

SOIL

X-MET[®] for soil analysis

Fast, on-site soil screening

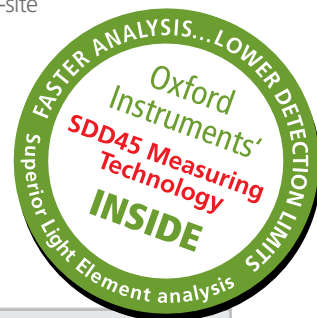
Most cost effective testing

Accurate heavy element analysis down to ppm levels!



At the pull of a trigger, the **X-MET5000** and **X-MET5100** X-ray fluorescence (XRF) analysers provide fast, highly accurate, on-the-spot sample screening and analysis. The need for expensive laboratory testing is minimal. **X-MET** enables GPS integration for real-time correlation of measurement data and location coordinates.

- Accurate and reliable identification of heavy element pollutants
- Define the extremities of 'hotspots' in seconds
- Easy data transfer to PC assures maximum efficiency and minimum errors when working on-site
- Pre-sort contaminated soil to minimize remediation costs
- Soil remediation decisions made instantly
- Fast and reliable Go/No-Go decisions, and fully configurable Pass/Fail alarms



High speed on-site measurement:

- Rapid, simple on-site screening
 - Directly from the ground
 - In sample bags or cups
- Laboratory quality analytical data by measuring prepared samples in bench-top mode
- Analyze any sample type, including soil, rock, dirt, humus, sand, powder, liquid etc.

Silicon Drift Detector technology improves productivity!

Top of the range **X-MET5100** combines Oxford Instruments' groundbreaking Silicon Drift Detector (SDD) with a powerful 45kV X-ray tube. This cutting edge technology delivers a five times faster measurement speed, much better detection limits and significant accuracy improvement over conventional systems. Isn't it time you used **X-MET** to improve your productivity and screening confidence?

OXFORD
INSTRUMENTS

The Business of Science[®]



Rugged and reliable tool for fast analysis

- Withstands all weather conditions and rough treatment
- IP54 (NEMA 3) approved. Superior dust and moisture protection
- High-strength environmentally sealed housing
- Long battery operating time, charge indicator on battery and user interface



Splash and dust proof cover

High performance

- Fast, single-shot heavy element analysis: Pb, As, Cr, Cu, Zn, Ni, Cd, Co, Se, Mo, Hg, Sb, Ag, Ba etc.
- Al, Si, P, S analysis of prepared samples. No need for vacuum or He attachments! (**X-MET5100**)
- Fast measurement time: 30 – 120 seconds (**X-MET5000**) or 5 – 30 seconds (**X-MET5100**), depending on the elements of interest and required precision
- Low detection limits, **X-MET5000** can typically detect 5 – 30 ppm concentration with a 120s measurement time. **X-MET5100** detection limits are even lower and ppm level analysis can be achieved in just 10 – 30 seconds
- Measures all 26 elements defined in EPA6200
- High speed automatic averaging: Calculates averages of 2 – 50 measurements and saves individual results and averaged results



Easy and reliable

- Short learning curve
- User interface in >10 languages
- Easy data storage and reporting
- PDA based technology for flexibility
- CE, cCSAus certified

Bench-Top Stand and portable sample bag adapter

- Improved precision
- Lower detection limits
- Optimized accuracy
- Operator-selectable, comfortable location



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The Business of Science®

X-MET[®] for mining

Fast, on-site ore analysis!

Highly accurate and repeatable sample analysis

At the pull of a trigger, Oxford Instruments' hand-held **X-MET5000** and **X-MET5100** X-ray fluorescence (XRF) analyzers deliver fast, highly accurate on-site sample screening and analysis.

Both analysers provide real-time data in seconds, for:

- Ore exploration
- On-site excavation control
- Mine mapping
- Process monitoring: concentrates, tailings etc.
- Environmental control

What's more, **X-MET** enables precise portable GPS integration for real-time ore exploration and mine mapping.

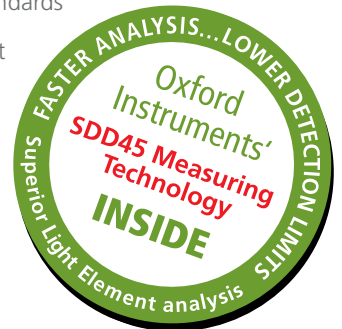


Minimal need for expensive and time consuming laboratory analysis

- Highly accurate ore analysis from Al to U
- Reliable Al, Si, P, S analysis without vacuum or helium attachments
- Measure directly on drill core sample
- Certified IP54 NEMA 3 splash and dust proof
- Results obtained in seconds
- Optional easy-to-use software for unbeatable accuracy
- Universal Fundamental Parameter analysis mode for measurement of ores without known standards
- Go/No-Go user configurable result format
- User interface in >10 languages
- Rapid data transfer to PC

Silicon Drift Detector technology improves productivity!

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Rugged and reliable tool for fast analysis

- Withstands all weather conditions and rough treatment
- IP54 (NEMA 3) approved. Superior dust and moisture protection
- High-strength environmentally sealed housing
- Long battery operating time, charge indicator on battery and user interface

High performance

- Single-shot analysis of all important elements in ore exploration: Fe, Cu, Cr, Zn, Pb, Mn, Ni, Co, Mo, Ta, W etc.
- Al, Si, P, S analysis of prepared samples. No need for vacuum or He attachments! (**X-MET5100**)
- Advanced automatic matrix correction
- Rapid analysis with typical measurement times of 10 – 30 seconds (**X-MET5000**) or 2 – 5 seconds (**X-MET5100**) depending on the elements of interest and required precision
- Low detection limits, **X-MET5000** can typically detect 5 – 30 ppm concentration with 120s measuring time. **X-MET5100** detection limits are even lower and ppm level analysis can be done in just 10 – 30 seconds
- High speed automatic averaging – calculate averages of 2 – 50 measurements and save both individual results and average results in a log file

Splash and dust proof cover



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Choice of analysis modes

- **Fundamental Parameter Calculations when standards are not available**
 - 30 elements between Al-U (**X-MET5100**) and between K-U (**X-MET5000**)
 - Suitable for wide range of ore types
- **Empirical Calibration available for optimized accuracy**
 - Create custom calibrations on-site with optional PC software package

Sample measurement is fast and simple

- Direct on-site surface measurement for quick pre-screening without sample preparation
- Laboratory grade analysis from a plastic bag or sample cup in bench-top mode

visit www.oxford-instruments.com for more information

www.oxford-instruments.com

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Specifications

X-MET5100



Analyzer:

Hand-held EDXRF Analyzer
Oxford Instruments Silicon Drift (SDD) high resolution detector
45 kV Rh target X-ray tube (max 50uA)
Automatic 5-position filter changer
Measurement spot size 9 mm
Operating temperature: -10°C to +50°C

Computer:

HP PDA with Windows Mobile 5.0 OS
128 MB Internal memory
Min. 1 GB Removable memory
Capable of holding > 100,000 results and spectra
Data transfer via supplied USB cable; IR; WiFi, Bluetooth
Touch-screen controlled graphical user interface (12 languages)

Calibrations:

Fundamental parameter (FP) and empirical factory calibrations available for various applications: Metals, plastics, soil, solder, mining, precious metals etc. Customer specific calibrations

Analytical range:

From Mg to U, up to 35 elements depending on calibration

Batteries:

Rechargeable, removable inside handle
Li-Ion batteries (Quantity 2)
Typical duty cycle: 6 hours of operation each. Continuous (tube on) measurement: 3-4h.
110/230V 50/60 Hz battery charger, including AC adaptor.

Radiation Safety:

Password protection
IR proximity sensor
Three failsafe warning lights



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Oxford Instruments Industrial Analysis

Dimensions: 9 cm(W) x 30 cm(L) x 27 cm(H)

Weight: 1.7 kg with battery and PDA installed

Carrying and Transportation:

Waterproof field carrying case
Wrist strap

Standard Accessories:

Protective PDA rain cover
Check samples (depending on calibrations)
Standardization sample
Memory card reader
User Manual (English)
Quick Start Guide (12 languages)
PDA cradle and AC adapter

Optional Accessories:

Bench-top stand with enclosed sample chamber
and safety interlock
Light travel stand with safety shield for small samples
Holster for portable use
Barcode reader for sample name input
Portable Wireless printer
Weld beam collimator

Optional Software:

Empirical Calibration – enables user to create a calibration from a set of standards for unique applications. Also allows data acquisition and analysis using a PC.

PC Spectral Display – enables viewing and analysis of samples spectra on a user's PC.

PC Report Generator - enables the creation of specific reports containing user selected information and format.

Reliability:

CE and cCSAus approved
IP54 (NEMA 3) Splash/dust proof with separate rain cover
2 year Instrument warranty; including X-ray tube, excluding consumables

Note: In the interests of continued improvement, Oxford Instruments reserves the right to change any part of the description and specification without notice.

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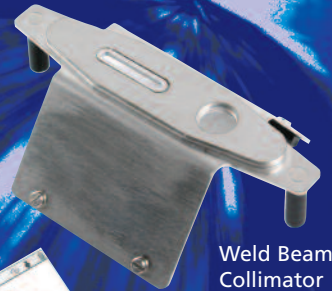
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Part no: 8
OIIA/059/A/1108B

X-MET[®] Accessories



Weld Beam Collimator



Portable Bluetooth[®] Printer



Bench-Top Stand



Pistol Holster

Light Instrument Stand and Safety Shield for Small Samples



Worldwide Technology Leader



The Business of Science[®]

Pistol Holder

Secure holster frees your hands when not measuring samples and makes the **X-MET** easy to access when needed. The holster is strap-secured to prevent the unit from falling.

- Improves comfort and convenience in everyday use
- Safety-strap to secure the unit
- Genuine leather belt included
- Analyzer nose fully protected



Bench-Top Stand

Advantages:

- Improved measurement precision
- Detection limits are optimized with bench-top stand due to simpler use of longer measurement times
- Optimized accuracy
- Operator-selectable, comfortable location

Designed for testing:

- Small metal parts
- Electronic components
- Toys and other plastic samples
- Prepared powder and liquid samples
- Bagged soil and mining samples

Closed beam operation for increased radiation safety

The stand improves radiation safety when measuring small, low density or oddly shaped samples. The enclosed sample chamber protects the user from scattered radiation and the lid interlock prevents X-ray generation when the lid is opened, keeping the user safe at all times.

Improved measurement precision

The bench-top stand allows users to target small samples, which can be difficult to

position in hand-held operation, such as specific components on an electronic assembly or welds on a metal component.

Simplified operation

Hands-free use of the instrument allows for multi-tasking without loss of confidence in the measurement results. The instrument can be quickly swapped between hand-held and bench-top operating modes. The stand can be packed in an optional protective, rugged plastic case for easy transport.



Specifications:

- Unit dimensions: 328 W x 440 L x 398 H (mm)
- Weight: 13.1 kg
- Maximum sample size (size of sample compartment): 220 W x 210 L x 55 H (mm)
- Fast and easy installation. Quickly switch between hand-held and bench-top measurement modes
- Interlocked sample chamber for maximum radiation safety
- Adjustable PDA holder
- Red X-ray warning light visible in the front panel of the stand during measurement
- For use with **X-MET** range instruments
- Optional rugged plastic case for easy transport

Barcode Scanner

Barcode scanner eliminates the chance of user error in naming samples. It provides a fast and highly accurate way to input sample names into the **X-MET** whenever barcode information is available.

- Supports the common one dimensional bar codes
- Wireless data transfer directly to **X-MET** Name or Additional information field

- Pre-installed software when ordered at the same time as the **X-MET**
- Easy to use setup program and user interface
- Powered by two, easy to replace, AAA rechargeable batteries. Standard alkaline batteries can also be used
- Battery life up to 8000 scans
- Built in stylus-tip for PDA touch screens



Portable Bluetooth® Printer

Lightweight and durable printer, perfect companion when instant prints or handouts are required in the field. Print results directly from the PDA or use optional labels to attach the measurement result directly to the measured object or sample bag.

- Print screenshots without disconnecting the PDA or exiting **X-MET** software
- Easy, wireless Bluetooth® connection
- Direct thermal printing, no ink cartridges needed
- Special A7 size paper resists the dimming effect of heat and sunlight and does not curl
- A7 size labels also available
- Print over 100 copies on single battery charge
- Silent operation
- Pre-installed software when ordered at the same time as the **X-MET**
- All necessary software and instructions included in shipping

Light Instrument Stand and Safety Shield for Small Samples

Light instrument stand turns **X-MET** into a bench-top analyzer in a matter of seconds; convenient when longer measurement times are required e.g. while measuring plastics, soil or other low density/low concentration samples. Safety shield fits the analyzer nose and covers the sample, protecting the user from scattering radiation. Light travel stand, shield and analyzer fit perfectly in a custom designed rugged plastic travel case.

- Simple to assemble, the unit can be seated in the stand within seconds
- X-ray shield blocks all the direct and scattering radiation from small and low density samples
- Simple, stylish and durable design



Specifications:

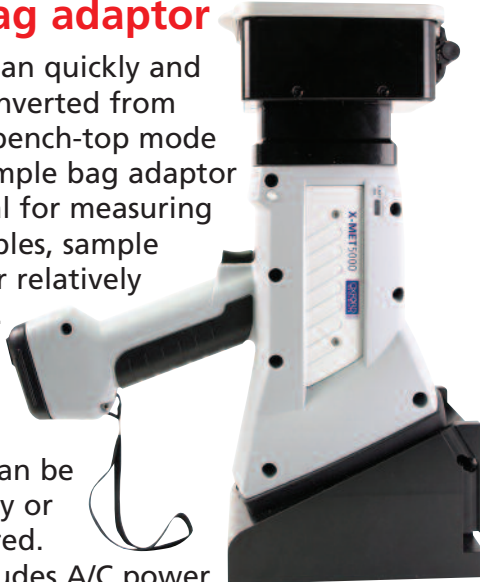
- Size: 9.9 W x 16 L x 1.8 H (cm)
- Weight: less than 300 grams





Sample bag adaptor

- The **X-MET** can quickly and simply be converted from portable to bench-top mode using the sample bag adaptor which is ideal for measuring bagged samples, sample cups or other relatively small samples.
- In this bench-top mode the instrument can be either battery or mains powered. Package includes A/C power supply, mains cable and PDA remote cables.



Bluetooth® GPS receiver

- **X-MET's** GPS receiver is especially useful in geological mapping, ore exploration and soil screening in remote areas.
- Nokia LD-3W Bluetooth® GPS receiver combines location coordinates with the measurement results and automatically stores the location coordinates with assay data.
- Note: GPS pairing is a standard **X-MET** feature. Different GPS receivers can be used without purchasing this option. **X-MET** is compatible with most Bluetooth® GPS receivers that use NMEA protocol. If in doubt, compatibility can be confirmed in advance.

Flat surface adaptor

- Flat surface adaptor enables **X-MET** to stand flat on an uneven surface. Adaptor is attached to the nose of **X-MET**.



Background Plate

While measuring small, thin or low density samples such as wires, plastics, aluminium, wood, soil etc. it is possible that the analyzer will measure background through a sample. This can cause significant analysis error. The background can be standardized by using the Background plate.

- Standardizes the background
- Compact size (10 x 10 cm), easy to carry with the analyzer



Tools for Sample Preparation

A selection of sample cups, films and bags available for sample presentation.

Cups are made of interference-free plastic to ensure compromise-free results. Thin Mylar® or similar plastic films are optimal for measuring very low concentrations in e.g. soil and mining applications. Sample bags are ideal for gathering soil samples when fast analysis data are required; sample can be measured directly through the bag.

- The sample cups and clamp rings are made of interference free material which is invisible to **X-MET** and guarantees the best possible performance
- Easy to assemble
- High purity plastic sample bags
- Sample preparation tool to compress powders also available

Weld Beam Collimator

Weld beam collimator provides a precision X-ray beam, reducing the risk of significant analysis error by ensuring only weld seam material is measured.

- Easy, clip-on weld adaptor, designed specifically for welds less than 4 mm
- The adaptor ensures only weld material is measured, not the surrounding metal



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X-MET5100

Elemental Detection Limits for different materials - Soil LE Package

Elemental detection limits on soil samples (SiO₂ matrix)

Meas time	Al	P	S	K	Ca	Ti	V	Cr	Mn	Co	Ni	Cu	Zn	As	Se
60s+60s	1000	120	100	15	15	106	58	34	22	9	6	4	3	3	3

Meas time	Sr	Zr	Mo	Rh	Ag	Cd	Sn	Sb	Ba	Ta	W	Au	Hg	Tl	Pb	Th	U
60s+60s	3	6	5	20	16	18	28	34	227	9	8	11	5	5	5	6	6

Limit of detection (LOD) is specified for each matrices in three sigma 99.7% confidence level. Individual LOD's improve as a function of the square root of the testing time. All detection limits are specified for interference free matrix. LOD's are listed in parts per million (ppm). Limit of detection effects on instrument precision (repeatability), but it is not direct indication of instrument accuracy.

Limits of detection are dependent on the following factors.

- Matrix Interferences, overlapping elements etc.
- Level of statistical confidence
- Testing time

X-MET5100

Elemental Detection Limits for different materials – Mining LE Package

Elemental detection limits on mining samples (SiO₂ matrix)

Meas time	Al	P	S	K	Ca	Ti	V	Cr	Mn	Co	Ni
60s+60s	1000	120	100	15	15	106	58	34	22	9	6

Meas time	Cu	Zn	As	Se	Sr	Zr	Mo	Rh	Ag	Sn	Ta	W	Au	Hg	Tl	Pb	Th	U
60s+60s	4	3	3	3	3	6	5	20	16	28	9	8	11	5	5	5	6	6

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