X-MET8000 GEO

HITACHI
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ARCHAEOLOGY

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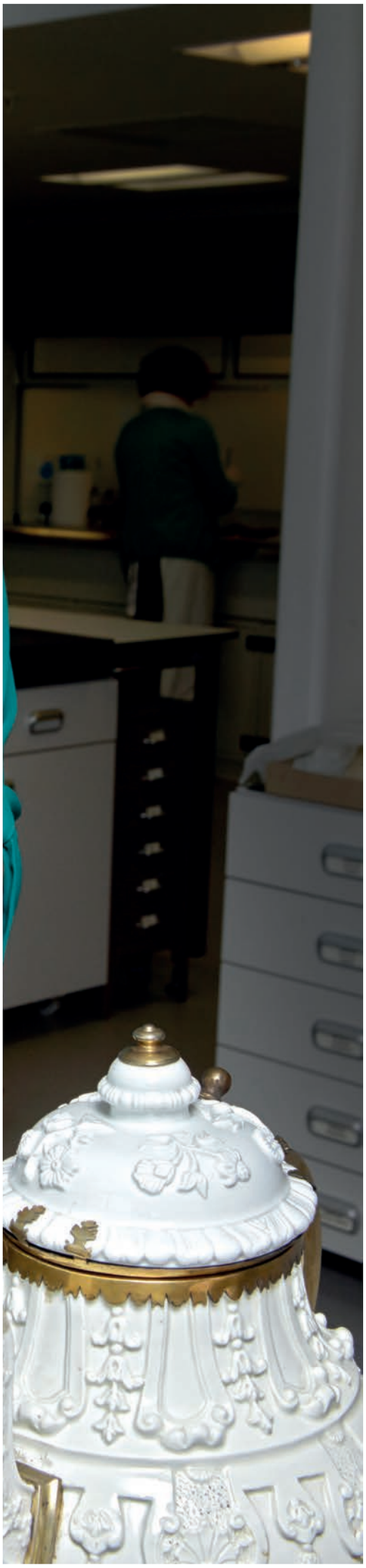
The X-MET8000 Geo is a handheld X-ray fluorescence (XRF) analyzer, perfectly suited for elemental analysis in a diverse range of art conservation and archaeological applications.

Its easy to use interface is versatile enough to be suited to laboratory analysis of a variety of samples and artefacts, while the robust design of the unit makes it ideal for field work.

Hitachi's revolutionary BOOST™ technology delivers the low limits of detection needed to measure elements of critical interest for your archaeological characterization accurately.

The X-MET's wide range of accessories and powerful software provide the flexibility to tailor your unit to a broad number of samples, including soils, ceramics, glass, pigments/paints, binders/preservatives, alloys, and precious metals.



Why the X-MET8000 Geo is the perfect tool for your application

MEET CURRENT AND FUTURE TESTING REQUIREMENTS

Measure up to 40 elements with a number of optimized calibration options, and test a variety of sample types e.g., soils, ceramics, glass, pigments/paints, binders/preservatives, alloys, precious metals, wood, cuttings and powders.

IDEAL FOR FIELD WORK

Withstands the harshest environments and weather conditions: the X-MET is IP54 compliant (equivalent to NEMA 3) for protection against dust and splash water and tested to the MIL-STD-810G military standard for ruggedness.

FLEXIBLE SOFTWARE

For new operators the instrument is ready to use out of the box, with simple ‘point-and-shoot’ operation. More experienced users can go deeper into the application and create custom calibrations and review spectra for investigative work.

COMFORTABLE

Light weight (1.5 kg), great ergonomics and a 10–12 hour battery life ensure uninterrupted workflow and minimum fatigue.

ADVANCED DATA MANAGEMENT

Download results and reports directly to a USB stick in a CSV format or tamper-proof PDF. You can share the results on-the-go with our ExTOPE Connect mobile app. The ExTOPE Connect cloud service enables you to export results automatically in real-time with photographs, notes, and GPS coordinates. You can even manage results for a whole fleet of X-METs with a single account.

AN OPTION TO SUIT YOUR NEEDS

We offer two different models to provide you with a cost-effective solution.

	X-MET8000 Optimum Geo	X-MET8000 Expert Geo
Description	Rapid and reliable measurement of a wide variety of samples and elements	Ultimate performance with lowest detection limits, and the optional added capability of REEs determination
X-ray tube	45 kV	50 kV
X-ray tube filters	6-position filter wheel	6-position filter wheel
Detector	10 mm^2 SDD with BOOST™ technology	25 mm^2 large area SDD with BOOST™ technology
Element range	Mg – U	Mg – U
Rare earth elements (REEs)	No	Yes
IP54 and MIL-STD-810G	Yes	Yes
Weight (with battery)	1.5 kg	1.5 kg
Battery life	10 – 12 hours	10 – 12 hours
Protection against detector window damage	Shield window	Prolene window
Calibrations	Standardless with light elements.	Standardless with light elements and optional REEs.

HARDWARE AND SOFTWARE OPTIONS

FEATURE	X-MET8000 Optimum Geo	X-MET8000 Expert Geo
Bluetooth	Included	Included
WiFi	Included	Included
Integrated camera	Optional	Included
Small-spot collimator	Not available	Optional
Report generator	Included	Included
ExTOPE Connect cloud connectivity and mobile phone app	Yes	Yes

Use in a wide variety of art conservation, historical and archaeological applications

GEOARCHAEOLOGY

With BOOST™ technology, screen a wide range of elements (Mg to U) in soil down to ppm levels, helping operators to understand how soil composition has been altered by human behaviour, and reconstruct past landscapes and conditions.

HISTORICAL ALLOY IDENTIFICATION

Rapidly test hundreds of pieces, big and small, to help determine possible alloy function, origin of weapons, armour, coins, and forensic investigation of wartime wreckage.

CLASSIFICATION OF SMALL METAL FINDS

The robust Alloy FP and Precious FP calibrations provide rapid, remote, and non-destructive analysis of small metal jewelry, tools and coins. The composition of these items can help to place them in a certain time and region of manufacture.

INVESTIGATION INTO HISTORICAL OBJECT

The composition of artefacts gives insight into the origins of their raw materials, their manufacture, and their historical function. Determine the elemental composition of a variety of materials (e.g. stone tools, bronzes, porcelain, ceramics, glass, wood).

CURATION AND CONSERVATION OF ARTEFACTS

For successful conservation strategies, understanding the original material, degradation products and anthropogenic effects over time is crucial. Help restoration strategies by identification of binders, varnishes and preservatives.

Case studies

SECURING THE MARY ROSE TRUST'S UNIQUE COLLECTION

The Mary Rose is a Tudor war ship that was built in 1510. The Mary Rose Trust is responsible for conserving and displaying its hull and artefacts. To develop successful conservation strategies, understanding the original material, any degradation products and how conservation materials react over time is critical. Dr Eleanor Schofield, Head of Conservation at the Mary Rose Trust, uses the X-MET8000 to identify materials and contaminants and establishes which objects were not manufactured in the Mary Rose era.

INVESTIGATION OF A WW2 PLANE CRASH

In April 1945 during the World War II a group of five Messerschmitt BF 109 planes were on a flight in Italy and attacked by US fighters. One plane went down and crashed into a field. 70 years later, a team of archaeologists started an investigation to establish what became of that plane. They found that it was almost completely shattered into pieces. Hitachi brought in the X-MET8000 to support the archaeological excavation team. The analysis helped to identify the origin of each part and what its use had been.

NON-DESTRUCTIVE ELEMENTAL ANALYSIS AT THE ASHMOLEAN MUSEUM, OXFORD

Founded in 1683, the Ashmolean was Britain's first public museum and it has since grown to become one of the most important museums of art and archaeology in the world. When acquiring new items, collections or studying existing ones, the museum's conservation departments use among others the X-MET8000. Using a handheld XRF analyzer for archaeometry, conservation and restoration applications provide a fast and portable solution to non-invasive and non-destructive analysis.

Accessories

Radiation safety accessories

1. LIGHT TRAVEL STAND WITH SAFETY SHIELD

Included in some packages, it fits in the X-MET case for portability.

2. BENCHTOP STAND

Transform the X-MET8000 into a benchtop analyzer in seconds to increase productivity and operator safety when measuring small finds, non-flat pieces, and sample cups of soil. The large chamber enables the measurement of a wide variety of sample shapes and sizes.

Optional Accessories

3. HOLSTER AND BELT

Hands-free on-site transportation of the analyzer.

4. BACKPACK

A comfortable backpack for remote and difficult to reach places where carrying the X-MET8000 in its normal case isn't convenient or even safe like onboard a ship or to walk long distances.

5. BLUETOOTH BARCODE SCANNER

Prevent typing errors when entering sample labels or additional information in the X-MET user interface. Simply scan the sample barcode to fill the information in your chosen field on the X-MET screen.

6. BLUETOOTH PRINTER

Print results on paper or sticky labels and attach them to test pieces; convenient and mix-up free.

7. X-MET POLE

For hard to reach analysis places, the X-MET pole offers a simple solution with improved measurement ergonomics. It's particularly useful when performing surveys and measurements are needed over a large, ground-level area.

8. BIPOD

When longer analysis times are needed, i.e. greater than 30 seconds, the bipod avoids the need to hold the analyzer in your hand.

9. SMALL-SPOT COLLIMATOR

For accurate measurement of small features such as specifc paint areas on a ceramic object, enabling to isolate the area of interest from surrounding material. 3 mm spot size. Requires camera to position the X-MET on the sample accurately.

QUICK-SWAP ANALYSIS WINDOW

Our quick-swap analysis window means you don't need a tool to change the window if it's broken or dirty, preventing potential detector damage and costly repairs.

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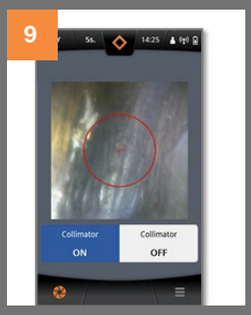

Our Service

Our global network of service hubs offers a full range of technical support to keep you up and running.

- **Telephone help-desks**
  For a fast response to your problem
- **Online diagnostics**
  In-depth support over the internet
- **Rental instruments**
  To keep you working if your analyzer is not
- **Recertification and maintenance**
  Ensures your analyzer produces the right result year after year
- **Training**
  Understand your analyzer and its features
- **Extended warranties**
  Avoid unplanned costs
- **Consumables and accessories**
  From spare batteries to benchtop stands
- **Repairs**
  Fast and efficient turnaround

WHAT NEXT?

Contact one of our experts today at **contact@hitachi-hightech.com** to arrange a demo.

MORE INFORMATION

To find out more about the X-MET8000 Geo analyzer, visit **www.hitachi-hightech.com/hha**

Other products

We have been providing industrial analysis products for over 45 years.

- **Handheld LIBS:** for 1-second alloy identification with no X-rays

Browse our full range of products online at www.hitachi-hightech.com/hha

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