

TERRA™ II Portable XRD Analyzer for Fast Field Analysis



The TERRA II analyzer from Olympus Scientific Solutions is the successor to the world's first commercial battery-operated, portable XRD. This analyzer has a 6-hour battery life and a sturdy, weatherproof case for rapid in-field analysis of both major and minor mineral components.

The TERRA II analyzer has robust features that make it a lightweight, portable, and nearly maintenance-free substitute to traditional XRD.

- The analyzer can be connected to the user's devices using wireless capabilities
- Exclusive small sample holder needs only 15 mg of sample
- Runs without the need for external power, water cooling, compressed gas, a secondary chiller, or external transformer, thus maintaining the cost of ownership at a low level
- Driven by intuitive SwiftMin® software to simplify the workflow with a single dashboard, easy data export, preset calibrations, and automatic data transfer

Better Speed and Sensitivity Power Swift Decisions

Robust, intuitive software is coupled with enhanced X-ray detectors for faster analysis times, enhanced sensitivity, and more dependable results.

- Updated X-ray detector hardware works faster and delivers more intensity, resulting in lower limits of detection (LODs)
- SwiftMin® automated phase ID and quantitative software offers real-time data directly on the XRD analyzer, so users can make decisions rapidly and with confidence

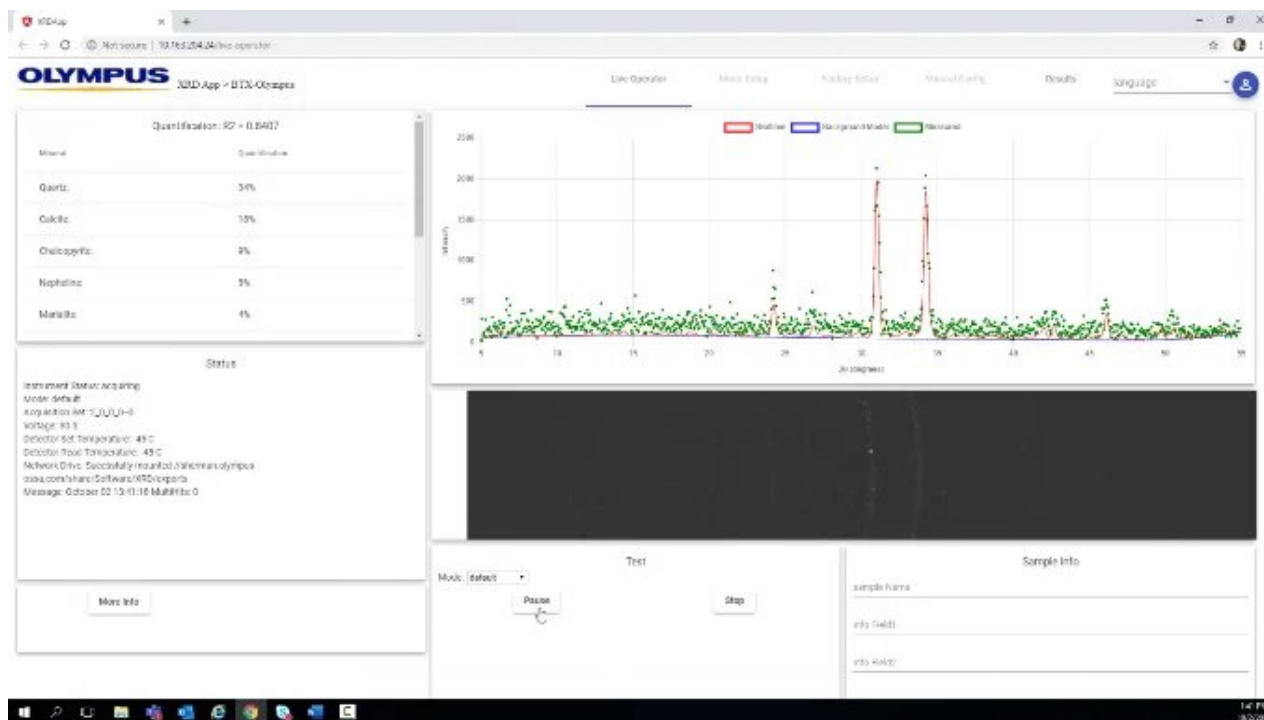


Image Credit: Olympus Scientific Solutions Americas (XRF / XRD)

Easy Sample Preparation

Traditional XRD instruments need a large batch of samples to be finely ground and pressed into a pellet to guarantee a sufficiently random orientation of the crystals.

On the other hand, the small vibrating sample holder of the TERRA II analyzer convects all particles inside the sample chamber, making sure that data is almost free of orientation effects. Consequently, only 15 mg of sample is necessary, which is easily acquired from the supplied sample kit.



Image Credit: Olympus Scientific Solutions Americas (XRF / XRD)

Applications

The BTX III instrument allows fast mineral identification for a wide variety of applications, such as those given below.

Mining and Ores

Iron-rich ores: Users can test iron-rich ore even when specific phases are fully absent.

- Hematite
- Goethite
- Quartz
- Magnetite

Potash: Users can test potash for phase identification and semi-quantitative examination of identified minerals, including:

- Leonite
- Sylvite
- Langbenite
- Halite

Limestone and cement: Users can easily conduct quantitative XRD analysis of common

minerals related to limestone. When the quarry has different levels of dolomite, the analyzer rapidly establishes this mineral in the range of 0.5% to 9% with an error of just 0.02%.

- Calcite
- Alpha-quartz
- Dolomite
- Asbestos minerals

Calcite in coal: Users can quantify calcite (CaCO_3), a mineral known to reduce the efficiency of the raw material fuel in a coal-fired plant, enhance efficiency, and decrease carbon emissions.



Image Credit: Olympus Scientific Solutions Americas (XRF / XRD)

Oil and Gas

Well logging/mud logging: Users can carry out mineral identification and quantification on shale cuttings in the field for quick feedback at geosteering and horizontal drilling areas. They can streamline “chasing the vein” of specified mineral strata.

- Clays
- Pyrites
- Silicates

- Carbonates

Pipelines: The energy-sensitive detector facilitates improved peak-to-background performance to detect and measure corrosion materials on pipelines. Concurrent XRF measurements enable quick identification of elemental constituents.

- Wustite (FeO), goethite (FeO(OH)), hematite (Fe₂O₃), and pyrite (FeS₂)
- Aragonite (CaCO₃) and calcite (CaCO₃)

Mine tailings: Users can easily re-analyze mine tailings to determine mill performance or assess historical projects.



Image Credit: Olympus Scientific Solutions Americas (XRF / XRD)

Pharmaceutical

- Quick identification of fake pharmaceuticals
- Rapid and nondestructive fingerprinting of drug formulations and precursors
- The presence and quantity of inactive and active substitute or foreign ingredients can be tested
- Rapid XRD analysis helps guarantee patient safety and protects genuine pharmaceutical manufacturers' branding



Image Credit: Olympus Scientific Solutions Americas (XRF / XRD)

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Olympus NDT XRF and XRD Analyzers provide fast, non-destructive (NDT) and accurate compositional analysis of materials. These qualitative and quantitative x-ray analysis techniques are used for detection, identification, screening, quality control, process control, regulatory compliance, and research and education. Applications for their products include energy resources, metals and alloys, mining and geology, scrap and recycling, environmental and consumer safety, forensics and pharmaceuticals, archaeology and academia, and general manufacturing. Olympus NDT's products are grouped into the following categories:

XRF Analyzers for Elemental ID & Compositional Analysis

- Handheld XRF
- Portable XRF
- Process XRF
- Specialized XRF

XRD Analyzers for Compound & Phase ID/Quantitative Analysis

- Benchtop XRD
- Portable XRD

Olympus NDT recently acquired and integrated Innov-X Systems and InXitu, Inc., both leaders in portable x-ray technology. Olympus NDT will continue developing and advancing portable and specialized XRF and XRD analyzers for improvements in speed, detection limits, range of analytes, ease of use, versatility, and overall quality for point of use.

Primary Activity

Material Manufacturer

Services

Suppliers of innovative test, measurement, and imaging instruments.