



MODERNWATER

DeltaTox[®] II

Portable toxicity and bio-contaminant detection

DeltaTox[®] II is a simple, rapid, extremely responsive, portable water quality test system. Designed for acute toxicity screening and adenosine triphosphate (ATP) testing, DeltaTox[®] II uses bioluminescence technology to screen for contamination in instances of drinking water emergencies and chemical spills into water systems. DeltaTox[®] II is the portable toxicity analyser used with the Microtox[®] technology.

The DeltaTox[®] II 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 accidentally or intentionally contaminate drinking water or wastewater. DeltaTox[®] II'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.

- Test sensitive to more than 2,700 different simple and complex chemicals
- Results available in 5 minutes*
- Excellent correlation with HPC methods
- Cost effective
- Fully portable
- Microbial detection level in drinking water -100 cfu/mL

**after initial reagent preparation*



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DeltaTox[®] II is designed for use in any sample location throughout the water distribution or industrial waste water system. It is particularly suited to remote sites such as reservoirs, storage tanks, ocean or lake going vessels or in any hard to reach place.

Chemical contamination of drinking water and wastewater

DeltaTox[®] II is the portable version of the industry-leading Microtox[®] Model 500 (M500) laboratory analyser. The DeltaTox[®] II test is fast, simple to conduct, uses small sample sizes and is very cost effective. Results correlate well with those from other toxicity bioassays such as fish, daphnia and shrimp. DeltaTox[®] II is used extensively in the measurement of toxicity of "fit for use" water and wastewater treatment effluent. It is also used as an early screening tool for relative toxicity as part of a test battery.

DeltaTox[®] II test systems are uniquely suited for drinking water surveillance where supplies are monitored regularly and at strategic points. It can quickly reveal any changes in the level

of toxicity of drinking water making it the ideal solution for major events. Microtox[®] has been deployed at every Summer Olympics since Los Angeles in 1984.

In industrial and municipal wastewater, DeltaTox[®] II helps assure compliance with NPDES toxicity limits, measures toxicity in influent streams and determines treatment efficiency.

Microbial contamination of drinking water

DeltaTox[®] II can rapidly estimate the microbial concentration of a drinking water sample to a level of 100 cfu/mL without additional filtration or incubation steps. The data is available in minutes and is highly correlated with standard heterotrophic plate count methods.

DeltaTox[®] II is extremely responsive and has been designed for use in a wide variety of applications where it is crucial to rapidly determine the biomass of a sample.



SPECIFICATIONS

| | |
|-----------------------------|--|
| Size | 20cm x 18cm x 10cm (8" x 7" x 4") |
| Weight | 1 kg (2.2 lbs) |
| Power | Self-contained Lithium ion battery or a universal power adapter (15 V dc @ 4 amps) |
| Instrument Operational Temp | 0°C - 40°C |
| Reagent Operational Temp | 10°C - 35°C |
| Dynamic Test Range | 1 to 60 million counts (approx.) |
| Approvals | CE (European Community) |
| 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 (<i>vibrio fischeri</i>) |
| Toxicity Reagent Storage | Freeze-dried -15°C to -25°C Rehydrated 2 hours (ambient temperature) |
| ATP Reagent Storage | Refrigerate |
| Test Modes | Toxicity (Q-Tox and B-Tox) and ATP measurement |
| Test Durations | 1-60 minute exposure |
| Test Measurement Criterion | Light output by test reagent measured after timed exposure to a sample |
| Results Display | Percentage light loss or gain for toxicity test; or light unit (photon) count (for ATP measurements) |
| Repeatability (Precision) | <20% coefficient of variation for B-Tox and Q-Tox mode testing Sensitivity and Range: The analyser can detect photon counts from 0 to 60 million |

Applications

Drinking water monitoring
 Emergency response: Biological contamination
 Emergency response: Chemical toxicity
 Hazardous waste
 Industrial effluent
 Industrial process water
 Municipal effluent
 Recreational water
 Soil
 Sediments
 Storm water

Process explained

The DeltaTox[®] II test system uses a strain of naturally occurring luminescent bacterial called *Vibrio fischeri* to provide acute toxicity detection. Exposure to a toxic substance causes disruption of the respiratory process of the bacteria resulting in reduced light output.

DeltaTox[®] II is extremely responsive and has been designed for use in a wide variety of applications where it is crucial to rapidly determine the biomass of a sample. All organisms contain ATP as their main energy source but it is the amount of ATP in a sample that is directly proportional to the biomass of the sample.

ATP reacts with luciferin/luciferase, the enzyme system present in firefly tails, to produce light. In the reaction, each molecule of ATP produces one photon of light; the light output of this reaction can be accurately measured using the very sensitive DeltaTox[®] II instrument.

To find out how we can help you please contact us on:

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