Toxicity

Toxicity monitoring technologies for online, on location and the laboratory



MODERN WATER

A Metir plc Trading Company

CONTENTS

Microtox® LX	page 4
Microtox® FX	page 5
Microtox® CTM	page 6
Technical support	page 8
Specifications	page 9

MODERN WATER
A Metir plc Trading Company

Modern Water is expert in the design, development and provision of analytical instruments and technologies for monitoring toxicity in water, soil, food and industry. Our systems use bioluminescent bacteria to perform biosensor testing that detects the presence of toxic substances. Our range of toxicity testing technologies is both industry-leading and ground-breaking.

Microtox® Technology

FX Handheld Device



- Portable, user-friendly, on-site testing.
- Fast results. Immediate action.

LX Laboratory Device



- Compact system for enhanced multiple sample tests.
- Efficient, reliable, and quick.

CTM Continuous Monitoring System



- Fixed 24/7 online monitoring and instant alerts.
- Ideal for storage tanks and public networks.



LABORATORY TOXICITY TESTING

Microtox® LX

The Microtox® LX analyser is a laboratory based, temperature-controlled, self-calibrating photometer that measures acute toxicity. With instruments sold worldwide, the Microtox® toxicity test system is the industry standard for rapid toxicity screening and analysis.

- Biological early warning system sensitive to thousands of simple and complex chemicals allows the protection of drinking water supplies from accidental or deliberate contamination.
- Test results highly correlated with other widely accepted toxicity test methods helps to ensure compliance with regulatory and effluent permit standards in wastewater applications.
- Proven - Multiple independent scientific studies have documented Microtox's performance as an effective toxicity-screening tool in a wide array of applications.
- Increased Sensitivity - The use of a new proprietary, fully dynamic photomultiplier tube increases the sensitivity of the instrument.
- Fast, Reliable and Reproducible results - results available in as little as 15 minutes after initial sample preparation.
- The instrument has a new colour correction feature that adjusts test results based on the sample's colour and turbidity. This feature can be turned on and off as needed.
- Actively cooled sample and read wells enable more precise and consistent readings increases the sensitivity of the instrument.
- Manufactured in a certified ISO quality system with 100% lot traceability



The technology and its applications

Microtox® rapid toxicity detection is an in vitro test system that uses bioluminescent bacteria for the detection of toxicity and is used as a screening system to detect the relative toxicity of a sample.

Applications include the testing of samples containing biological toxins, industrial effluent, industrial process waters, municipal effluent, drinking water, ecotoxicological samples, hazardous waste, soil, sediments, storm water and chemical, pharmaceutical and medical products for bioactivity.

MODERN WATER
A Metir plc Trading Company

PORTABLE TOXICITY TESTING

Microtox® FX

Microtox® FX is the portable toxicity analyser used with the Microtox® technology. It is a simple, rapid, extremely responsive, portable water quality test system. Microtox® FX uses bioluminescence technology to screen for both acute toxicity and microbial contamination (ATP method). Applications include drinking water emergencies and detection of chemical spills into water systems.

- Biological early warning system sensitive to thousands of simple and complex chemicals
- Fast - Reliable results available in 5 minutes after initial sample preparation
- Test results are highly correlated with other widely accepted toxicity test methods
- Excellent correlation with HPC test methods
- Fully portable - lightweight with sturdy field carrying case
- Battery life of up to 8 - 10 hours with typical use
- Compatible with widely available ATP test kits*
- Manufactured in a certified ISO quality system with 100% lot traceability

*Check with your Modern Water monitoring representative to confirm compatibility with a specific test kit.

The portable Microtox® FX detects both chemical and microbial contamination



The technology and its applications

The Microtox® FX instrument offers a highly sensitive and rapid method for detecting contamination in drinking water or wastewater. Its combined detection capabilities allow it to identify two of the most likely classes of harmful agents — pathogens and toxic chemicals — whether introduced accidentally or intentionally. With both acute toxicity and ATP detection functions, Microtox® FX provides fast, accurate assessment of water quality from source to tap, making it an essential tool for early incident detection and response.

- Detects both pathogens and toxic chemicals rapidly and accurately.
- Combines acute toxicity and ATP detection for comprehensive water quality assessment.
- Suitable for use at any point in a water distribution or industrial wastewater system.
- Ideal for **remote or hard-to-access sites** such as reservoirs, storage tanks, and marine vessels.
- Can also be used for **screening contaminated soils**, especially when site history is uncertain.

ON-LINE CONTINUOUS TOXICITY MONITOR

Microtox®CTM

ModernWater's Microtox® CTM is a site-based, broad range, Continuous Toxicity Monitor (CTM). It continuously measures the chemical toxicity of a water source, giving instant indication of water health. Microtox®CTM is a fully automatic instrument that offers a 4-week, autonomous operating cycle and requires a low level of skill for both operation and maintenance.

- Fixed 24/7 online monitoring and instant alerts
- 4-week, autonomous operating cycle
- No manual intervention except for monthly maintenance
- Automatic diagnosis of system faults
- Remote control data analysis and troubleshooting
- Detects thousands of chemical compounds with lower levels of detection than most other biosensor systems
- Works in fresh, saline and chlorinated water
- User-definable toxicity alarm CE certified

The Microtox CTM® makes fully automatic, continuous, on-line testing a reality



The technology and its applications

The Microtox® CTM system brings fully automatic, continuous, online water testing to life, offering rapid and reliable early warning of contamination. With its broad-range detection capabilities, it can identify several thousand known chemicals, allowing swift containment measures to prevent serious pollution incidents. Unlike analytical methods that require prior knowledge of potential contaminants, Microtox® CTM can detect a wide spectrum of substances without pre-identification, making it a powerful safeguard for water quality monitoring.

- Fully automatic, **continuous monitoring** for real-time contamination detection.
- Broad-range sensitivity to thousands of known chemicals, enabling early warning and rapid response.
- Detects contaminants without needing prior knowledge of potential sources.
- Far superior to traditional systems that test intermittently, often every 15–30 minutes.
- Takes **two measurements per second**, minimising false negatives and ensuring no contamination events are missed.

MODERN WATER
A Metir plc Trading Company

ROUTINE MAINTENANCE IS ESSENTIAL TO ENSURE A HIGH LEVEL OF PERFORMANCE FOR ALL ANALYTICAL INSTRUMENTS.

Modern Water provides annual and routine maintenance, as well as emergency maintenance on all its analysers. We can also loan our customers Microtox® LX and Microtox® FX monitors whilst repairs or maintenance work is carried out on your existing monitor.

Microtox® CTM

Upon receipt of a technical support request from a customer, Modern Water can remotely access a Microtox® CTM monitor via the internet. The analyser function can then be checked by our trained staff including:

- Confirmation of system functions
- Identification of faults
- Initiate calibrations

This level of service saves our customers time and money. Downtime is kept to an absolute minimum and the need for onsite visits is reduced.





TECHNICAL SUPPORT

Working with you

Modern Water is experienced in a wide array of applications for toxicity monitoring. We will support you in finding the best test for your application and provide continuous support through our Technical and Customer Support teams.

Next steps:

1. Email us at sales@modernwater.co.uk
2. Discuss your application requirement with an experienced member of the Modern Water team
3. Determine which Modern Water Toxicity Monitoring product best fits your needs
4. Confirmation of order, delivery and installation.



SPECIFICATIONS

Microtox® FX Specification

Size	20cm x 18cm x 10cm (8" x 7" x 4")
Weight	1kg (2.2lbs)
Power	Self-contained Lithium battery or universal power adapter (15V dc @ 4amps)
Instrument Operational Temp	0 °C - 40 °C
Reagent Operational Temp	10 °C - 28 °C
Dynamic Test Range	1 to 60 million counts (approx)
Display Output	Backlight LCD - 8 lines x 20 characters
Data I/O	Standard serial USB for data transfer and firmware updates
Data Storage	6.5k byte storage area (approx 600 reads)
Data Handling	Stand alone or download capability to PC; built-in software prompts operational steps, records light measurements and automatically calculates results for immediate review and further analysis
Test Reagent	Freeze-dried luminescent bacteria (Vibrio fischeri)
Toxicity Reagent Storage	Freeze-dried -15°C to - 25°C / Rehydrated 2 hours (ambient temperature)
ATP Reagent Storage	Refrigerate
Test Modes	Toxcity (Q-Toc and B-Tox) and ATP measurement
Test Durations	1-60 minute Exposure
Test Measurement Criteria	Light output by test reagent measured after timed exposure to sample
Results Display	Percentage light loss or gain for toxicity test; or light unit (photon) count (for ATP measurements)
Repeatability (Precision)	<20% coefficient or variation for B-Tox and Q-Tox mode testing
Sensitivity and Range	The analyser can detect photon counts from 0 to 60 million
Certifications	IEC 610010-1:2010, IEC 61010-2-010:2014; IEC 61326-1:2103; EN61010-1:2001





SPECIFICATIONS

Microtox® LX Specification

Measurement Methog	Bioluminescence
Light Source	Proprietary fully dynamic photomultiplier
Reagents	Genuine Microtox Reagents
Dimentions	45.7cm x 25.4cm x 43.2cm (18" x 10" x 17")
Bench Space Required	
Weight	20lbs (~9kg)
Display	17.8mm (7in) colour touch tablet
Tablet Operating System	Microsoft Windows 10 with Microtox LX software preloaded.
Input	Touchscreen, Mouse, Keyboard, Stylus
Connectivity	USB, Wifi, Bluetooth
Interface	3 ports for USB flash drive, keyboard, mouse or compatible external printer
Temperature	
Room Temperature	15°C to 30 °C
Active Cooling Reagent Well	5.5°C +/- 1 °C
Active Cooling Incubator Block	15°C +/- 0.5 °C
Active Cooling Read Well	15°C +/- 0.5 °C
Reagent Operational Temperature	10 °C to 28 °C
Instrument Operational Humidity	5% to 95% non-condensing
Certifications	IEC 610010-1:2010, IEC 61010-2-010:2014; IEC 61326-1:2103; EN61010-1:2001
Water Ingress	IEC IEC 60529: IPX-O
Power Requirements	Auto-ranging universal AC input 100-240 V AC, 50/60 Hz, 200 watts

Microtox® LX Software

Standard Protocols	Basic Toxicity Test I Comparison Test I Confirmation Test I ASTM (D5660) DIN (Deutches Institut for Normung 38412 Teil Test) I Screening Toxicity Test SOLO Screening Test I International Standards Organisation (ISO) 11348-3 I Solid Phase/Basic Solid Phase I WET (Whole Effluent Toxicity)
Custom Protocols	Parameters of standard test protocols can be modified
Quality Control Protocols	Zinc and Phenol
Additional Analysis Capabilities	Trend Monitoring
Colour Correction	Optional feature, test results adjusted for variations in water quality
Data Storage	Test results can be stored for future reference or downloaded to a USB drive

SPECIFICATIONS

Microtox® CTM Specification

Sample Requirement	150ml/h at ambient pressure
Sample Temperature	5-35 OC
Ambient Temperature	5-40 OC with A/C option
Power Supply	100 / 240V, 50-60Hz AC, 480W
Display	Colour, 180 mm diagonal, touch sensitive
Communications	Ethernet, USB port for data download
Communication Options	4-20mA, 2 relay alarm output, GPRS modem, WiFi network, LAN
Consumable	Supplied frozen, immediate use on site or storage at -22°C. Suitable for 4 weeks of operation.
Auto Calibration Interval	User settable between 3 and 24 hours
Standard	5mg / L zinc ion from zinc sulphate or customer specified
Waste Volume	120l/month - non-toxic, suitable for soak away.
Autosampler	Takes samples on positive alarm (optional)
Weight	70kg (approx.)
Dimensions: Main Enclosure	1250 x 750 x 365 mm (H x W x D)
Control Panel	425 x 750 x 365 mm (H x W x D)
Housing	Aluminium
Maintenance	2 hours per month
Mounting	Wall or floor
Optional	Pre-filteration, A/C option
Certification	CE, RoHS and WEEE

MODERN WATER
A Metir plc Trading Company



Contact Information

For further information or to schedule your complimentary technical survey, please contact:

Modern Water (UK) Ltd,
a subsidiary of Metir plc
a purpose driven
public company.

+44 (0)8458 920 520

www.modernwater.com

sales@modernwater.co.uk



MODERN WATER

www.modernwater.com