

Rapid Wastewater Toxicity Testing



ALPHA

TOXICITY ANALYZER

The single-sample Rapid Toxicity
Measurement System





Rapid Wastewater Toxicity Testing

A revolution in the wastewater industry

SciTOX has designed an innovative single-sample analyzer for measuring and defining the toxic chemical content of wastewater.

The ALPHA utilizes an innovative, patented biosensor and simple, inexpensive reagents to measure the overall toxic effect of a sample, specific to each kind of wastewater plant.

The SciTOX biosensor measures the electron transfer on a mediator, catalyzed by the metabolism of bacteria. A default standard calibration specific to wastewater plants is included in the operating software. As additional calibrations and samples are run globally, these calibrations will be made more robust.

The touchscreen operation is designed to allow non-technical personnel to easily proceed through an analysis. Each step of the sample preparation, reagent preparation, calibration, and analysis are shown from start to finish, with an accompanying photo.





ALPHA

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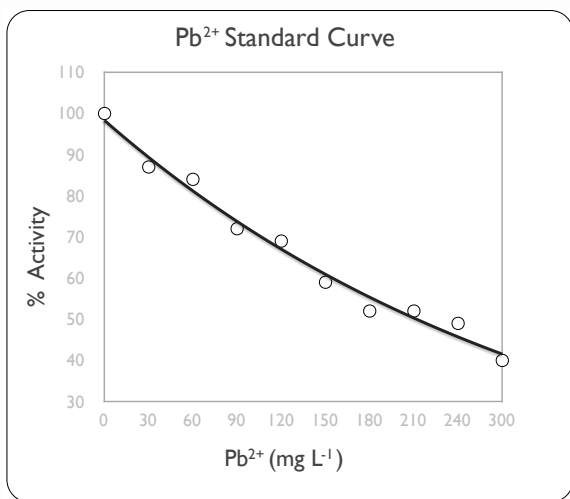
SciTOX is dedicated to bringing the most innovative, simple, and low-cost designs for toxicity analysis to the market. Our focus on market-specific products, minimizing total cost of ownership, and providing products that require minimal maintenance has resulted in this product, the ALPHA toxicity analyzer.



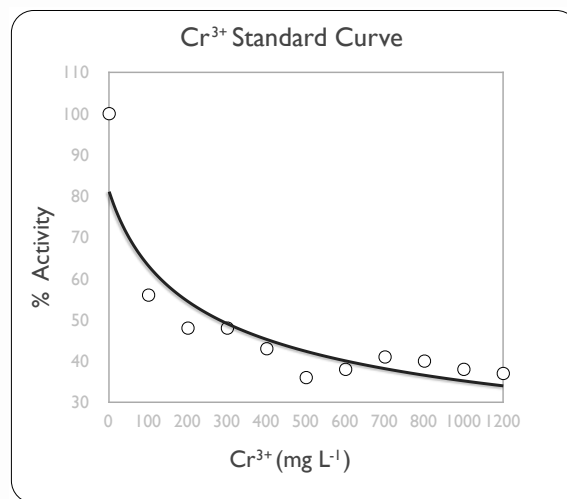
The single-sample Rapid Toxicity Measurement System (RTMS)

- Toxicity analysis within 15 minutes including incubation
- Use indigenous bacteria; no imported or cultured strains
- Analyzes both organic and inorganic toxins
- Patented biosensor technology
- Wireless sensor operation
- Innovative design electrode
- Innovative Electropolishing technique for electrode
- Uses micro liter (μ l) amounts of sample and reagents
- Simple touchscreen operation to lead operator through the analysis
- Initial calibration pre-programmed
- Analysis not affected by sample turbidity or colour
- User-defined Pass/Fail criteria for WWTP samples
- No external PC required
- Multiple language operation, user selected
- Product focused on domestic Waste Water Treatment Plants (WWTP) and their customers
- Analyzer's surfaces have embedded anti-bacterial agent
- Documented cost returns (payback) associated with product use
- Inexpensive, simple, single reagent and single standard preparation
- Initial instrument set-up takes only five minutes
- Extremely small footprint, adaptable to customer site
- Single unit for all power supplies
- Minimal consumables or spare parts
- Minimal maintenance
- Optional printer

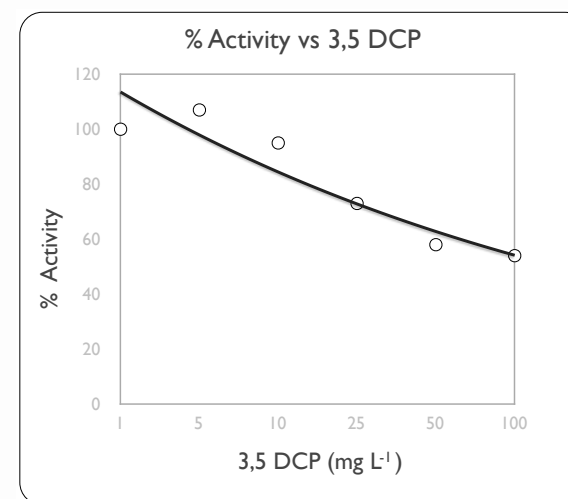
SciTOX ALPHA - Inorganic & Organic Toxicity Measurements



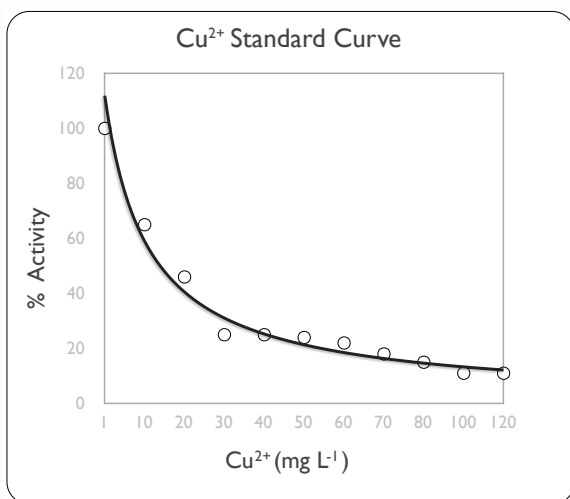
Response of SciTOX ALPHA to Pb²⁺ ions



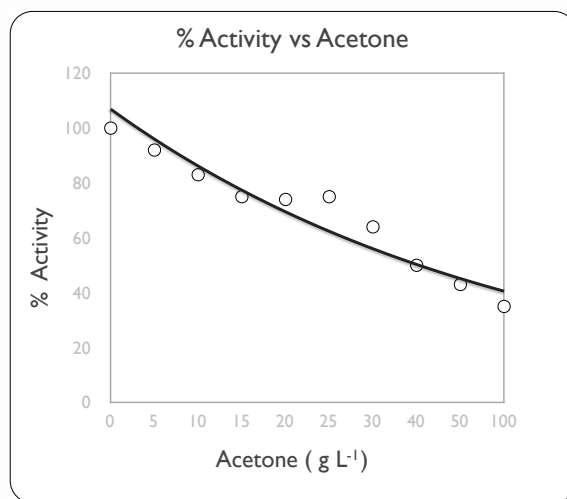
Response of SciTOX ALPHA to Cr³⁺ ions



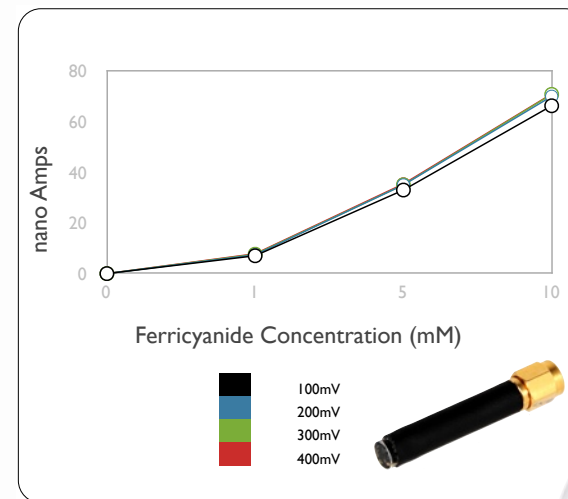
Response of SciTOX ALPHA to DCP standard



Response of SciTOX ALPHA to Cu²⁺ ions



Response of SciTOX ALPHA to Acetone



SciTOX Electrodes Stability Profile



SciTOX ALPHA ANALYZER BASIC SPECIFICATIONS**

The SciTOX ALPHA is a single sample toxicity analyzer. The analyzer is comprised of three main units: the Monitor and Control Platform, the Sample Platform, and the Analytical Sensor.



Chemistry:	Electron Transfer via reduction of a Potassium Ferricyanide mediator due to metabolism by indigenous bacteria.	
Analytical Modes:	Toxicity (TOX)	
Analytical: *	Calibration Range, Using 3, 5 – Dichlorophenol (DCP) standard: 0-100 mg/l	
	Minimum detection limit based on DCP standard: 20 mg/l	
	Precision: < 5% CV *	
	Inhibition Coefficient: 30-40%, based on 30 mg/l DCP standard *	
	EC ₅₀ Determination, based on 30 mg/l DCP standard: * 16.35 mg/l (±2.16) average	
	Sample Volume: 400 µl Inoculum volume: 400 µl Reagent Volume: 100 µl	
	* Analytical performance will be affected by the source and age of bacterial inoculum and its cell concentration and type, as well as temperature of the actual sample environment, and the number of replicates (three in this analysis) used.	
Complete Process and Analysis Time:	15 minutes for complete TOX analysis including sample incubation. Measurement itself takes twenty (20) seconds, and is average of three separate readings, each integrating 64 measurements over a one second period.	
Principle Applications:	Domestic Wastewater Treatment Plants (WWTP), Industrial Trade Waste contributors to WWTP influent, and other water and environmental quality applications	
Official Methods: †	None based on this analytical method.	
	† This is an indicative test to improve operational control at the WWTP; it is not for regulatory reporting.	
Certifications:	ASNZS, UL, FCC, CSA, IEC, IEC 60950-1, ANSI/UL 61010-1-2005 2nd Edition 7/14/04	
	EMC EN61326-1:2006 Class A	
	CAN/USA C22.2 #61010-1 2nd Edition 7/14/04	
	RoHS Compliant	
Utility Requirements:	Voltage: 100/120/230 VAC (±10%)	
	Frequency: 50/60 Hz	
	Power to Analyzer: Analyzer operates on 12V DC jack from transformer (included); typical consumption 8W, stand-by is less than 1W.	
Chassis:	Cast and machined Aluminium, powder-coated, with embedded anti-bacterial treatment.	
Temperature:	Operating: 0°C - 40°C / Storage: (-20°) - 85°C	
Size:	Monitor and Control Platform: 242 mm x 183.4 mm x 40 mm	Sample Platform: 222 mm X 90 mm X 66 mm
Shipping Weight:	3.5 Kg for analyzer, plus 2 Kg for shipping materials.	

** Full specifications are available from www.SciTOX.com