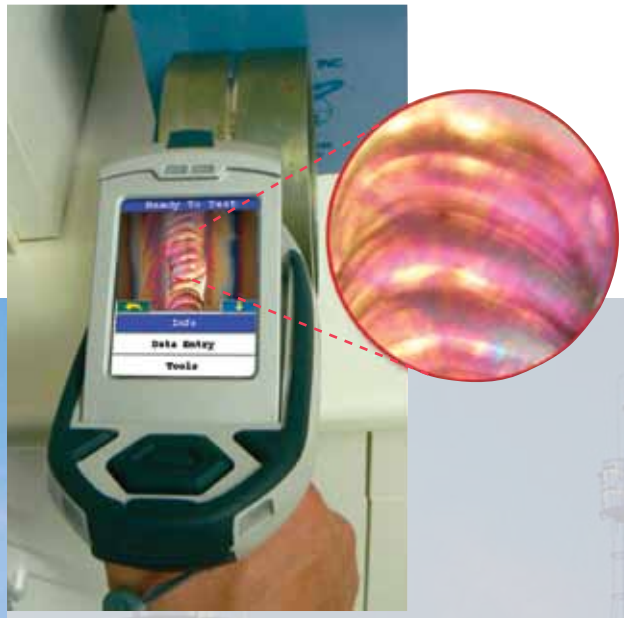
With a unique library of 400+ alloy grades, Thermo Scientific Niton analyzers provide superior accuracy in grade identification that is unsurpassed by any other handheld XRF analyzer

Thermo Scientific Niton analyzers with GOLDD technology provide alloy chemistry for up to 30 of the most common elements in tens of thousands of alloy grades. Families of alloys that can be accurately identified and analyzed include:

- ***Stainless steels***
- ***Cr-Mo steels including V stabilized versions***
- ***Low alloy steel***
- ***Tool steels***
- ***Nickel alloys***
- ***Copper alloys***
- ***Titanium alloys***
- ***Aluminum alloys***
- ***Exotics, such as zirconium and tantalum alloys***

Fast, accurate elemental analysis and positive identification ensure the integrity of your systems across the process plant:

- ***Rods and wire strands***
- ***Finished welds and weld beads***
- ***Bolts, rivets, and other fasteners***
- ***Valves and flanges***
- ***Complete reaction vessels***



Thermo Scientific WeldSpot feature isolates welds for analysis to verify proper dilution

Photo courtesy of Photos.com

Assurance

Maximum performance and features

Thermo Scientific Geometrically Optimized Large Area Drift Detector (GOLDD) technology

Thermo Scientific GOLDD technology brings true lab-quality performance to handheld XRF analyzers. Delivering 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 (magnesium, aluminum, silicon, phosphorus, and sulfur) without helium purge or vacuum.

Our advanced GOLDD technology allows you to accurately identify and analyze additional alloy grades, including:

- ***Zecor® SS alloys containing 5-6% silicon***
- ***Titanium alloys, including direct measurement of aluminum content***
- ***Aluminum and silicon bronzes***
- ***Aluminum alloys for silicon and magnesium content***

"The [Niton] XL3 provides quick results giving us a more efficient engineering process... we have also used it on general plant inspections…For practical purposes, it is far superior to using the services of an analytical laboratory."

Mark Taylor, senior engineer, Tetra Engineering, in "Sophisticated Metals Analyser Helps Protect Power Station Pipes," Insight – Nondestructive Testing & Condition Monitoring, Vol. 51 No. 8 August 2009, p. 414.

API Certification Courses

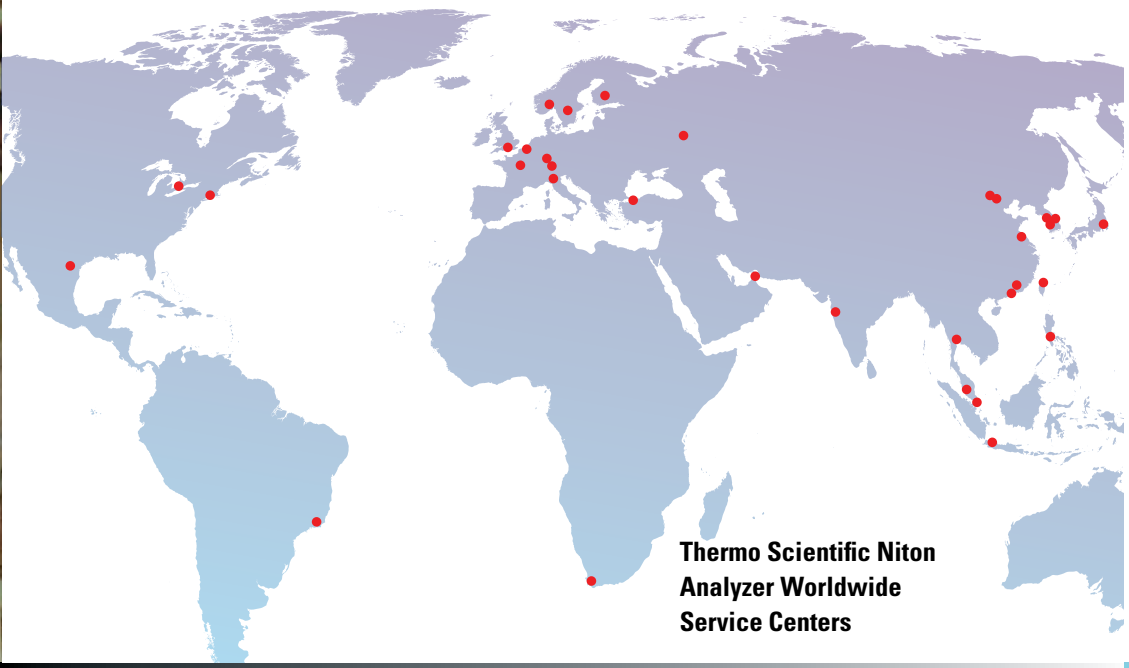
Take advantage of our experience.
In cooperation with Analytical Training Consultants (ATC), we have conducted numerous API-approved training classes, the latest featuring API RP-578 2nd edition, "Guidelines and Application Procedures for PMI, Material Verification using XRF and OES Technologies."*

**ATC is an API certified training provider (API reference TPCP-0118)*

"After working with the Thermo Scientific Niton XL3, we found that it gives us faster and what we feel are even more accurate results. This means quicker verification times. With the gain in speed, we can accept materials faster and get them into production faster, so we can also increase our percentage of testing – with the same amount of labor."

Brian Uhlenkamp, vice president of engineering, DCI, Inc.

More than 25,000 Thermo Scientific Niton XRF analyzers are in use daily in more than 75 countries on six continents.



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.

Photo courtesy of Photos.com

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