Microtox® LX

The Definitive Solution for Rapid Toxicity Testing



MODERN WATER
A Deepverge Company

The new **Microtox LX Series** is the next generation of laboratory based acute toxicity analyzer. The new analyzer blends Modern Water's proven M500 technology with improved features to simplify testing in demanding drinking, industrial and wastewater applications.

MICROTOX® LX KEY BENEFITS

- Biological early warning system sensitive to more than 2,700 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 – Numerous 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 photo multiplier 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's new automatic color correction feature adjusts test results based on the sample's turbidity. This feature can be turned on or off as needed.
- Actively cooled sample and read wells enable more precise and consistent readings.
- Cost effective – A low cost toxicity test that requires small sample volumes.
- Manufactured in a certified ISO 13485 quality system with 100% lot traceability.

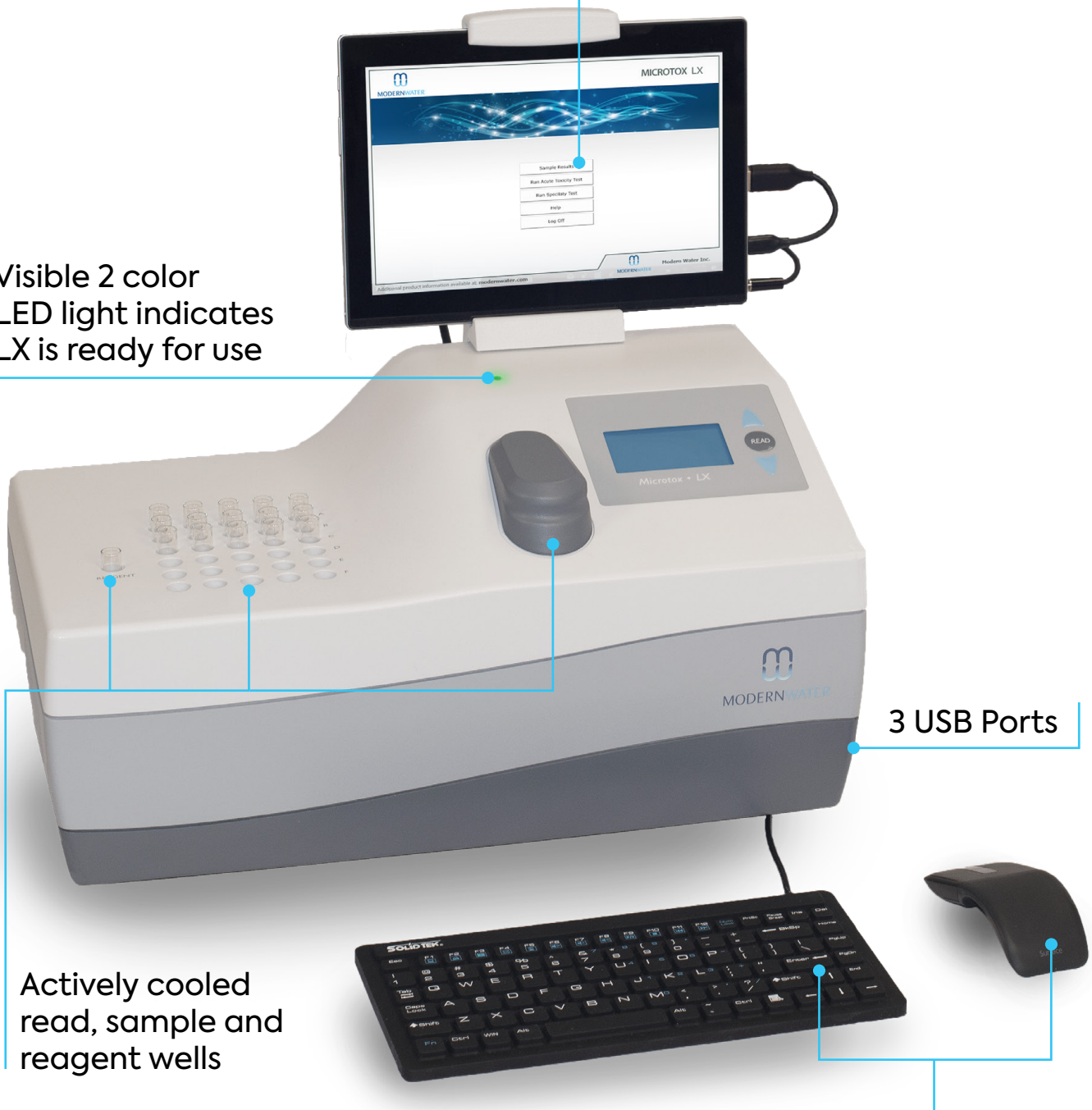


For over 30 years, Modern Water's Microtox technology has provided laboratories with proven, cost effective technology to protect drinking water supplies, ensure compliance with regulatory standards and conduct research. The new Microtox LX analyzer builds on the foundation that has made our toxicity product line among the most trusted in the industry.

Product Features

7“, Windows 10 Touchscreen
Tablet Wifi/ Bluetooth enabled

Visible 2 color
LED light indicates
LX is ready for use



3 USB Ports

Actively cooled
read, sample and
reagent wells

Mouse, Keyboard & Stylus

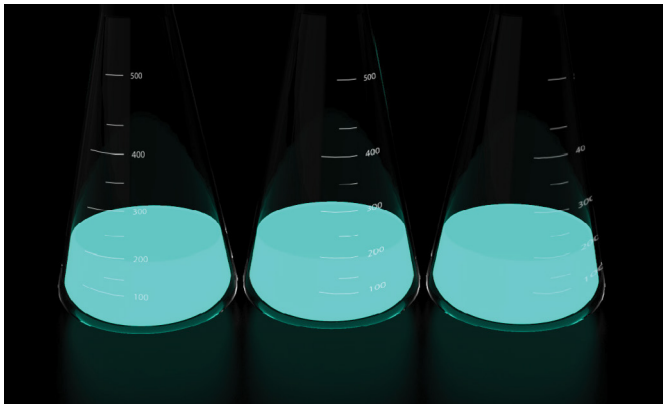
Microtox

How Microtox Technology Delivers Rapid, Highly Accurate Results

Biological monitoring techniques playing an increasingly important role in the evaluation of acute toxicity. Biosensor using bioluminescent bacteria has been in use for over 30 years. Modern Water developed Microtox technology to address limitations of conventional bioassay toxicity analysis. Due to its simplicity, speed, economics, convenience and reproducibility, Microtox has become one of the most recognized bioassays in the world today. Unlike conventional tests that can take up to 96 hours and are subject to manual counting, Microtox can provide results in less than 1 hour.

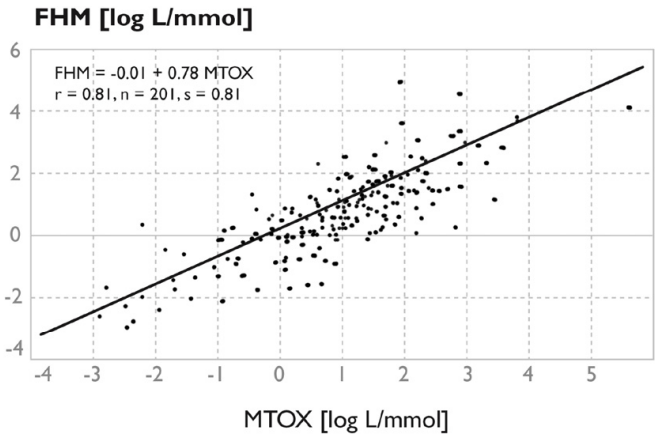
The Microtox system uses a proprietary strain of bioluminescent bacteria, *Aliivibrio fischeri*. Upon exposure to a substance or sample containing toxic materials, changes in the bacteria's light output are measured by the LX instrument's luminometer. The greater the reduction in light emitted by the bacteria, the greater the toxicity of the sample. The photometer used in the LX Series is designed specifically for use with Modern Water's bioluminescent bacteria.

Modern Water produces Microtox reagents using a proprietary manufacturing proces that ensures the *Aliivibrio fischeri* bacteria is highly sensitive. Each test sample is exposed to over 10^6 of Microtox bioluminescent bacteria. The company maintains a rigorous quality control process to ensure the bacteria is highly consistent from lot to lot.



Results Are Highly Correlated with Conventional Bioassay Toxicity Tests

Numerous independent, peer reviewed studies have demonstrated the Microtox toxicity test results have a a high degree of correlation with conventional bioassay tests such as fish, daphnia and shrimp. As a result, waste water treatment plants use Microtox acute toxicity tests to help ensure compliance with water treatment effluent permits, they measure toxicity in influent streams, determine treatment efficiency in industrial and municipal treatment plants and monitor processes from the raw influent to the final effluent.



Correlation of Microtox EC50 with Fathead Minnow LD50 (Kaiser) (r 2 = 0.81) Modern Water maintains an online library of over 700 published studies referencing Microtox technology in a wide variety of applications.

Applications

Drinking Water Plants

- monitor for accidental or deliberate contamination
- provides warning in sufficient time for action
- rapid screening and confirmatory results
- check source water
- check in process water
- check 'finished' water prior to distribution
- check water distribution system



Wastewater Plants

As part of the pre-treatment program, it allows the facility to:

- regulate the amount of pollutants coming into the facility
- maintain smooth operations
- minimize upsets
- maintain good compliance performance
- reduce and control costs and generate revenues by surcharging particularly toxic influent streams



Improve operating efficiency:

- avoid unscheduled shutdowns
- avoid damage/disruption to biological treatment systems
- avoid effluent violations
- avoid increasing chemical costs



Microtox Has Been Used In A Broad Range of Applications In A Diverse Range of Industries;

- drilling fluids and drilling muds
- mining, wastewater, soil and water
- industrial effluents
- industrial process water
- marine water
- medical/pharmaceutical products
- food packaging materials
- personal care and household chemical analysis
- sediments
- storm water runoff
- solid phase materials
- food processing water

Microtox® LX

MICROTOX® LX SPECIFICATIONS

Measurement Method	Bioluminescence
Light Source	Proprietary fully dynamic photomultiplier
Reagents	Genuine Microtox Reagents
Dimensions	18" x 10" x 17" (45.7 cm x 25.4 cm x 43.2 cm)
Bench Space Required	
Weight	20 lbs (~9 kg)
Display	17.8 mm (7 in) color touch screen 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	CE, IEC 610010-1:2010, IEC 61010-2-010:2014; IEC 61326-1:2103; FCC part 15, Subpart B
Water Ingress	IEC IEC 60529: IPX-O
Power Requirements	Auto-ranging universal AC input 100-240 V AC, 50/60 Hz, 200 watts
ISO Accreditation	ISO 13485 FM 583842

MICROTOX® LX SOFTWARE

Standard Protocols	Basic Toxicity Test
	Comparison Test
	Confirmation Test
	ASTM (D5660)
	DIN (Deutches Institu for Normung 38412 Teil Test)
	Screening Toxicity Test
	SOLO Screening Test
	International Standards Organization (ISO) 11348-3
	Solid Phase/Basic Solid Phase
	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
Color 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

Microtox FX

The Microtox® FX instrument has a combined detection capability that provides a very sensitive and rapid test to detect two of the most probable classes of agents, pathogens and toxic chemicals that may accidently or intentionally contaminate drinking water or wastewater. Microtox® FX's acute toxicity and ATP detection capabilities make it the ideal instrument for rapidly and accurately assessing if the quality of drinking water, from the source to the tap, has been affected by an incident.



Microtox CTM

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

It has broad range detection capabilities that provide rapid early warning of contamination by several thousand known chemicals. This enables containment measures to be actioned in time to protect against serious contamination events.



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