

thermo scientific

# Thermo Scientific™ Niton™ Portable XRF Analyzers

Complete precious metal assays from recycling to refining



**ThermoFisher**  
SCIENTIFIC

# Niton Portable XRF Analyzers

A tool for instantaneous, accurate and non-destructive precious metals analysis

When quick and informed decisions need to be made to ensure the profitability of a transaction in precious metals trading or make sure jewelry is free of toxic substance, the use of X-ray Fluorescence Spectroscopy (XRF) can be invaluable.

Thermo Scientific™ Niton™ portable XRF desktop and handheld analyzers provide pawn shops, cash-for-gold businesses, jewelers, recyclers and refineries fast, reliable and accurate results for

- Determination of karat grade and fineness
- Analysis of all precious metals including gold, platinum, palladium, silver, iridium, rhodium, ruthenium
- Analysis of alloying elements like copper, zinc, nickel, etc.
- Analysis of toxic elements like cadmium or lead etc.
- Detection of gold plating presence with the patented AuDIT™ technology

Unlike traditional test methods, all precious metals and alloys, in various size and shapes are tested completely non-destructively.



**Niton XL2  
Precious Metal  
Analyzer**



**Niton XL5  
Plus  
Analyzer**



**Niton DXL  
Desktop  
Analyzer**



**Niton XL3t  
GOLDD+  
Analyzer**

# Lab quality analysis with just one touch

Just a few seconds – that’s all it takes to determine the exact precious metal content in jewelry, coins, and other valuable products using a Niton XRF analyzer

## Exceptionally fast and easy to use

- Just close the lid and push a button (Niton DXL)
- Or point and shoot (Niton XL2, XL3t, and XL5 Plus) and see the results displayed within less than 5 seconds

**Fit form function:** Engineered from the ground up keeping retail environments in mind, Niton XRF Analyzers

- Ship from the factory fully calibrated and ready to use at your site
- Need minimal training
- Use a built-in system check to ensure the analyzer retains optimal function

**Lab quality performance:** Niton XRF analyzers use the most advanced technology to

- Achieve greater comprehensive analysis than fire assay with comparable accuracy (see Figure 1)
- Achieve more accurate and more comprehensive results than other off-lab test methods such as acid scratch testing or electronic gold testers
- Perform precise karat sorting
- Simultaneously analyze all precious metals including gold (Au), silver (Ag), platinum (Pt), and palladium (Pd) as well as common alloying elements

**Non-destructive:** Unlike acid scratch test and fire assay, the sample remains fully intact

**Gold-plating detection:** With patented Thermo Scientific™ AuDIT™ technology, there is an easy way for gold buying operations to detect gold plating

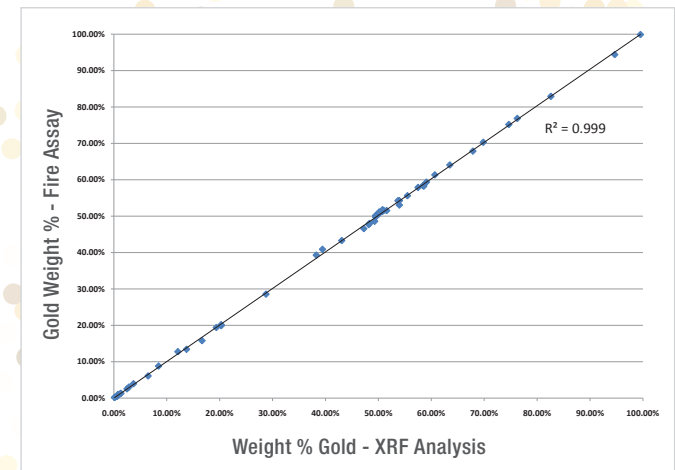
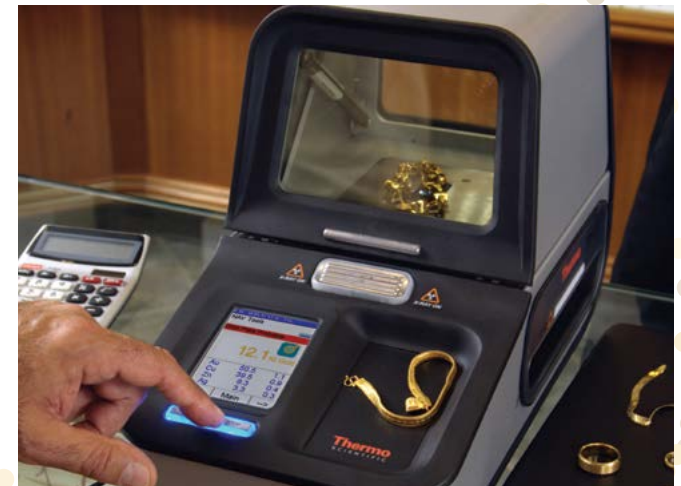


Figure 1. Gold content analysis – Niton XRF analyzers vs. fire assay

# 8 Reasons pawn shops should not use acid to test jewelry

The traditional acid test for gold consists of placing a small drop of a strong acid, such as nitric acid or aqua regia, onto the metal's surface. Most metals fizz and bubble, while precious metals remain unaffected. Although results are considered reliable for the most part, there are several reasons to stay away from the acid and choose a Niton handheld analyzer instead.



1

Acid does not give you an exact Karat count. It rounds to the nearest acid testing solution (eg 14K, 18K, etc.)

2

You must scratch the gold on a stone so you are actually rubbing some of the gold off the jewelry.

3

It is difficult to determine if gold plating is present unless you put a deep scratch in the gold.

4

The solutions are dangerous and unhealthy. You must use extreme care in handling testing solutions and store in a safe place because they are corrosive acids.

5

Iron and steel items will pass the stone test for platinum so you must additionally use a powerful magnet to identify these metals.

6

When testing for silver, the solution will dull the polishing of the piece, and leave a mark where the acid was placed.

7

Acid will not tell you what other precious metals such as silver, palladium or platinum make up the composition of the jewelry.

8

Counterfeiters have managed to develop a stainless steel alloy that will acid test as 18kt white gold, but contains no precious metal at all. Many people have been duped by chains made from this material.

# Increase your profitability

All benefits of Niton XRF analyzers will provide quick return on investment

## Eliminating guesswork by

- Eliminating excess cost on purchased material as a result of small inaccuracies
- Avoiding the purchase of plated material by using AuDIT™ technology
- Generating greater business opportunities in highly competitive environments due to informed decision while securing the profitability of each transaction
- Claiming the value of precious metals other than gold and silver, such as palladium, platinum and iridium

## Increasing sample throughput while keeping accuracy

## Screening for toxic substances

- Preventing non-compliant jewelry to reach the shelves
- Preventing hazardous substances to enter the refining process

### More on Au (gold) Detection and Identification Technology (AuDIT™)

For buyers of scrap gold jewelry, gold-plated pieces can present a significant challenge. The Thermo Scientific™ AuDIT™ proprietary and patented software features (Patent US20130202083A1), is only available on Niton XRF analyzers

- Alerts the user when a gold plating of up to 8µm is detected or suspected
- Warns the user on low carat and non-standard carat
- Identifies the presence of nickel (Ni) generally used in gold plating

While limited to the thickness of gold typically used in the jewelry and industry to plate items, the AuDIT™ technology detects plating for any non-gold substrate such as Vermeil (gold-plated silver), copper alloys, steel, tungsten, etc.



# Which analyzer is right for me?

## Niton XL5 Plus Analyzer

- Ideal for quality control and refining
- Smallest and lightest
- Excellent ergonomics for intensive use
- Ultimate sensitivity for hazardous metals
- Micro and macro camera for enhanced data collection
- Optional 3mm small spot focus



## Niton DXL Desktop Analyzer

- Countertop design for retail use
- Front and end window keep jewelry in sight
- Fast one touch operation
- Micro-camera for sample positioning
- Optional 3mm small spot for focused analysis on small location



## Niton XL2 100 Precious Metals Analyzer

- Specially calibrated - value solution
- Portability
- Test stand included



## Niton XL3t GOLDD+ Analyzer

- Ideal for quality control and refining
- High sensitivity for hazardous metals
- Micro camera and optional 3mm small spot focus



View our [Product Selection Guide](#)

# See what Niton XRF users are saying



## GCAL Makes a Brilliant Choice

Since the beginning of the “gold rush,” Gem Certification & Assurance Lab, Inc. (GCAL™), which is headquartered in the World Diamond Tower in New York City, and its president, Don Palmieri, have appeared as experts for most of the major TV networks on gold stories investigating and uncovering predatory buying practices aimed at consumers. In all such reports, Palmieri has said, “We rely on Thermo Scientific Niton XRF instruments for accurate analysis of jewelry being tested.” He adds, “What’s more, in addition to precious metals testing, using the XRF analyzer, we also can detect lead in glass-filled gemstones, and detect cubic zirconia quickly in parcels of melee or even pave diamond-set jewelry.”



## PMRS Knows Its Worth

Looking for a fast, accurate, and easy-to-use solution to help with its precious metals reclamation, Precious Metals Reclaiming Service (PMRS), Westwood, Massachusetts and Lantana, Florida, chose Thermo Scientific Niton XRF analyzers to meet the challenge. Allan Nyborn, president, comments, “We’ve been doing this for more than 60 years, and since we’ve gotten our [Thermo Scientific] Niton analyzers, I don’t know how we could run our business without them now. They’re rugged, reliable, and dependable.”



## The Bullion Room Finds Priceless Solution

The Bullion Room, Birmingham, England, specializes in buying and refining scrap precious metal from trade sources. Now, in addition to the Niton XL3t analyzer purchased in August 2008, the company also owns the latest handheld analyzer, the Niton XL2 GOLDD for light element detection (Mg-S). Eamon Gaughan, managing director comments, “We use [Thermo Scientific] Niton x-ray ‘guns’ at every point in our internal processes, from checking bought gold at our Trade Counter to estimating the purity of bars after melting and prior to assay. As the amount of metal we buy over our counter has increased by huge volumes in a very short space of time, speed and accuracy of analysis have become essential and the [Thermo Scientific] Niton x-ray guns have helped us greatly.”



## American Jewelry and Loan Sorts It Out

Since its inception, American Jewelry and Loan, the largest pawn shop in Detroit, Michigan, USA, has tested the purity of the gold it takes in by using the “acid test” method. When Seth Gold, managing partner with father Les, heard about an instrument that could tell them within three seconds the purity of the gold being analyzed, he investigated and was convinced. Now that they have the Thermo Scientific Niton XL2 precious metal analyzer, Seth notes, “It’s a lot easier. It’s faster. It’s better than acid. The cost of the analyzer is a small price to pay to ensure that the items we take in are 100 percent accurate.”



## 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.

## About Thermo Fisher Scientific

Thermo Fisher Scientific is the world leader in serving science. Our mission is to enable our customers to make the world cleaner, healthier and safer. We help our customers accelerate life sciences research, solve complex analytical challenges, improve patient diagnostics, deliver medicines to market and increase laboratory productivity.

Through our premier brands – Thermo Scientific, Applied Biosystems, Invitrogen, Fisher Scientific and Unity Lab Services – we offer an unmatched combination of innovative technologies, purchasing convenience and comprehensive services.



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