Vanta™ Handheld XRF Analyzer

Vanta Core

Vanta Max

EVIDENT

Maximize Efficiency in the Field and Lab

Instantly identify materials and their chemical composition from any location using the Vanta™ handheld XRF analyzer. The Vanta series delivers fast, accurate elemental analysis and material identification using smart and cloud-connected technology. Our next-generation Vanta handheld XRF analyzers—Vanta Max and Vanta Core—combine the exceptional accuracy, speed, and durability of the Vanta series with improved ergonomics, a streamlined interface, and enhanced connectivity for greater productivity.

Comfortable and Rugged for All-Day Testing

With an enhanced ergonomic design, Vanta analyzers are a productive tool for extended use in the field and lab. Combined with their proven ruggedness and ease of use, the analyzers can increase uptime in the toughest environments.

- Balanced handle minimizes hand fatigue
- Secure and comfortable grip for all-day testing
- Built to pass a 4-foot drop test (MIL-STD-810G)
- IP54 rated for resistance to water and dust
- Standard 3-year warranty protects your investment

Productive Workflow

Vanta analyzers are now even easier to use. Work efficiently using a modern, intuitive interface and browser-based software option.

- Review, share, and manage XRF results on a PC, tablet, or smartphone with an optional wireless connection for seamless data integration
- Benefit from the latest features instantly thanks to automatic software updates
- Enhanced application support with the option to add custom analytical capabilities
- Access our Evident Connect cloud for seamless data and fleet management

The Vanta analyzer's modern interface is easy to use and navigate.

Trusted XRF Technology

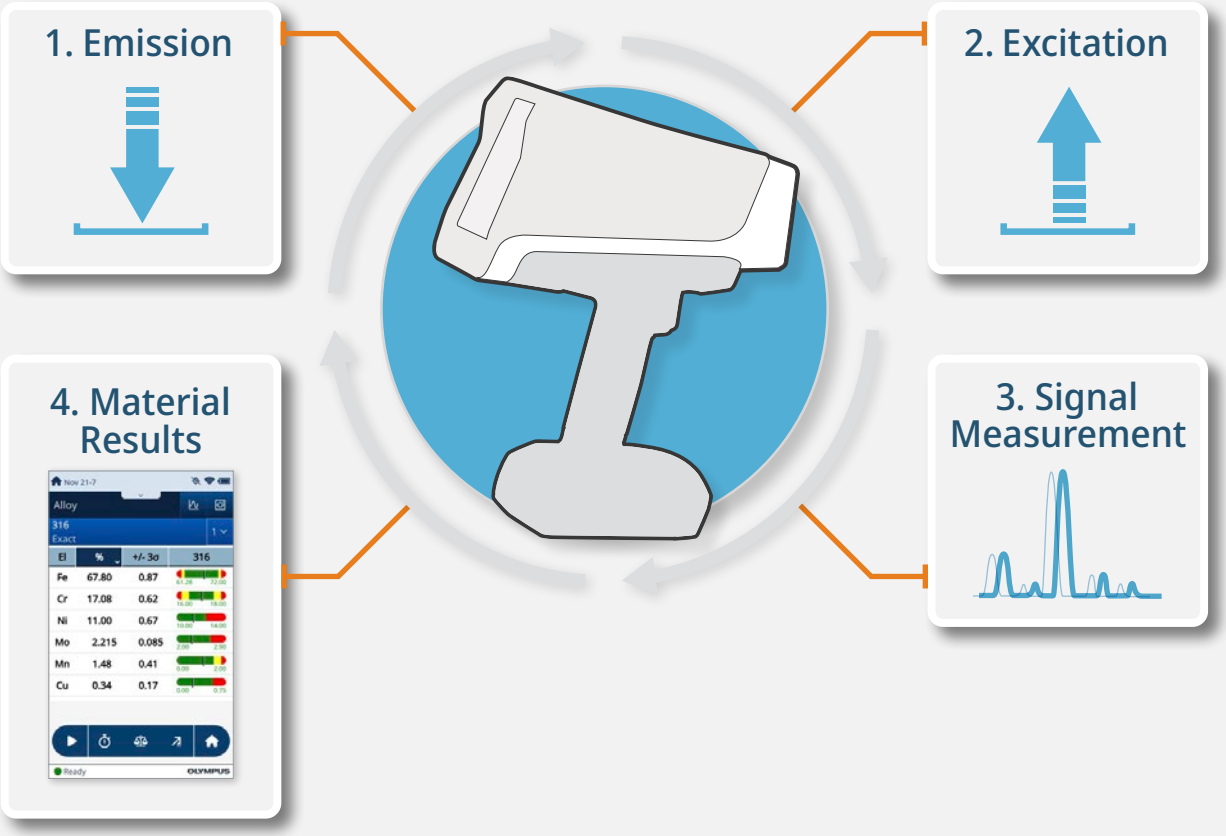
Vanta analyzers are used by thousands of customers around the world in diverse applications. Building on proven performance, Vanta Max and Core analyzers provide precision and accuracy for portable XRF analysis.

- Vanta series' proprietary Axon Technology™ uses ultra-low-noise electronics, enabling a higher X-ray count rate for fast, accurate, and repeatable results
- Axon Technology provides remarkable test-to-test and instrument-to-instrument repeatability, so your first test is the same as your last test no matter what instrument you use

How XRF Works

X-ray fluorescence (XRF) is a nondestructive testing technique that uses X-rays to measure the elemental composition of a sample. XRF works in four steps:

1. **Emission:** The analyzer emits X-rays.
2. **Excitation:** X-rays hit the sample and it fluoresces, sending X-rays back to the analyzer.
3. **Measurement:** The returning X-rays are counted by the detector. The detector measures the energy of each X-ray, creating a spectrum. This tells us what elements are present and how much of each element is there.
4. **Results:** The energy spectrum is processed via software and displayed as the elemental composition of the sample. For metals, we match the composition to a particular alloy grade.



Portable XRF Applications

Vanta™ analyzers provide fast results in a diverse range of applications from alloy identification to archaeological site evaluation. Our range of application-specific software features enable operators to get the most out of their analyzers with simplified report creation and traceable results.

Metal Scrap and Car Catalyst Recycling

Vanta analyzers for scrap sorting feature a SmartSort function that intuitively lengthens or shortens test times based on the material to save time while providing the best possible match. The software automatically compares results to a library of alloy compositions to quickly match unknown materials to known alloys. The Grade Match Messaging feature enables users to program messages for each grade to display warnings or instructions. These messages make it easy for operators to use the analyzer with little training. For car catalyst recycling, Vanta analyzers enable fast analysis of precious metal content for accurate price evaluation.

Positive Material Identification (PMI) and Manufacturing Quality Control/Assurance

Vanta analyzers help ensure that refineries, petrochemical plants, and other processing facilities are safe by verifying that the correct alloys are installed in critical locations by following American Petroleum Institute Recommended Practice 578 (API-RP-578). Manufacturers and installers of expensive or mission-critical components and machinery can rest easy knowing that they are manufactured with the correct alloy grades, regardless of the material source. The Vanta analyzer can measure the thickness of galvanized coatings, electrocoatings, and other coatings on any substrate. The Vanta series' optional panoramic camera, barcode reader, user-defined input fields, connectivity features, and extensive data reporting capabilities maximize inspector confidence and traceability to the field.

Environmental Assessments

The Vanta analyzer readily screens soil and other materials for pollutant metals. Paired with GPS data to map results, the results can be wirelessly transferred to a geographic information system (GIS) to create pollutant metal maps. Get fast, decisive results for site characterizations, assessments, property evaluations, and contamination tracking.

Jewelry Analysis and Precious Metals Identification

Vanta analyzers provide on-the-spot characterization of a range of jewelry and precious metals, including gold (Au), silver (Ag), platinum (Pt), and palladium (Pd). The analyzer accurately classifies the purity of gold alloys (0–24 karat) and can detect plating. With an optional camera, Vanta analyzers automatically archive sample images and results, making it the ideal tool for a reasonable testing program. Excellent sensitivity enables it to achieve low detection limits of regulated elements, and the intuitive interface provides simple pass/fail determinations.

Research and Education

Vanta analyzers provide quantitative elemental information to guide research and identification of unknown or complex materials. Fast results keep researchers engaged with relevant data in applicable science-based projects.

Geochemistry, Exploration, and Mining

The Vanta analyzer is the preferred tool for mineral exploration and mining companies, geological consultants, and geologically focused academic, government, and research institutions. It provides accurate and reproducible results in any environment with reliability and ruggedness at the core of its design to minimize downtime. Backed by geologically focused global support and training, our experience in assisting customers develop fit-for-purpose workflows maximizes the utility of your Vanta analyzer. With on-board cameras, collimators, GPS*, detector shutter protection, and a range of geo-focused accessories, Vanta analyzers continue to be the premium choice for geochemical applications.

Regulatory and Safety Screening

The Vanta series screens for toxic metals and hazardous materials, including lead (Pb), cadmium (Cd), arsenic (As), mercury (Hg), and chromium (Cr), in consumer products such as toys, apparel, and footwear and in electronics to comply with RoHS regulations. With an optional camera, Vanta analyzers automatically archive sample images and results, making it the ideal tool for a reasonable testing program. Excellent sensitivity enables it to achieve low detection limits of regulated elements, and the intuitive interface provides simple pass/fail determinations.

*Vanta Max model only.

Portable XRF Models for Every Budget

No matter the model, each Vanta™ handheld XRF analyzer is engineered for durability and analytical excellence. Evident manufactures Vanta analyzers to suit a variety of application and budget needs.

Vanta Max

The Vanta Max model offers the series' highest analytical capabilities for robust applications, including mineral exploration, academic research, soil testing, and environmental analysis.

Vanta Core

The Vanta Core model combines value with speed, low limits of detection (LODs), and a wide elemental range, making it the standard choice for fast alloy identification.

Our Commitment

Evident is a leader in XRF technology with a reputation for quality and accuracy. We are committed to providing the best technical support and after-sales service for our products, applications, training, and technologies through our global network of sales and customer service teams.

Versatile XRF Accessories

Vanta™ Max and Core models are available with optional XRF accessories, including the redesigned soil foot, field stand, and holster for greater efficiency in the field.

Soil Foot

The Vanta Soil Foot provides a stable three-point support for the Vanta analyzer. This accessory facilitates hands-free analysis, making it convenient when longer test times are required.

Field Stand

When testing small items, such as samples in cups or bags, the Vanta Field Stand offers a lightweight, mobile test stand and shielded sample chamber. The Field Stand is easy to pack and convenient to use when you are away from your office.

Holster

Keep your Vanta analyzer safe and secure and within easy reach with the Vanta Holster.

Work Station

The portable Vanta Work Station is battery operated for testing on the go. A fully interlocked lid and 360-degree shielding make it convenient for bagged, prepped, and liquid samples or small objects, including jewelry and circuit boards. In this closed-beam setup, users operate the analyzer using the Vanta browser-based software.

Vanta™ Specifications

Dimensions (W × H × D)	Max and Core: 10.4 × 29.6 × 24.1 cm (4.1 × 11.6 × 9.5 in.)
Weight	Max: 1.9 kg (4.17 lb) with battery, 1.67 kg (3.67 lb) without battery Core: 1.85 kg (4.06 lb) with battery, 1.62 kg (3.56 lb) without battery
Excitation Source	4-watt X-ray tube with application-optimized anode material: rhodium (Rh) or silver (Ag) Max (Rh), Core (Ag): 8-50 KV; Core (Rh): 8-40 KV
Primary Beam Filtration	Max, Core: 8-position autoselected filter per beam per mode; optional collimation to 3 mm diameter beam spot
Detector	Max: Large-area silicon drift detector Core: Silicon drift detector
Power	Removable 14.4 V Li-ion battery (with hot-swap capability on Max only) or 18 V power transformer 100–240 VAC, 50–60 Hz, 70 W max
Display	800 × 480 (WVGA) LCD with capacitive touch screen supporting gesture control
Operating Environment	Temperature range for Max and Core: -10 °C to 50 °C (14 °F to 122 °F), and continuous full duty cycle with optional fan Humidity: 10% to 90% relative humidity non-condensing
Drop Test	Military Standard 810-G 4-foot (1.3 M) drop test
IP Rating and Detector Shutter	Max, Core: IP54 dust protected and protected against water splashing from all directions Solid detector shutter to help prevent detector damage
Pressure Correction	Built-in barometer for automatic altitude and air density correction
GPS	Max: Embedded GPS / GLONASS receiver
Operating System	Linux cloud enabled with user fleet manager capability
Data Storage	microSD™ slot with removable 1 GB industrial SD card included
USB	(2) USB 2.0 type A host ports for accessories such as wireless LAN, Bluetooth®, and USB flash drives (1) USB 2.0 type mini-B port for connection to computer
Wireless LAN	Supports 802.11 b/g/n (2.4 GHz) cable optional USB adapter
Bluetooth	Supports Bluetooth® with an optional USB adapter
Aiming Camera	Full VGA CMOS camera (optional)
Panoramic Camera	13-megapixel CMOS camera with autofocus lens (optional)
Warranty	Max and Core: Three-year warranty
Selected Optional Accessories	Max and Core: Field Stand, Soil Foot, Holster, Work Station, Weld Mask, Hot Heel, and Probe Shield

EVIDENT

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