

READY TO USE KIT FOR ACUTE TOXICITY

We have created a kit for EasyChem TOX Early Warning; the kit has been developed, tested and validated by our application laboratory to guarantee the perfect stability and reproducibility of toxicity assays.

Each kit includes:

- Rehydration buffer
- Reagent A (set of lyophilized bacteria vials)
- Acute test buffer
- Positive controls: ZnSO₄ and/or HgCl₂

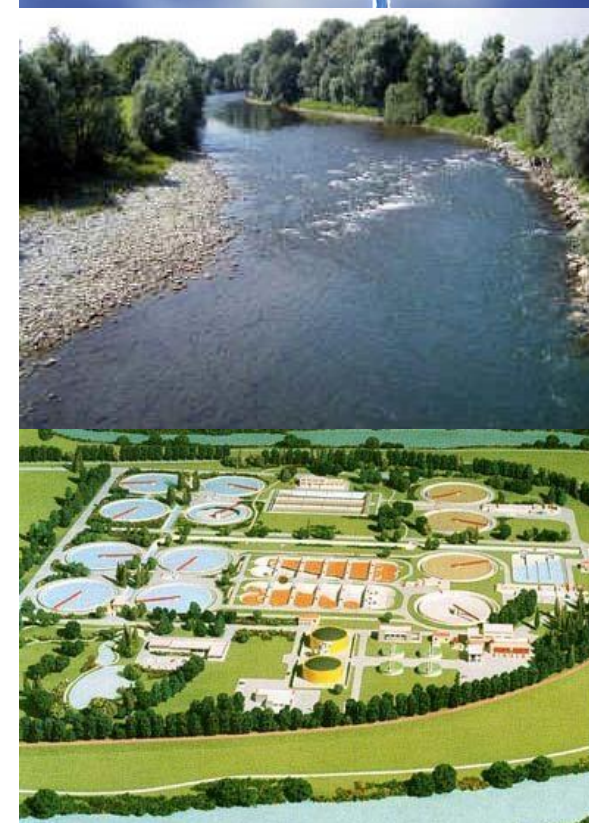


Technical Data

Technology	On Line Real Time Toxicity trend- DAMTA* *Device for Analytical Monitoring and Toxicity Assessment
Detector & Reading	High sensitivity Luminometer - Direct reading
Reaction microcuvettes	80, reusable after washing and QC check; 6.0 mm
Reaction plate temperature	15 to 25 °C adjustable, accuracy: +/- 0.1 °C
Level sensors	Sample/Reagents/Waste
Sample requirement	100-200 mL/h at ambient pressure
Sample/Ambient temperature	Sample: 5 to 35 °C; Ambient: 5 to 28 °C; Relative Humidity at 28°C <40%
Power supply	110/230 Vac, 50/60 Hz
Power consumption	400 W
Dimensions/Weight	160 (H) x 80 (W) x 50 (D) cm/ 100 Kg w/o reagents
PC and Software	Integrated Touch Screen PC panel, dedicated software
Ethernet port	Standard
FTP Data transmission	Standard from Ethernet port or with optional 3G Modem
GPRS data transmission	With optional 3G Modem
Analog output	4-20 mA - optional
Digital outputs - Alarm	Optional
Reagents	Freeze-dried bacteria vials: on-line rehydration and use Assay buffers & Positive controls: ready to use
Refrigerated reagent tray	Yes, standard
Calibration interval	Positive control check - programmable
Reagent replacement	30 days @ max frequency; @ lower frequencies reagent replacement up to 3 months
Sampling	Continuous in sample pot, 2 minute moving average
Measurement Frequency	Programmable; max frequency: 2.5 minutes
Response time to events	Min 60 sec - Max 150 sec
Analysis time to final result	From 1 up to 15/30 minutes, according to sample toxicity
Real time calculation	Real time calculation of all parameters required by UNI EN ISO 11348-3 and GB-T 15441
Blanks (Validation for false negatives & positives)	Programmable up to one blank per each sample
Sample replicate & Positive control (Validation for false positives)	Programmable after any toxicity warning The analyzer runs a new sample with up to 5 dilutions, a positive control, and calculates EC50 in case of toxicity greater then a predefined threshold

* PATENTED

Subject to change without notice



EASYCHEM TOX EARLY WARNING

ON LINE ANALYZER OF REAL TIME ACUTE TOXICITY TREND IN WATER

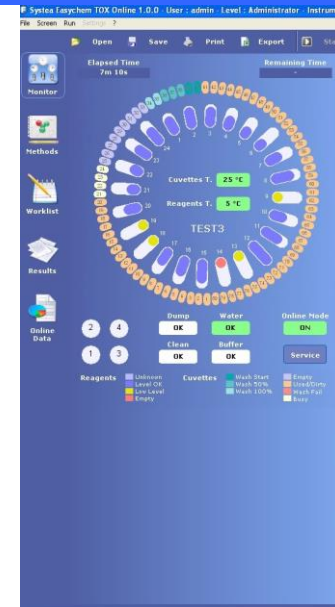


SYSTEAL SpA
Administration and Production: Via Fratta Rotonda Vado Largo, 2/A
03012 ANAGNI (FR)
Tel. (+39) 0775.776058 - Fax (+39) 0775.772204
e mail: info@systea.it
Web site: <http://www.systea.it>

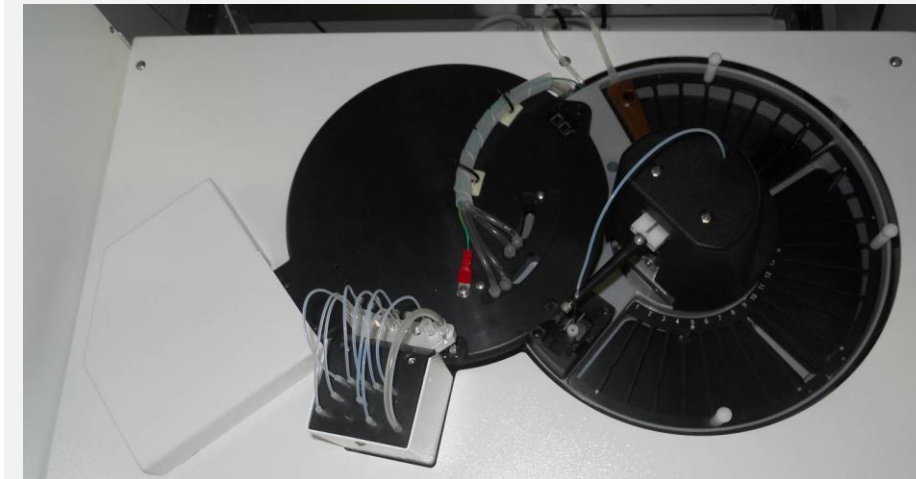
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SOFTWARE

- Continuous monitoring of the analyzer status and operation
- Reagent level monitoring and warnings
- Liophilized bacteria on board at low temperature
- Automated bacteria rehydration
- Reaction cuvette washing and QC check before reuse
- Reagents and reaction cuvette temperature monitoring
- Waste level monitoring
- Result database
- Result report with data validation
- Automatic warning and alarm generation



EASYCHEM TOX EARLY WARNING ON LINE ANALYZER OF REAL TIME ACUTE TOXICITY TREND IN WATER



EasyChem TOX Early Warning, the result of years of intensive R&D activity based on DAMTA* analytical technology, is an original direct reading analyzer for fully automated continuous acute toxicity measurements of water samples using live cultures of luminescent bacteria.

EASYCHEM TOX Early Warning is an on line discrete automated analyzer equipped with color touchscreen LCD and housed in an industrial cabinet, including:

- Refrigerated compartment for liophilized bacteria, reagents, calibrants and controls
- Mechanical arm to allow aspiration, transfer and dispensing of reagents and samples
- Bacteria rehydration system
- Reaction plate, temperature controlled with n. 80 reaction cuvettes
- Cuvette wash station and quality check before reuse
- Integrated high sensitivity luminometer.

Samples, conditioning buffer and bacteria are transferred through a high precision microsyringe inside the reaction cuvette, where luminescence emission is constantly monitored; toxicity events can be identified within 60 sec from sampling.

CONTROL ANALYSIS

- The analyzer is programmed to perform inhibition test of any of the positive controls required by UNI EN ISO 11348-3 and GB-T 15441

- All measurements of blanks and controls at the required concentration can be performed in duplicate.

LUMINESCENT BACTERIA

- Proprietary bioluminescent bacteria have been selected, grown, stabilized and liophilized according to standard methods
- Rehydrated cultures last up to ten days
- High sensitivity to different types of reference compounds defined in ISO and GB-T standards, such as zinc sulfate and mercury chloride
- Up to 16 liophilized vials on board to be rehydrated and used when necessary, thus enabling up to one month of unattended operation at 2.5 minute analytical frequency.

UNATTENDED TOXICITY MONITORING

- Programmable timing and frequency of analytical cycles
- Programmable quality control, limits and parameters.
- Toxicity alert within 60 seconds from sampling
- Real time toxicity trend continuously monitored from 1 up to 15/30 minutes from sampling
- Programmable measurement of blanks and positive controls to validate results
- During result validation, sample runs are not interrupted.

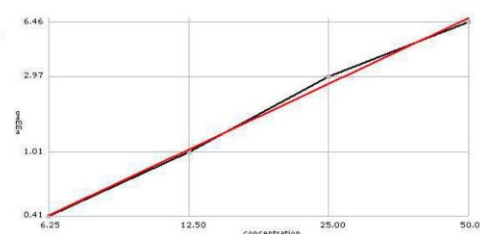
FILTRATION

In case of high turbidity samples, it is available a unique 0.1 µm self-cleaning filtration, fully managed by the EasyChem TOX Early Warning.

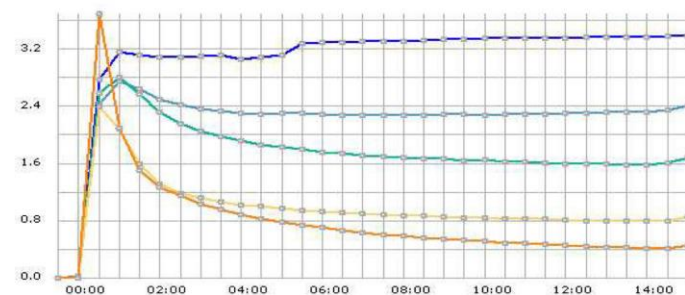
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Sample Name: Zinco11.73

Sample Name: **Zinco11.73**
Exec Date: **2017-08-01 10:11:52**
Method: **RTEST**
EC20: **4.32**
EC50: **12.05**
Inhibition: **86.60**



	Average	Deviation %	Inhibition 5' %	Inhibition 15' %	Final Inhibition %
Blank	3.4	10.8	0.0	0.0	0.0
1/16	2.4	0.2	26.2	29.0	29.0
1/8	1.7	3.1	41.2	50.3	50.3
1/4	0.9	4.5	68.9	74.8	74.8
1/2	0.5	2.9	75.1	86.6	86.6
EC20			4.42	4.32	4.32
			1.18-7.65	0.35-8.29	0.35-8.29
EC50			15.72	12.05	12.05
			14.13-17.32	9.92-14.19	9.92-14.19
TU			6.4	8.3	8.3
					R2: 0.998



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